Union Calendar No. 123

109TH CONGRESS
1ST 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

[For text of introduced bill, see copy of bill as introduced on February 8, 2005]

A BILL

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

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

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

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

SEC. 2. DEFINITIONS.

For purposes of this Act:

(1) APPLIED PROGRAMS.—The term "applied programs" means the research, development, demonstration, and commercial application programs of the Department concerning energy efficiency, renewable energy, nuclear energy, fossil energy, and electricity transmission and distribution.

(2) BIOMASS.—The term "biomass" means—

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

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

(C) any waste material that can be converted to energy, is segregated from other waste materials, and is derived from—

(i) any of the following forest-related resources: mill residues, precommercial thinnings, slash, brush, or otherwise nonmerchantable material; or

(ii) wood waste materials, including waste pallets, crates, dunnage, manufacturing and construction wood wastes (other than pressure-treated, chemically-treated, or painted wood wastes), and landscape or right-of-way tree trimmings, but not including municipal solid waste, gas derived from the biodegradation of municipal solid waste, or paper that is commonly recycled.

(3) DEPARTMENT.—The term "Department" means the Department of Energy.

(4) DEPARTMENTAL MISSION.—The term "departmental mission" means any of the functions vested in the Secretary of Energy by the Department of Energy Organization Act (42 U.S.C. 7101 et seq.) or other law.

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

(6) NATIONAL LABORATORY.—The term "National Laboratory" means any of the following laboratories owned by the Department:

(A) Ames Laboratory.

(B) Argonne National Laboratory.

(C) Brookhaven National Laboratory.

(D) Fermi National Accelerator Laboratory.

(E) Idaho National Laboratory.

(F) Lawrence Berkeley National Laboratory.

(G) Lawrence Livermore National Laboratory.

(H) Los Alamos National Laboratory.

(I) National Energy Technology Laboratory.

(J) National Renewable Energy Laboratory.

(K) Oak Ridge National Laboratory.

(L) Pacific Northwest National Laboratory.

(M) Princeton Plasma Physics Laboratory.

(N) Sandia National Laboratories.

(O) Savannah River National Laboratory.

(P) Stanford Linear Accelerator Center.

(Q) Thomas Jefferson National Accelerator Facility.

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

(8) SECRETARY.—The term "Secretary" means the Secretary of Energy.

(9) STATE.—The term "State" means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, and any other commonwealth, territory, or possession of the United States.

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

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

TITLE I—SCIENCE PROGRAMS

SEC. 101. OFFICE OF SCIENCE PROGRAMS.

(a) IN GENERAL.—The Secretary shall conduct, through the Office of Science, programs of research, development, demonstration, and commercial application in high energy physics, nuclear physics, biological and environmental research, basic energy sciences, advanced scientific computing research, and fusion energy sciences, including activities described in this title. The programs shall include support for facilities and infrastructure, education, outreach, information, analysis, and coordination activities.

(b) RARE ISOTOPE ACCELERATOR.—

(1) ESTABLISHMENT.—The Secretary shall construct and operate a Rare Isotope Accelerator. The Secretary shall commence construction no later than September 30, 2008.

(2) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary such sums as may be necessary to carry out this subsection. The Secretary shall not spend more than $1,100,000,000 in Federal funds for all activities associated with the Rare Isotope Accelerator prior to operation.

SEC. 102. SYSTEMS BIOLOGY PROGRAM.

(a) PROGRAM.—

(1) ESTABLISHMENT.—The Secretary shall establish a research, development, and demonstration program in genetics, protein science, and computational biology to support the energy, national security, and environmental missions of the Department.

(2) GRANTS.—The program shall support individual researchers and multidisciplinary teams of researchers through competitive, merit-reviewed grants.

(3) CONSULTATION.—In carrying out the program, the Secretary shall consult with other Federal agencies that conduct genetic and protein research.

(b) GOALS.—The program shall have the goal of developing technologies and methods based on the biological functions of genomes, microbes, and plants that—

(1) can facilitate the production of fuels, including hydrogen;

(2) convert carbon dioxide to organic carbon;

(3) detoxify soils and water, including at Departmental facilities, contaminated with heavy metals and radiological materials; and

(4) address other Department missions as identified by the Secretary.

(c) PLAN.—

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

retary shall prepare and transmit to Congress a research plan describing how the program authorized pursuant to this section will be undertaken to accomplish the program goals established in subsection (b).

(2) REVIEW OF PLAN.—The Secretary shall contract with the National Academy of Sciences to review the research plan developed under this subsection. The Secretary shall transmit the review to Congress not later than 18 months after transmittal of the research plan under paragraph (1), along with the Secretary's response to the recommendations contained in the review.

(d) USER FACILITIES AND ANCILLARY EQUIPMENT.—Within the funds authorized to be appropriated pursuant to this title, the amounts specified under section 110(b)(1), (c)(1), (d)(1), (e)(1), and (f)(1) shall be available for projects to develop, plan, construct, acquire, or operate special equipment, instrumentation, or facilities, including user facilities, for researchers conducting research, development, demonstration, and commercial application in systems biology and proteomics and associated biological disciplines.

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

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

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

(A) on human cells or human subjects; or

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

SEC. 103. CATALYSIS RESEARCH AND DEVELOPMENT PROGRAM.

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

(1) enable molecular-level catalyst design by coupling experimental and computational approaches;

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

(3) synthesize catalysts with specific site architectures.

(b) PROGRAM ACTIVITIES.—In carrying out the program under this section, the Secretary shall—

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

(2) develop, plan, construct, acquire, or operate special equipment or facilities, including user facilities;

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

(4) coordinate research and development activities with industry and other Federal agencies.

SEC. 104. HYDROGEN.

The Secretary shall conduct a program of fundamental research and development in support of programs authorized in title VII of this Act.

SEC. 105. ADVANCED SCIENTIFIC COMPUTING RESEARCH.

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

SEC. 106. FUSION ENERGY SCIENCES PROGRAM.

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

onstration, and commercial application to provide for the scientific, engineering, and commercial infrastructure necessary to ensure that the United States is competitive with other nations in providing fusion energy for its own needs and the needs of other nations, including by demonstrating electric power or hydrogen production for the United States energy grid utilizing fusion energy at the earliest date possible.

(b) PLANNING.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Secretary shall transmit to Congress a plan, with proposed cost estimates, budgets, and lists of potential international partners, for the implementation of the policy described in subsection (a). The plan shall ensure that—

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

(B) fusion science, technology, theory, advanced computation, modeling, and simulation are strengthened;

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

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

(D) communication of scientific results and methods between the fusion energy science community and the broader scientific and technology communities is improved;

(E) inertial confinement fusion facilities are utilized to the extent practicable for the purpose of inertial fusion energy research and development; and

(F) attractive alternative inertial and magnetic fusion energy approaches are more fully explored.

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

(A) the design and implementation of international or national facilities for the testing of fusion materials; and

(B) the design and implementation of international or national facilities for the testing and development of key fusion technologies.

(c) UNITED STATES PARTICIPATION IN ITER.—

(1) IN GENERAL.—The United States may participate in ITER only in accordance with this subsection.

(2) AGREEMENT.—

(A) IN GENERAL.—The Secretary is authorized to negotiate an agreement for United States participation in ITER.

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

(i) clearly define the United States financial contribution to construction and operating costs, as well as any other costs associated with the project;

(ii) ensure that the share of ITER's high-technology components manufactured in the United States is at least proportionate to the United States financial contribution to ITER;

(iii) ensure that the United States will not be financially responsible for cost overruns in components manufactured in other ITER participating countries;

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

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

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

(vii) describe the process for discontinuing or decommissioning ITER and any United States role in that process.

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

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

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

(B) a report describing the management structure of ITER and providing a fixed dollar estimate of the cost of United States participation in the construction of ITER, and 120 days have elapsed since that transmission;

(C) a report describing how United States participation in ITER will be funded without reducing funding for other programs in the Office of Science, including other fusion programs, and 60 days have elapsed since that transmission; and

(D) the plan required by paragraph (3) (but not the National Academy of Sciences review of that plan), and 60 days have elapsed since that transmission.

(5) ALTERNATIVE TO ITER.—If at any time during the negotiations on ITER, the Secretary determines that construction and operation of ITER is unlikely or infeasible, the Secretary shall send to Congress, as part of the budget request for the following year, a plan for implementing a domestic burning plasma experiment including costs and schedules for

such a plan. The Secretary shall refine such plan in full consultation with the Fusion Energy Sciences Advisory Committee and shall also transmit such plan to the National Academy of Sciences for review.

(6) DEFINITIONS.—In this subsection:

(A) CONSTRUCTION.— The term "construction" means the physical construction of the ITER facility, and the physical construction, purchase, or manufacture of equipment or components that are specifically designed for the ITER facility, but does not mean the design of the facility, equipment, or components.

(B) ITER.—The term "ITER" means the international burning plasma fusion research project in which the President announced United States participation on January 30, 2003, or any similar international project.

SEC. 107. SCIENCE AND TECHNOLOGY SCHOLARSHIP PROGRAM.

(a) ESTABLISHMENT OF PROGRAM.—

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

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

(3) SERVICE AGREEMENTS.—To carry out the Program the Secretary shall enter into contractual agreements with individuals selected under paragraph (2) under which the individuals agree to serve as full-time employees of the Department, for the period described in subsection (f)(1), in positions needed by the Department and for which the individuals are qualified, in exchange for receiving a scholarship.

(b) SCHOLARSHIP ELIGIBILITY.—In order to be eligible to participate in the Program, an individual must—

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

(2) be a United States citizen; and

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

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

(d) ELIGIBLE ACADEMIC PROGRAMS.—The Secretary shall make publicly available a list of academic programs and fields of study for which scholarships under the Program may be utilized, and shall update the list as necessary.

(e) SCHOLARSHIP REQUIREMENT.—

(1) IN GENERAL.—The Secretary may provide a scholarship under the Program for an academic year if the individual applying for the scholarship has submitted to the Secretary, as part of the application required under subsection (c), a proposed academic program leading to a degree in a program or field of study on the list made available under subsection (d).

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

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

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

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

(f) PERIOD OF OBLIGATED SERVICE.—

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

(2) SCHEDULE FOR SERVICE.—

(A) IN GENERAL.—Except as provided in subparagraph (B), obligated service under paragraph (1) shall begin not later than 60 days after the individual obtains the educational degree for which the scholarship was provided.

(B) DEFERRAL.—The Secretary may defer the obligation of an individual to provide a period of service under paragraph (1) if the Secretary determines that such a deferral is appropriate. The Secretary shall prescribe the terms and conditions under which a service obligation may be deferred through regulation.

(g) PENALTIES FOR BREACH OF SCHOLARSHIP AGREEMENT.—

(1) FAILURE TO COMPLETE ACADEMIC TRAINING.—Scholarship recipients who fail to maintain a high level of academic standing, as defined by the Secretary by regulation, who are dismissed from their educational institutions for disciplinary reasons, or who voluntarily terminate academic training before graduation from the educational program for which the scholarship was awarded, shall be in breach of their contractual agreement and, in lieu of any service obligation arising under such agreement, shall be liable to the United States for repayment not later

than 1 year after the date of default of all scholarship funds paid to them and to the institution of higher education on their behalf under the agreement, except as provided in subsection (h)(2). The repayment period may be extended by the Secretary when determined to be necessary, as established by regulation.

(2) FAILURE TO BEGIN OR COMPLETE THE SERVICE OBLIGATION OR MEET THE TERMS AND CONDITIONS OF DEFERMENT.—A scholarship recipient who, for any reason, fails to begin or complete a service obligation under this section after completion of academic training, or fails to comply with the terms and conditions of deferment established by the Secretary pursuant to subsection (f)(2)(B), shall be in breach of the contractual agreement. When a recipient breaches an agreement for the reasons stated in the preceding sentence, the recipient shall be liable to the United States for an amount equal to—

(A) the total amount of scholarships received by such individual under this section; plus

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

as determined by the Treasurer of the United States,

multiplied by 3.

(h) WAIVER OR SUSPENSION OF OBLIGATION.—

(1) DEATH OF INDIVIDUAL.—Any obligation of an individual incurred under the Program (or a contractual agreement thereunder) for service or payment shall be canceled upon the death of the individual.

(2) IMPOSSIBILITY OR EXTREME HARDSHIP.—The Secretary shall by regulation provide for the partial or total waiver or suspension of any obligation of service or payment incurred by an individual under the Program (or a contractual agreement thereunder) whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be contrary to the best interests of the Government.

(i) DEFINITIONS.—In this section the following definitions apply:

(1) COST OF ATTENDANCE.—The term "cost of attendance" has the meaning given that term in section 472 of the Higher Education Act of 1965 (20 U.S.C. 1087ll).

(2) PROGRAM.—The term "Program" means the Science and Technology Scholarship Program established under this section.

SEC. 108. OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.

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

SEC. 109. SCIENCE AND ENGINEERING PILOT PROGRAM.

(a) ESTABLISHMENT OF CONSORTIUM.—Notwithstanding section 203, the Secretary shall award a grant to Oak Ridge Associated Universities to establish a university consortium to carry out a regional pilot program for enhancing scientific, technological, engineering, and mathematical literacy, creativity, and decisionmaking. The consortium shall include leading research universities, one or more universities that train substantial numbers of elementary and secondary school teachers, and, where appropriate, National Laboratories.

(b) PROGRAM ELEMENTS.—The program shall include—

(1) expanding strategic, formal partnerships among universities with strength in research, universities that train substantial numbers of elementary and secondary school teachers, and the private sector;

(2) combining Department expertise with one or more National Aeronautics and Space Administration Educator Resource Centers;

(3) developing programs to permit current and future teachers to participate in ongoing research projects at National Laboratories and research universities and to adapt lessons learned to the classroom;

(4) designing and implementing course work;

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

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

(c) REPORT.—Not later than 2 years after appropriations are first available for the program, the Secretary shall transmit to Congress a report outlining lessons learned and containing a plan for expanding the program nationwide. The Secretary may begin implementation of such plan for expansion of the program on October 1, 2008. The expansion of the program shall be subject to section 203.

SEC. 110. AUTHORIZATION OF APPROPRIATIONS.

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

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

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

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

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

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

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

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

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

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

(3) FUSION ENERGY SCIENCES.—For activities under section 106, excluding activities under subsection (c) of that section, $335,000,000.

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

(5) OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.—For activities under section 108, $7,000,000.

(6) PILOT PROGRAM.—For activities under section 109, $4,000,000.

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

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

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

(3) FUSION ENERGY SCIENCES.—For activities under section 106, excluding activities under subsection (c) of that section, $349,000,000.

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

(5) OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.—For activities under section 108, $7,500,000.

(6) PILOT PROGRAM.—For activities under section 109, $4,000,000.

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

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

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

(3) FUSION ENERGY SCIENCES.—For activities under section 106, excluding activities under subsection (c) of that section, $362,000,000.

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

(5) OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.—For activities under section 108, $8,000,000.

(6) PILOT PROGRAM.—For activities under section 109, $4,000,000.

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

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

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

(3) FUSION ENERGY SCIENCES.—For activities under section 106, excluding activities under subsection (c) of that section, $377,000,000.

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

(5) OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.—For activities under section 108, $8,000,000.

(6) PILOT PROGRAM.—For activities under section 109, $8,000,000.

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

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

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

(3) FUSION ENERGY SCIENCES.—For activities under section 106, excluding activities under subsection (c) of that section, $393,000,000.

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

(5) OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION.—For activities under section 108, $8,500,000.

(6) PILOT PROGRAM.—For activities under section 109, $8,000,000.

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

there are authorized to be appropriated to the Secretary such sums as may be necessary for ITER construction, consistent with the limitations of section 106(c).

TITLE II—RESEARCH ADMINISTRATION AND OPERATIONS

SEC. 201. COST SHARING.

(a) RESEARCH AND DEVELOPMENT.—Except as otherwise provided in this Act, for research and development programs carried out under this Act, the Secretary shall require a commitment from non-Federal sources of at least 20 percent of the cost of the project. The Secretary may reduce or eliminate the non-Federal requirement under this subsection if the Secretary determines that the research and development is of a basic or fundamental nature.

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

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

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

SEC. 202. REPROGRAMMING.

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

(b) REPROGRAMMING LETTER.—No amount authorized by this Act shall be obligated or expended for a purpose inconsistent with the appropriations Act appropriating such amount, the report accompanying such appropriations Act, or a distribution report transmitted under subsection (a) if such obligation or expenditure would change an individual amount, as represented in such an Act, report, or distribution report, by more than 2 percent or $2,000,000, whichever is smaller, unless the Secretary has transmitted to Congress a letter of explanation and a period of 30 days has elapsed after Congress receives the letter.

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

SEC. 203. MERIT-BASED COMPETITION.

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

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

(1) Institutions of higher education.

(2) National Laboratories.

(3) Nonprofit and for-profit private entities.

(4) State and local governments.

(5) Consortia of entities described in paragraphs (1) through (4).

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

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

(d) WAIVERS.—The Secretary may waive the requirement under subsection (a) requiring competition if the Secretary considers it necessary to more quickly advance research, development, demonstration, or commercial application activities. The Secretary shall notify Congress within 30 days when a waiver is granted under this subsection. The Secretary may not delegate the waiver authority under this subsection for awards over $500,000.

SEC. 204. EXTERNAL TECHNICAL REVIEW OF DEPARTMENTAL PROGRAMS.

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

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

(A) Energy efficiency.

(B) Renewable energy.

(C) Nuclear energy.

(D) Fossil energy.

(2) EXISTING ADVISORY COMMITTEES.—The Secretary may designate an existing advisory committee

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

(b) OFFICE OF SCIENCE ADVISORY COMMITTEES.—

(1) USE OF EXISTING COMMITTEES.—Except as otherwise provided under the Federal Advisory Committee Act, the Secretary shall continue to use the scientific program advisory committees chartered under the Federal Advisory Committee Act (5 U.S.C. App.) by the Office of Science to oversee research and development programs under that Office.

(2) REPORT.—Before the Department issues any new guidance regarding the membership for Office of Science scientific program advisory committees, the Secretary shall transmit a report to the Congress outlining the reasons for the proposed changes, and 60 days must have elapsed after transmittal of the report before the Department may implement those changes.

(3) SCIENCE ADVISORY COMMITTEE.—

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

(B) RESPONSIBILITIES.—The Science Advisory Committee shall—

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

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

(iii) advise the Director of the Office of Science with respect to education and workforce training activities required for effective short-term and long-term basic and applied research activities of the Office of Science; and

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

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

(d) MEETINGS AND PURPOSES.—Each advisory committee under this section shall meet at least semiannually

to review and advise on the progress made by the respective research, development, demonstration, and commercial application program or programs. The advisory committee shall also review the measurable cost and performance-based goals for the applied programs, and the progress on meeting such goals.

(e) REVIEW AND ASSESSMENT.—Not later than 6 months after the date of enactment of this Act, the Secretary shall enter into arrangements with the National Academy of Sciences to conduct reviews and assessments of the programs authorized by this Act, the measurable cost and performance-based goals for the applied programs, and the progress in meeting such goals. Such reviews and assessments shall be completed and reports containing the results of all such reviews and assessments transmitted to the Congress not later than 2 years after the date of enactment of this Act.

SEC. 205. COMPETITIVE AWARD OF MANAGEMENT CONTRACTS.

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

The Secretary may not delegate the authority to grant such a waiver and shall submit to the Congress a report notifying it of the waiver, and setting forth the reasons for the waiver, at least 60 days prior to the date of the award of such contract.

SEC. 206. NATIONAL LABORATORY DESIGNATION.

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

SEC. 207. REPORT ON EQUAL EMPLOYMENT OPPORTUNITY PRACTICES.

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

(1) a thorough review of each laboratory contractor's equal employment opportunity policies, including promotion to management and professional positions and pay raises;

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

(3) a description of how equal employment opportunity practices at the laboratories are treated in

the contract and in calculating award fees for each contractor;

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

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

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

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

SEC. 208. USER FACILITY BEST PRACTICES PLAN.

The Secretary shall not allow any Department facility to begin functioning as a user facility after the date of enactment of this Act until the Secretary, for that facility—

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

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

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

(C) be operated in a safe and fiscally prudent manner; and

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

SEC. 209. SUPPORT FOR SCIENCE AND ENERGY INFRASTRUCTURE AND FACILITIES.

(a) STRATEGY.—The Secretary shall develop and implement a strategy for infrastructure and facilities supported primarily from the Office of Science and the applied programs at each National Laboratory and Department research facility. Such strategy shall provide cost-effective means for—

(1) maintaining existing facilities and infrastructure, as needed;

(2) closing unneeded facilities;

(3) making facility modifications; and

(4) building new facilities.

(b) REPORT.—

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

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

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

(A) the current priority list of proposed facilities and infrastructure projects, including cost and schedule requirements;

(B) a current 10-year plan that demonstrates the reconfiguration of its facilities and infrastructure to meet its missions and to address its long-term operational costs and return on investment;

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

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

SEC. 210. COORDINATION PLAN.

(a) IN GENERAL.—The Secretary shall develop a coordination plan to improve coordination and collaboration in research, development, demonstration, and commercial application activities across Department organizational boundaries.

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

(1) how the Secretary will ensure that the applied programs are coordinating their activities, including a description of specific research questions

that cross organizational boundaries and of how the relevant applied programs are coordinating their efforts to answer those questions, and how such cross-cutting research questions will be identified in the future;

(2) how the Secretary will ensure that research that has been supported by the Office of Science is being or will be used by the applied programs, including a description of specific Office of Science-supported research that is relevant to the applied programs and of how the applied programs have used or will use that research; and

(3) a description of how the Secretary will ensure that the research agenda of the Office of Science includes research questions of concern to the applied programs, including a description of specific research questions that the Office of Science will address to assist the applied programs.

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

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

a conference of program managers from the Office of Science and the applied programs to review ideas and explore possibilities for effective cross-program collaboration. The Secretary also shall invite participation relevant Federal agencies and other programs in the Federal Government conducting relevant research, and other stakeholders as appropriate.

SEC. 211. AVAILABILITY OF FUNDS.

Funds appropriated to the Secretary for activities authorized under this Act shall remain available for three years. Funds that are not obligated at the end of three years shall be returned to the Treasury.

TITLE III—ENERGY EFFICIENCY

Subtitle A—Vehicles, Buildings, and Industries

SEC. 301. PROGRAMS.

(a) IN GENERAL.—The Secretary shall conduct programs of energy efficiency research, development, demonstration, and commercial application, including activities described in this subtitle. Such programs shall be focused on the following objectives:

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

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

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

(4) Improving the Nation's energy security.

(5) Reducing the environmental impact of energy-related activities.

(b) GOALS.—

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

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

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

pared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

(c) PUBLIC INPUT.—The Secretary shall consider advice from industry, universities, and other interested parties through seeking comments in the Federal Register and other means before transmitting each report under subsection (b).

SEC. 302. VEHICLES.

The Secretary shall conduct a program of research, development, demonstration, and commercial application of advanced, cost-effective technologies to improve the energy efficiency and environmental performance of light-duty and heavy-duty vehicles, including—

(1) hybrid and electric propulsion systems, including plug-in hybrid systems;

(2) advanced engines, including combustion engines;

(3) advanced materials, including high strength, lightweight materials, such as nanostructured materials, composites, multimaterial parts, carbon fibers, and materials with high thermal conductivity;

(4) technologies for reduced drag and rolling resistance;

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

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

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

(7) advanced drivetrains.

SEC. 303. BUILDINGS.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application of cost-effective technologies, for new construction and retrofit, to improve the energy efficiency and environmental performance of commercial, industrial, institutional, and residential buildings. The program shall use a whole-buildings approach, integrating work on elements including—

(1) advanced controls, including occupancy sensors, daylighting controls, wireless technologies, automated responses to changes in the internal and external environment, and real time delivery of information on building system and component performance;

(2) building envelope, including windows, roofing systems and materials, and building-integrated photovoltaics;

(3) building systems components, including—

(A) lighting;

(B) appliances, including advanced technologies, such as stand-by load technologies, for office equipment, food service equipment, and laundry equipment; and

(C) heating, ventilation, and cooling systems, including ground-source heat pumps and radiant heating; and

(4) onsite renewable energy generation.

(b) ENERGY EFFICIENT BUILDING PILOT GRANT PROGRAM.—

(1) IN GENERAL.—Not later than 6 months after the date of enactment of this Act, the Secretary shall establish a pilot program to award grants to businesses and organizations for new construction of energy efficient buildings, or major renovations of buildings that will result in energy efficient buildings, to demonstrate innovative energy efficiency technologies, especially those sponsored by the Department.

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

(A) best demonstrate—

(i) likelihood to meet or exceed the design standards referred to in paragraph (7);

(ii) likelihood to maximize cost-effective energy efficiency opportunities; and

(iii) advanced energy efficiency technologies; and

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

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

(4) GRANT PAYMENTS.—

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

(B) REMAINDER OF PAYMENT.—The Secretary shall pay the remaining 50 percent of the grant only after independent certification of operational buildings for compliance with the standards for energy efficient buildings described in paragraph (7).

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

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

(5) REPORT TO CONGRESS.—Not later than 3 years after awarding the first grant under this subsection, the Secretary shall transmit to Congress a report containing—

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

(B) an estimate of aggregate cost and energy savings enabled by the pilot program under this subsection.

(6) ADMINISTRATIVE EXPENSES.—Administrative expenses for the program under this subsection shall not exceed 10 percent of appropriated funds.

(7) DEFINITION OF ENERGY EFFICIENT BUILDING.—For purposes of this subsection, the term "energy efficient building" means a building that is independently certified—

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

(B) to achieve a reduction in energy consumption of—

(i) at least 25 percent for new construction, compared to the energy standards set by the Federal Building Code (10 CFR part 434); and

(ii) at least 20 percent for major renovations, compared to energy consumption before renovations are begun.

(c) STANDARDIZATION REPORT AND PROGRAM.—

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

(A) conduct a comprehensive assessment of how well current voluntary consensus standards related to buildings match state-of-the-art knowledge on the design, construction, operation, repair, and renovation of high-performance buildings; and

(B) recommend steps for the Secretary to take to accelerate the development and promulgation of voluntary consensus standards for high-performance buildings that would address all major high-performance building attributes, in-

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

(2) PROGRAM.—After receiving the report under paragraph (1), the Secretary shall establish a program of technical assistance and grants to support standards development organizations in—

(A) the revision of existing standards, to reflect current knowledge of high-performance buildings; and

(B) the development and promulgation of new standards in areas important to high-performance buildings where there is no existing standard or where an existing standard cannot easily be modified.

SEC. 304. INDUSTRIES.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application of advanced technologies to improve the energy efficiency, environmental performance, and process efficiency of energy-intensive and waste-intensive industries. Such program shall be focused on industries whose total annual energy consumption amounts to more than 1.0 percent of the total nationwide annual energy consumption, according to the most recent data available to the Department. Research and development efforts under this section shall

give a higher priority to broad-benefit efficiency technologies that have practical application across industry sectors.

(b) ELECTRIC MOTOR CONTROL TECHNOLOGY.—The program conducted under subsection (a) shall include research on, and development, demonstration, and commercial application of, advanced control devices to improve the energy efficiency of electric motors, including those used in industrial processes, heating, ventilation, and cooling.

SEC. 305. DEMONSTRATION AND COMMERCIAL APPLICATION.

(a) APPLIANCES AND TESTING.—The Secretary shall conduct research and analysis to determine whether, given Department-sponsored and other advances in energy efficiency technologies, demonstration and commercial application of innovative, cost-effective energy savings and pollution reducing technologies could be used to improve appliances and test procedures used to measure appliance efficiency.

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

and adoption of newly developed energy production and use equipment.

(c) ADVANCED ENERGY TECHNOLOGY TRANSFER CENTERS.—

(1) GRANTS.—Not later than 18 months after the date of enactment of this Act, the Secretary shall make grants to nonprofit institutions, State and local governments, or universities (or consortia thereof), to establish a geographically dispersed network of Advanced Energy Technology Transfer Centers, to be located in areas the Secretary determines have the greatest need of the services of such Centers.

(2) ACTIVITIES.—

(A) IN GENERAL.—Each Center shall operate a program to encourage demonstration and commercial application of advanced energy methods and technologies through education and outreach to building and industrial professionals, and to other individuals and organizations with an interest in efficient energy use.

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

(3) APPLICATION.—A person seeking a grant under this subsection shall submit to the Secretary an application in such form and containing such information as the Secretary may require. The Secretary may award a grant under this subsection to an entity already in existence if the entity is otherwise eligible under this subsection.

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

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

(B) The extent to which the applicant will coordinate the activities of the Center with other entities, such as State and local governments, utilities, and educational and research institutions.

(5) MATCHING FUNDS.—The Secretary shall require a non-Federal matching requirement of at least 50 percent of the costs of establishing and operating each Center.

(6) ADVISORY COMMITTEE.—The Secretary shall establish an advisory committee to advise the Secretary on the establishment of Centers under this subsection. The advisory committee shall be composed of

individuals with expertise in the area of advanced energy methods and technologies, including at least 1 representative from—

(A) State or local energy offices;

(B) energy professionals;

(C) trade or professional associations;

(D) architects, engineers, or construction professionals;

(E) manufacturers;

(F) the research community; and

(G) nonprofit energy or environmental organizations.

(7) DEFINITIONS.—For purposes of this subsection:

(A) ADVANCED ENERGY METHODS AND TECHNOLOGIES.—The term "advanced energy methods and technologies" means all methods and technologies that promote energy efficiency and conservation, including distributed generation technologies, and life-cycle analysis of energy use.

(B) CENTER.—The term "Center" means an Advanced Energy Technology Transfer Center established pursuant to this subsection.

(C) DISTRIBUTED GENERATION.—The term "distributed generation" means an electric power generation facility that is designed to serve retail electric consumers at or near the facility site.

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

SEC. 306. SECONDARY ELECTRIC VEHICLE BATTERY USE PROGRAM.

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

(1) ASSOCIATED EQUIPMENT.—The term "associated equipment" means equipment located where the batteries will be used that is necessary to enable the use of the energy stored in the batteries.

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

(b) PROGRAM.—The Secretary shall establish and conduct a research, development, demonstration, and commercial application program for the secondary use of batteries if the Secretary finds that there are sufficient numbers of such batteries to support the program. The program shall be—

(1) designed to demonstrate the use of batteries in secondary applications, including utility and commercial power storage and power quality;

(2) structured to evaluate the performance, including useful service life and costs, of such batteries in field operations, and the necessary supporting infrastructure, including reuse and disposal of batteries; and

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

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

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

(d) SELECTION OF PROPOSALS.—

(1) IN GENERAL.—The Secretary shall, not later than 90 days after the closing date established by the Secretary for receipt of proposals under subsection (c), select up to 5 proposals which may receive financial assistance under this section, subject to the availability of appropriations.

(2) DIVERSITY; ENVIRONMENTAL EFFECT.—In selecting proposals, the Secretary shall consider diversity of battery type, geographic and climatic diversity, and life-cycle environmental effects of the approaches.

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

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

(5) OTHER CRITERIA.—The Secretary may consider such other criteria as the Secretary considers appropriate.

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

(1) relevant information be provided to the Department, the users of the batteries, the proposers, and the battery manufacturers;

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

(3) the proposer provide to the Secretary such information regarding the disposal of the batteries as the Secretary may require to ensure that the proposer disposes of the batteries in accordance with applicable law.

SEC. 307. NEXT GENERATION LIGHTING INITIATIVE.

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

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

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

(d) RESEARCH.—

(1) IN GENERAL.—The Secretary shall carry out the research activities of the Next Generation Lighting Initiative through competitively awarded grants to researchers, including Industry Alliance participants, National Laboratories, and institutions of higher education.

(2) ASSISTANCE FROM THE INDUSTRY ALLIANCE.—The Secretary shall annually solicit from the Industry Alliance—

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

(B) assessment of the progress of the Initiative's research activities; and

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

(3) AVAILABILITY OF INFORMATION AND ROADMAPS.—The information and roadmaps under para-

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

(e) DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION.—The Secretary shall carry out a development, demonstration, and commercial application program for the Next Generation Lighting Initiative through competitively selected awards. The Secretary may give preference to participants of the Industry Alliance selected pursuant to subsection (c).

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

(1) for any new invention resulting from activities under subsection (d)—

(A) the Industry Alliance members that are active participants in research, development, and demonstration activities related to the advanced solid-state lighting technologies that are the subject of this section shall be granted first option to negotiate with the invention owner nonexclusive licenses and royalties for uses of the inven-

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

(B)(i) for 1 year after a United States patent is issued for the invention, the patent holder shall not negotiate any license or royalty with any entity that is not a participant in the Industry Alliance described in subparagraph (A); and

(ii) during the year described in clause (i), the invention owner shall negotiate nonexclusive licenses and royalties in good faith with any interested participant in the Industry Alliance described in subparagraph (A); and

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

(g) NATIONAL ACADEMY REVIEW.—The Secretary shall enter into an arrangement with the National Academy of Sciences to conduct periodic reviews of the Next Generation Lighting Initiative. The Academy shall review the research priorities, technical milestones, and plans for technology transfer and progress towards achieving them. The Secretary shall consider the results of such reviews in evaluating the information obtained under subsection (d)(2).

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

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

(2) RESEARCH.—The term "research" includes research on the technologies, materials, and manufacturing processes required for white light emitting diodes.

(3) INDUSTRY ALLIANCE.—The term "Industry Alliance" means an entity selected by the Secretary under subsection (c).

(4) WHITE LIGHT EMITTING DIODE.—The term "white light emitting diode" means a semiconducting package, utilizing either organic or inorganic materials, that produces white light using externally applied voltage.

SEC. 308. DEFINITIONS.

For the purposes of this subtitle—

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

(2) the term "whole-buildings approach" includes, on a life-cycle basis, the energy use, cost of operations, and ease of repair or upgrade of a building.

SEC. 309. AUTHORIZATION OF APPROPRIATIONS.

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

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

(A) $200,000,000 for carrying out the vehicles program under section 302;

(B) $100,000,000 for carrying out the buildings program under section 303, of which $10,000,000 shall be for the grant program under section 303(b);

(C) $100,000,000 for carrying out the industries program under section 304(a);

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

(E) $10,000,000 for carrying out demonstration and commercial applications activities under section 305;

(F) $4,000,000 for carrying out the secondary electric vehicle battery use program under section 306; and

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

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

(A) $240,000,000 for carrying out the vehicles program under section 302;

(B) $130,000,000 for carrying out the buildings program under section 303, of which $10,000,000 shall be for the grant program under section 303(b);

(C) $115,000,000 for carrying out the industries program under section 304(a);

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

(E) $10,000,000 for carrying out demonstration and commercial applications activities under section 305;

(F) $7,000,000 for carrying out the secondary electric vehicle battery use program under section 306; and

(G) $30,000,000 for carrying out the Next Generation Lighting Initiative under section 307.

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

(A) $270,000,000 for carrying out the vehicles program under section 302;

(B) $160,000,000 for carrying out the buildings program under section 303, of which $10,000,000 shall be for the grant program under section 303(b);

(C) $140,000,000 for carrying out the industries program under section 304(a);

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

(E) $10,000,000 for carrying out demonstration and commercial applications activities under section 305;

(F) $7,000,000 for carrying out the secondary electric vehicle battery use program under section 306; and

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

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

(A) $310,000,000 for carrying out the vehicles program under section 302;

(B) $200,000,000 for carrying out the buildings program under section 303, of which $10,000,000 shall be for the grant program under section 303(b);

(C) $170,000,000 for carrying out the industries program under section 304(a);

(D) $10,000,000 for carrying out demonstration and commercial applications activities under section 305;

(E) $7,000,000 for carrying out the secondary electric vehicle battery use program under section 306; and

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

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

(A) $340,000,000 for carrying out the vehicles program under section 302;

(B) $240,000,000 for carrying out the buildings program under section 303, of which $10,000,000 shall be for the grant program under section 303(b);

(C) $190,000,000 for carrying out the industries program under section 304(a);

(D) $10,000,000 for carrying out demonstration and commercial applications activities under section 305;

(E) $7,000,000 for carrying out the secondary electric vehicle battery use program under section 306; and

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

SEC. 310. LIMITATION ON USE OF FUNDS.

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

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

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

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

(4) the Federal Energy Management Program under part 3 of title V of the National Energy Conservation Policy Act (42 U.S.C. 8251 et seq.).

Subtitle B—Distributed Energy and Electric Energy Systems

SEC. 321. DISTRIBUTED ENERGY.

(a) IN GENERAL.—The Secretary shall conduct programs of distributed energy resources and systems reliability and efficiency research, development, demonstration, and commercial application to improve the reliability and efficiency of distributed energy resources and systems, including activities described in this subtitle. The programs shall address advanced energy technologies and systems and advanced grid reliability technologies. The programs shall include the integration of—

(1) renewable energy resources;

(2) fuel cells;

(3) combined heat and power systems;

(4) microturbines;

(5) advanced natural gas turbines;

(6) advanced internal combustion engine generators;

(7) energy storage devices;

(8) interconnection standards, protocols, and equipment;

(9) ancillary equipment for dispatch and control; and

(10) any other energy technologies, as appropriate.

(b) MICRO-COGENERATION ENERGY TECHNOLOGY.—The Secretary shall make competitive, merit-based grants to consortia for the development of micro-cogeneration energy technology. The consortia shall explore—

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

(2) the use of excess power to operate other appliances within the residence and supply excess generated power to the power grid.

(c) GOALS.—

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

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

(A) a description, including quantitative analysis, of progress in achieving performance goals transmitted under paragraph (1), as compared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

SEC. 322. ELECTRICITY TRANSMISSION AND DISTRIBUTION AND ENERGY ASSURANCE.

(a) PROGRAM.—The Secretary shall conduct a research, development, demonstration, and commercial application program on advanced control devices to improve the energy efficiency and reliability of the electric transmission and distribution systems and to protect the Nation against severe energy supply disruptions. This program shall address, at a minimum—

(1) advanced energy delivery and storage technologies, materials, and systems, including new transmission technologies, such as flexible alternating current transmission systems, composite conductor materials, and other technologies that enhance reliability, operational flexibility, or power-carrying capability;

(2) advanced grid reliability and efficiency technology development;

(3) technologies contributing to significant load reductions;

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

(5) technologies to enhance existing grid components;

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

(A) enhance the reliability, operational flexibility, or power-carrying capability of electric transmission or distribution systems; or

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

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

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

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

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

(11) technology transfer and education.

(b) GOALS.—

(1) INITIAL GOALS.—In accordance with the performance plan and report requirements in section 4 of the Government Performance Results Act of 1993, the Secretary shall transmit to the Congress, along with the President's annual budget request for fiscal year 2007, a report containing outcome measures with explicitly stated cost and performance baselines. The measures shall specify performance goals, with quantifiable 5-year cost and energy savings target levels, for electricity transmission and distribution and energy assurance, and any other such goals the Secretary considers appropriate.

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

(A) a description, including quantitative analysis, of progress in achieving performance goals transmitted under paragraph (1), as compared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

(c) HIGH VOLTAGE TRANSMISSION LINES.—As part of the program described in subsection (a), the Secretary shall award a grant to a university research program to design and test, in consultation with the Tennessee Valley Authority, state-of-the-art optimization techniques for power flow through existing high voltage transmission lines.

SEC. 323. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for the purposes of carrying out this subtitle:

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

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

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

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

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

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

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

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

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

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

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

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

TITLE IV—RENEWABLE ENERGY

SEC. 401. FINDINGS.

Congress makes the following findings:

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

(2) Since 1996, the United States has lost significant market share in the solar industry, dropping from 44 percent of the world market to 13 percent in 2003.

(3) In 2003, Japan spent more than $200,000,000 on solar research, development, demonstration, and commercial application and other incentives, and Germany provided more than $750,000,000 in low cost financing for solar photovoltaic projects. This compares to United States Government spending of $139,000,000 in 2003 for re-

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

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

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

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

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

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

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

(10) By using domestic renewable energy resources, the United States can reduce the amount of money sent into unstable regions of the world and keep it in the United States.

(11) By supporting renewable energy research and development, and funding demonstration and commercial application programs for renewable energy, the United States can create an export industry and improve the balance of trade.

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

SEC. 402. DEFINITIONS.

For purposes of this title:

(1) BIOBASED PRODUCT.—The term "biobased product" means a product determined by the Secretary to be a commercial or industrial product (other than food or feed) that is—

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

(i) biological products;

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

(iii) forestry materials; and

(B) produced in connection with the conversion of biomass to energy or fuel.

(2) CELLULOSIC BIOMASS.—The term "cellulosic biomass" means a crop containing lignocellulose or hemicellulose, including barley grain, grapeseed, forest

thinnings, rice bran, rice hulls, rice straw, soybean matter, sugarcane bagasse, and any crop grown specifically for the purpose of producing cellulosic feedstocks.

SEC. 403. PROGRAMS.

(a) IN GENERAL.—The Secretary shall conduct programs of renewable energy research, development, demonstration, and commercial application, including activities described in this title. Such programs shall be focused on the following objectives:

(1) Increasing the conversion efficiency of all forms of renewable energy through improved technologies.

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

(3) Promoting the diversity of the energy supply.

(4) Decreasing the Nation's dependence on foreign energy supplies.

(5) Improving United States energy security.

(6) Decreasing the environmental impact of energy-related activities.

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

(b) GOALS.—

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

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

(A) a description, including quantitative analysis, of progress in achieving performance goals transmitted under paragraph (1), as compared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

(c) PUBLIC INPUT.—The Secretary shall consider advice from industry, universities, and other interested parties through seeking comments in the Federal Register and other means before transmitting each report under subsection (b).

SEC. 404. SOLAR.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application for solar energy, including—

(1) photovoltaics;

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

(3) concentrating solar power.

(b) BUILDING INTEGRATION.—For photovoltaics, solar hot water, and space heating, the Secretary shall conduct research, development, demonstration, and commercial application to support the development of products that can be easily integrated into new and existing buildings.

(c) MANUFACTURE.—The Secretary shall conduct research, development, demonstration, and commercial application of manufacturing techniques that can produce low-cost, high-quality solar systems.

SEC. 405. BIOENERGY PROGRAMS.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application for cellulosic biomass, including—

(1) biomass conversion to heat and electricity;

(2) biomass conversion to liquid fuels;

(3) biobased products;

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

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

(6) life-cycle economic analysis.

(b) BIOFUELS AND BIOBASED PRODUCTS.—The objectives of the biofuels and biobased products programs under paragraphs (2), (3), and (4) of subsection (a), and of the biorefinery demonstration program under subsection (c), shall be to develop, in partnership with industry—

(1) advanced biochemical and thermochemical conversion technologies capable of making high-value biobased chemical feedstocks and products, to substitute for petroleum-based feedstocks and products, biofuels that are price-competitive with gasoline or diesel in either internal combustion engines or fuel cell-powered vehicles, and biobased products from a variety of feedstocks, including grains, cellulosic biomass, and agricultural byproducts; and

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

(c) BIOMASS INTEGRATED REFINERY DEMONSTRATION.—

(1) IN GENERAL.—The Secretary shall conduct a program to demonstrate the commercial application of at least 5 integrated biorefineries. The Secretary shall ensure geographical distribution of biorefinery demonstrations under this subsection. The Secretary shall not provide more than $100,000,000 under this subsection for any single biorefinery demonstration. The Secretary shall award the biorefinery demonstrations so as to encourage—

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

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

(i) liquid transportation fuels;

(ii) high-value biobased chemicals;

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

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

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

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

solicit proposals for demonstration of advanced biorefineries. The Secretary shall select only proposals that—

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

(B) enable the biorefinery to be easily replicated.

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

SEC. 406. WIND.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application for wind energy, including—

(1) low speed wind energy;

(2) offshore wind energy;

(3) testing and verification; and

(4) distributed wind energy generation.

(b) FACILITY.—The Secretary shall construct and operate a research and testing facility capable of testing the largest wind turbines that are expected to be manufactured

in the next 15 years. The Secretary shall consider the need for testing offshore turbine designs in siting the facility. All private users of the facility shall be required to pay the Department all costs associated with their use of the facility, including capital costs prorated at normal business amortization rates.

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

SEC. 407. GEOTHERMAL.

The Secretary shall conduct a program of research, development, demonstration, and commercial application for geothermal energy. The program shall focus on developing improved technologies for reducing the costs of geothermal energy installations, including technologies for—

(1) improving detection of geothermal resources;

(2) decreasing drilling costs;

(3) decreasing maintenance costs through improved materials;

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

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

SEC. 408. PHOTOVOLTAIC DEMONSTRATION PROGRAM.

(a) IN GENERAL.—The Secretary shall establish a program of grants to States to demonstrate advanced photovoltaic technology.

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

(2) If a State has received funding under this section for the preceding year, the State must demonstrate, to the satisfaction of the Secretary, that it complied with the requirements of subsection (f) in carrying out the program during that preceding year, and that it will do so in the future.

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

(c) COMPETITION.—If more than $80,000,000 is available for the program under this section for any fiscal year,

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

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

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

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

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

(A) maximize the amount of photovoltaics demonstrated;

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

(C) limit State administrative costs.

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

awards for the demonstration of advanced photovoltaic technologies. Each State program shall—

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

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

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

(4) endeavor to fund recipients in the commercial, industrial, institutional, governmental, and residential sectors;

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

(6) report annually to the Department on—

(A) the amount of funds disbursed;

(B) the amount of photovoltaics purchased; and

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

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

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

(8) require that applicant buildings must have received an independent energy efficiency audit during the 6-month period preceding the filing of the application.

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

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

(1) the amount of photovoltaics demonstrated;

(2) the number of projects undertaken;

(3) the administrative costs of the program;

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

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

(6) the total amount of funds distributed, including a breakdown by State.

SEC. 409. ADDITIONAL PROGRAMS.

(a) IN GENERAL.—The Secretary may conduct research, development, demonstration, and commercial application programs of—

(1) ocean energy, including wave energy;

(2) kinetic hydro turbines; and

(3) the combined use of renewable energy technologies with one another and with other energy technologies.

(b) MARINE RENEWABLE ENERGY STUDY.—

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

(A) the feasibility of various methods of renewable generation of energy from the ocean, including energy from waves, tides, currents, and thermal gradients; and

(B) the research, development, demonstration, and commercial application activities required to make marine renewable energy generation competitive with other forms of electricity generation.

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

retary's recommendations for implementing the results of the study.

(c) RENEWABLE ENERGY IN PUBLIC BUILDINGS.—

(1) DEMONSTRATION AND TECHNOLOGY TRANSFER PROGRAM.—The Secretary shall establish a program for the demonstration of innovative technologies for solar and other renewable energy sources in buildings owned or operated by a State or local government, and for the dissemination of information resulting from such demonstration to interested parties.

(2) LIMIT ON FEDERAL FUNDING.—The Secretary shall provide under this subsection no more than 40 percent of the incremental costs of the solar or other renewable energy source project funded.

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

(A) to demonstrate a continuing commitment to the use of solar and other renewable energy sources in buildings they own or operate; and

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

SEC. 410. ANALYSIS AND EVALUATION.

(a) IN GENERAL.—The Secretary shall conduct analysis and evaluation in support of the renewable energy programs under this title. These activities shall be used to guide budget and program decisions, and shall include—

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

(2) analysis of past program performance, both in terms of technical advances and in market introduction of renewable energy; and

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

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

SEC. 411. AUTHORIZATION OF APPROPRIATIONS.

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

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

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

(B) $200,000,000 shall be for carrying out the bioenergy program under section 405, including $100,000,000 for the biorefinery demonstration program under section 405(c);

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

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

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

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

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

(B) $245,000,000 shall be for carrying out the bioenergy program under section 405, including $125,000,000 for the biorefinery demonstration program under section 405(c);

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

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

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

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

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

(B) $310,000,000 shall be for carrying out the bioenergy program under section 405, including $150,000,000 for the biorefinery demonstration program under section 405(c);

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

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

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

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

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

(B) $355,000,000 shall be for carrying out the bioenergy program under section 405, including $175,000,000 for the biorefinery demonstration program under section 405(c);

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

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

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

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

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

(B) $400,000,000 shall be for carrying out the bioenergy program under section 405, including $200,000,000 for the biorefinery demonstration program under section 405(c);

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

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

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

TITLE V—NUCLEAR ENERGY PROGRAMS

SEC. 501. DEFINITION.

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

SEC. 502. PROGRAMS.

(a) IN GENERAL.—The Secretary shall conduct programs of civilian nuclear energy research, development, demonstration, and commercial application, including activities described in this title. Programs under this title shall be focused on—

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

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

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

(4) maintaining National Laboratory and university nuclear programs, including their infrastructure;

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

(6) developing, planning, constructing, acquiring, and operating special equipment and facilities for the use of researchers;

(7) supporting technology transfer and other appropriate activities to assist the nuclear energy industry, and other users of nuclear science and engineering, including activities addressing reliability, availability, productivity, component aging, safety, and security of nuclear power plants; and

(8) reducing the environmental impact of nuclear energy-related activities.

(b) GOALS.—

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

The measures shall specify performance goals, with quantifiable 5-year cost improvement and reliability, availability, productivity, and component aging target levels for a wide range of nuclear energy technologies, and any other such goals the Secretary considers appropriate.

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

(A) a description, including quantitative analysis, of progress in achieving performance goals transmitted under paragraph (1), as compared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

(c) PUBLIC INPUT.—The Secretary shall consider advice from industry, universities, and other interested parties through seeking comments in the Federal Register and other means before transmitting each report under subsection (b).

Subtitle A—Nuclear Energy Research Programs

SEC. 511. ADVANCED FUEL RECYCLING PROGRAM.

(a) IN GENERAL.—The Secretary shall conduct an advanced fuel recycling technology research, development,

demonstration, and commercial application program to evaluate fuel recycling or transmutation technologies which are proliferation-resistant and minimize environmental and public health and safety impacts, as an alternative to aqueous reprocessing technologies deployed as of the date of enactment of this Act, in support of evaluation of alternative national strategies for spent nuclear fuel and advanced reactor concepts. The program shall be subject to annual review by the Secretary's Nuclear Energy Research Advisory Committee or other independent entity, as appropriate.

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

SEC. 512. UNIVERSITY NUCLEAR SCIENCE AND ENGINEERING SUPPORT.

(a) IN GENERAL.—The Secretary shall conduct a program to invest in human resources and infrastructure in the nuclear sciences and related fields, including health physics, nuclear engineering, and radiochemistry, consistent with Departmental missions related to civilian nuclear research, development, demonstration, and commercial application.

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

(1) conduct a graduate and undergraduate fellowship program to attract new and talented students, which may include fellowships for students to spend time at National Laboratories in the areas of nuclear science, engineering, and health physics with a member of the National Laboratory staff acting as a mentor;

(2) conduct a junior faculty research initiation grant program to assist universities in recruiting and retaining new faculty in the nuclear sciences and engineering by awarding grants to junior faculty for research on issues related to nuclear energy engineering and science;

(3) support fundamental nuclear sciences, engineering, and health physics research through a nuclear engineering education and research program;

(4) encourage collaborative nuclear research among industry, National Laboratories, and universities; and

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

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

TURE.—In carrying out the program under this section, the Secretary may support—

(1) converting research reactors from high-enrichment fuels to low-enrichment fuels and upgrading operational instrumentation;

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

(3) student training programs, in collaboration with the United States nuclear industry, in relicensing and upgrading reactors, including through the provision of technical assistance; and

(4) reactor improvements as part of a focused effort that emphasizes research, training, and education, including through the Innovations in Nuclear Infrastructure and Education Program or any similar program.

(d) OPERATIONS AND MAINTENANCE.—Funding for a project provided under this section may be used for a portion of the operating and maintenance costs of a research reactor at a university used in the project.

SEC. 513. UNIVERSITY-NATIONAL LABORATORY INTERACTIONS.

The Secretary shall conduct—

(1) a fellowship program for professors at universities to spend sabbaticals at National Laboratories in the areas of nuclear science and technology; and

(2) a visiting scientist program in which National Laboratory staff can spend time in academic nuclear science and engineering departments.

SEC. 514. NUCLEAR POWER 2010 PROGRAM.

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

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

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

(3) participation of international collaborators in research, development, and design efforts as appropriate; and

(4) university and industry participation.

SEC. 515. GENERATION IV NUCLEAR ENERGY SYSTEMS INITIATIVE.

The Secretary shall carry out a Generation IV Nuclear Energy Systems Initiative to develop an overall technology plan and to support research, development, demonstration, and commercial application necessary to make an informed technical decision about the most promising candidates for the eventual commercial application of advanced fission reactor technology for the generation of electricity. The Initiative shall examine advanced proliferation-resistant and passively safe reactor designs, including designs that—

(1) are economically competitive with other electric power generation plants;

(2) have higher efficiency, lower cost, and improved safety compared to reactors in operation on the date of enactment of this Act;

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

(4) use improved instrumentation.

SEC. 516. CIVILIAN INFRASTRUCTURE AND FACILITIES.

The Secretary shall operate and maintain infrastructure and facilities to support the nuclear energy research, development, demonstration, and commercial application programs, including radiological facilities management, isotope production, and facilities management.

SEC. 517. NUCLEAR ENERGY RESEARCH AND DEVELOPMENT INFRASTRUCTURE PLAN.

In carrying out section 209, the Secretary shall—

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

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

(3) consider the available facilities and expertise at all National Laboratories and emphasize investments which complement rather than duplicate capabilities; and

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

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

SEC. 518. IDAHO NATIONAL LABORATORY FACILITIES PLAN.

(a) PLAN.—The Secretary shall develop a comprehensive plan for the facilities at the Idaho National Laboratory, especially taking into account the resources available at other National Laboratories. In developing the plan, the Secretary shall—

(1) evaluate the facilities planning processes utilized by other physical science and engineering research and development institutions, both in the United States and abroad, that are generally recognized as being among the best in the world, and consider how those processes might be adapted toward developing such facilities plan;

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

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

(4) include a plan to develop, if feasible, the Advanced Test Reactor and Test Reactor Area into a user facility that is more readily accessible to academic and industrial researchers;

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

(6) consider the establishment of new "hot cells" and the configuration of "hot cells" most likely to advance research, development, demonstration, and commercial application in nuclear science and engineering, especially in the context of the condition and

availability of these facilities elsewhere in the National Laboratories; and

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

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

SEC. 519. AUTHORIZATION OF APPROPRIATIONS.

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

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

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

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

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

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

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

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

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

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

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

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

Subtitle B—Next Generation Nuclear Plant Program

SEC. 531. DEFINITIONS.

For purposes of this subtitle:

(1) CONSTRUCTION.—The term "construction" means the physical construction of the demonstration plant, and the physical construction, purchase, or manufacture of equipment or components that are specifically designed for the demonstration plant, but does not mean the design of the facility, equipment, or components.

(2) DEMONSTRATION PLANT.—The term "demonstration plant" means an advanced fission reactor power plant constructed and operated in accordance with this subtitle.

(3) OPERATION.—The term "operation" means the operation of the demonstration plant, including general maintenance and provision of power, heating and cooling, and other building services that are specifically for the demonstration plant, but does not mean operations that support other activities co-located with the demonstration plant.

SEC. 532. NEXT GENERATION NUCLEAR POWER PLANT.

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

cial application of advanced nuclear fission reactor technology. The objective of this program shall be to demonstrate the technical and economic feasibility of an advanced nuclear fission reactor power plant design for the commercial production of electricity.

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

(c) SUBSYSTEM DEMONSTRATIONS.—The Secretary shall support demonstration of enabling technologies and subsystems and other research, development, demonstration, and commercial application activities necessary to support the activities in this subtitle.

(d) CONSTRUCTION AND OPERATION.—The program shall culminate in the construction and operation of the demonstration plant based on a design selected by the Secretary in accordance with procedures described in the plan required by section 534(c). The demonstration plant shall be located and constructed within the United States and shall be operational, and capable of demonstrating the commercial production of electricity, by December 31, 2015.

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

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

SEC. 533. ADVISORY COMMITTEE.

The Secretary shall appoint a Next Generation Nuclear Power Plant Subcommittee of the Nuclear Energy Research Advisory Council to provide advice to the Secretary on technical matters and program management for the duration of the program and construction project under this subtitle.

SEC. 534. PROGRAM REQUIREMENTS.

(a) PARTNERSHIPS.—In carrying out the program under this subtitle, the Secretary shall make use of partnerships with industry for the research, development, design, construction, and operation of the demonstration plant. In establishing such partnerships, the Secretary shall give preference to companies for which the principal base of operations is located in the United States.

(b) INTERNATIONAL COLLABORATION.—(1) The Secretary shall seek international cooperation, participation, and financial contribution in this program, including assistance from specialists or facilities from member countries of the Generation IV International Forum, the Russian Federation, or other international partners where such specialists or facilities provide access to cost-effective and relevant skills or test capabilities.

(2) International activities shall be carried out in consultation with the Generation IV International Forum.

(3) The program may include demonstration of selected program objectives in a partner nation.

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

(1) describe the plan for development, selection, management, ownership, operation, and decommissioning of the demonstration plant;

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

(3) provide for development of risk-based criteria for any future commercial development of a reactor architecture based on that of the demonstration plant;

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

(5) include an explanation of any major program decisions that deviate from program advice given to the Secretary by the advisory committee established under section 533.

SEC. 535. AUTHORIZATION OF APPROPRIATIONS.

(a) RESEARCH, DEVELOPMENT, AND DESIGN PROGRAMS.—The following sums are authorized to be appro-

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

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

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

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

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

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

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

TITLE VI—FOSSIL ENERGY

Subtitle A—Research Programs

SEC. 601. ENHANCED FOSSIL ENERGY RESEARCH AND DEVELOPMENT PROGRAMS.

(a) IN GENERAL.—The Secretary shall, in conjunction with industry, conduct fossil energy research, development, demonstration, and commercial applications programs, including activities under this subtitle, with the goal of improving the efficiency, effectiveness, and environmental performance of fossil energy production, upgrading, conver-

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

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

(2) decreasing the cost of all fossil energy production, generation, and delivery;

(3) promoting diversity of energy supply;

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

(5) improving United States energy security;

(6) decreasing the environmental impact of energy-related activities; and

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

(b) GOALS.—

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

energy savings target levels, for fossil energy, and any other such goals the Secretary considers appropriate.

(2) SUBSEQUENT TRANSMITTALS.—The Secretary shall transmit to the Congress, along with the President's annual budget request for each fiscal year after 2007, a report containing—

(A) a description, including quantitative analysis, of progress in achieving performance goals transmitted under paragraph (1), as compared to the baselines transmitted under paragraph (1); and

(B) any amendments to such goals.

(c) COVERED ACTIVITIES.—The Secretary shall ensure that the goals stated in subsection (b) are illustrative of the outcomes necessary to promote acceptance of the programs' efforts in the marketplace, but at a minimum shall encompass the following areas:

(1) Coal gasifiers.

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

(3) Oxygen separation devices, hydrogen separation devices, and carbon dioxide separation technologies.

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

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

(6) Production of liquid fuels from nontraditional feedstocks, including syngas, biomass, methane, and combinations thereof.

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

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

(d) PUBLIC INPUT.—The Secretary shall consider advice from industry, universities, and other interested parties through seeking comments in the Federal Register and other means before transmitting each report under subsection (b).

SEC. 602. FOSSIL RESEARCH AND DEVELOPMENT.

(a) OBJECTIVES.—The Secretary shall conduct a program of fossil research, development, demonstration, and commercial application, whose objective shall be to reduce emissions from fossil fuel use by developing technologies, including precombustion technologies, by 2015 with the capability of—

(1) dramatically increasing electricity generating efficiencies of coal and natural gas;

(2) improving combined heat and power thermal efficiencies;

(3) improving fuels utilization efficiency of production of liquid transportation fuels from coal;

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

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

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

(b) COAL-BASED PROJECTS.—The coal-based projects authorized under this section shall be consistent with the objective stated in subsection (a). The program shall emphasize carbon capture and sequestration technologies and gasification technologies, including gasification combined cycle, gasification fuel cells, gasification coproduction, hybrid gasification/combustion, or other technologies with the potential to address the capabilities described in paragraphs (4) and (5) of subsection (a).

SEC. 603. OIL AND GAS RESEARCH AND DEVELOPMENT.

The Secretary shall conduct a program of oil and gas research, development, demonstration, and commercial application, whose objective shall be to advance the science and technology available to domestic petroleum producers, particularly independent operators, to minimize the economic dislocation caused by the decline of domestic supplies of oil and natural gas resources by focusing research on—

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

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

(3) improving the ability of the domestic industry to extract hydrocarbons from known reservoirs and classes of reservoirs; and

(4) reducing the cost, and improving the efficiency and environmental performance, of oil and gas exploration and extraction activities, focusing especially on unconventional sources such as tar sands, heavy oil, and shale oil.

SEC. 604. TRANSPORTATION FUELS.

The Secretary shall conduct a program of transportation fuels research, development, demonstration, and commercial application, whose objective shall be to increase the

price elasticity of oil supply and demand by focusing research on—

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

(2) indirect liquefaction of coal and biomass.

SEC. 605. FUEL CELLS.

(a) PROGRAM.—The Secretary shall conduct a program of research, development, demonstration, and commercial application of fuel cells for low-cost, high-efficiency, fuel-flexible, modular power systems.

(b) DEMONSTRATION.—The program under this section shall include demonstration of fuel cell proton exchange membrane technology for commercial, residential, and transportation applications, and distributed generation systems, utilizing improved manufacturing production and processes.

SEC. 606. CARBON DIOXIDE CAPTURE RESEARCH AND DEVELOPMENT.

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

(1) developing add-on carbon dioxide capture technologies, such as adsorption and absorption techniques and chemical processes, to remove carbon diox-

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

(2) combustion technologies that would directly produce concentrated streams of carbon dioxide potentially amenable to sequestration; and

(3) increasing the efficiency of the overall combustion system in order to reduce the amount of carbon dioxide emissions released from the system per megawatt generated.

(b) CARBON SEQUESTRATION.—In conjunction with the program under subsection (a), the Secretary shall continue pursuing a robust carbon sequestration program with the private sector, through regional carbon sequestration partnerships.

SEC. 607. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for the purposes of carrying out this subtitle:

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

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

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

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

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

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

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

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

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

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

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

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

SEC. 611. PROGRAM AUTHORITY.

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

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

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

(c) PROGRAM ELEMENTS.—The program under this subtitle shall address the following areas, including improving safety and minimizing environmental impacts of activities within each area:

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

(2) Ultra-deepwater architecture.

(3) Unconventional natural gas and other petroleum resource exploration and production technology, including the technology challenges of small producers.

(d) LIMITATION ON LOCATION OF FIELD ACTIVITIES.—Field activities under the program under this subtitle shall be carried out only—

(1) in—

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

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

consistent with applicable law and land use plans; and

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

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

(e) RESEARCH AT NATIONAL ENERGY TECHNOLOGY LABORATORY.—The Secretary, through the National Energy Technology Laboratory, shall carry out research complementary to research under subsection (b).

(f) CONSULTATION WITH SECRETARY OF THE INTERIOR.—In carrying out this subtitle, the Secretary shall consult regularly with the Secretary of the Interior.

SEC. 612. ULTRA-DEEPWATER PROGRAM.

(a) IN GENERAL.—The Secretary shall carry out the activities under section 611(a), to maximize the use of the ultra-deepwater natural gas and other petroleum resources of the United States by increasing the supply of such resources, through reducing the cost and increasing the efficiency of exploration for and production of such resources, while improving safety and minimizing environmental impacts.

(b) ROLE OF THE SECRETARY.—The Secretary shall have ultimate responsibility for, and oversight of, all aspects of the program under this section.

(c) ROLE OF THE PROGRAM CONSORTIUM.—

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

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

(B) make recommendations to the Secretary for project solicitations;

(C) disburse funds awarded under subsection (f) as directed by the Secretary in accordance with the annual plan under subsection (e); and

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

(2) LIMITATION.—The Secretary may not assign any activities to the program consortium except as specifically authorized under this section.

(3) CONFLICT OF INTEREST.—

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

(i) to ensure that each board member, officer, or employee of the program consortium who is in a decision-making capacity

under subsection (f)(3) or (4) shall disclose to the Secretary any financial interests in, or financial relationships with, applicants for or recipients of awards under this section, including those of his or her spouse or minor child, unless such relationships or interests would be considered to be remote or inconsequential; and

(ii) to require any board member, officer, or employee with a financial relationship or interest disclosed under clause (i) to recuse himself or herself from any review under subsection (f)(3) or oversight under subsection (f)(4) with respect to such applicant or recipient.

(B) FAILURE TO COMPLY.—The Secretary may disqualify an application or revoke an award under this section if a board member, officer, or employee has failed to comply with procedures required under subparagraph (A)(ii).

(d) SELECTION OF THE PROGRAM CONSORTIUM.—

(1) IN GENERAL.—The Secretary shall select the program consortium through an open, competitive process.

(2) MEMBERS.—The program consortium may include corporations, trade associations, institutions of higher education, National Laboratories, or other research institutions. After submitting a proposal under paragraph (4), the program consortium may not add members without the consent of the Secretary.

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

(4) SCHEDULE.—Not later than 180 days after the date of enactment of this Act, the Secretary shall solicit proposals from eligible consortia to perform the duties in subsection (c)(1), which shall be submitted not later than 360 days after the date of enactment of this Act. The Secretary shall select the program consortium not later than 18 months after such date of enactment.

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

(A) list all members of the consortium;

(B) fully describe the structure of the consortium, including any provisions relating to intellectual property; and

(C) describe how the applicant would carry out the activities of the program consortium under this section.

(6) ELIGIBILITY.—To be eligible to be selected as the program consortium, an applicant must be an entity whose members collectively have demonstrated capabilities in planning and managing research, development, demonstration, and commercial application programs in natural gas or other petroleum exploration or production.

(7) CRITERION.—The Secretary shall consider the amount of the fee an applicant proposes to receive under subsection (g) in selecting a consortium under this section.

(e) ANNUAL PLAN.—

(1) IN GENERAL.—The program under this section shall be carried out pursuant to an annual plan prepared by the Secretary in accordance with paragraph (2).

(2) DEVELOPMENT.—

(A) SOLICITATION OF RECOMMENDATIONS.—Before drafting an annual plan under this subsection, the Secretary shall solicit specific written recommendations from the program consortium for each element to be addressed in the

plan, including those described in paragraph (4). The Secretary may request that the program consortium submit its recommendations in the form of a draft annual plan.

(B) SUBMISSION OF RECOMMENDATIONS; OTHER COMMENT.—The Secretary shall submit the recommendations of the program consortium under subparagraph (A) to the Ultra-Deepwater Advisory Committee established under section 615(a) for review, and such Advisory Committee shall provide to the Secretary written comments by a date determined by the Secretary. The Secretary may also solicit comments from any other experts.

(C) CONSULTATION.—The Secretary shall consult regularly with the program consortium throughout the preparation of the annual plan.

(3) PUBLICATION.—The Secretary shall transmit to Congress and publish in the Federal Register the annual plan, along with any written comments received under paragraph (2)(A) and (B).

(4) CONTENTS.—The annual plan shall describe the ongoing and prospective activities of the program under this section and shall include—

(A) a list of any solicitations for awards that the Secretary plans to issue to carry out research, development, demonstration, or commercial application activities, including the topics for such work, who would be eligible to apply, selection criteria, and the duration of awards; and

(B) a description of the activities expected of the program consortium to carry out subsection (f)(4).

(5) ESTIMATES OF INCREASED ROYALTY RECEIPTS.—The Secretary, in consultation with the Secretary of the Interior, shall provide an annual report to Congress with the President's budget on the estimated cumulative increase in Federal royalty receipts (if any) resulting from the implementation of this subtitle. The initial report under this paragraph shall be submitted in the first President's budget following the completion of the first annual plan required under this subsection.

(f) AWARDS.—

(1) IN GENERAL.—The Secretary shall make awards to carry out research, development, demonstration, and commercial application activities under the program under this section. The program consortium shall not be eligible to receive such

awards, but members of the program consortium may receive such awards.

(2) PROPOSALS.—The Secretary shall solicit proposals for awards under this subsection in such manner and at such time as the Secretary may prescribe, in consultation with the program consortium.

(3) REVIEW.—The Secretary shall make awards under this subsection through a competitive process, which shall include a review by individuals selected by the Secretary. Such individuals shall include, for each application, Federal officials, the program consortium, and non-Federal experts who are not board members, officers, or employees of the program consortium or of a member of the program consortium.

(4) OVERSIGHT.—

(A) IN GENERAL.—The program consortium shall oversee the implementation of awards under this subsection, consistent with the annual plan under subsection (e), including disbursing funds and monitoring activities carried out under such awards for compliance with the terms and conditions of the awards.

(B) EFFECT.—Nothing in subparagraph (A) shall limit the authority or responsibility of the Secretary to oversee awards, or limit the au-

thority of the Secretary to review or revoke awards.

(C) PROVISION OF INFORMATION.—The Secretary shall provide to the program consortium the information necessary for the program consortium to carry out its responsibilities under this paragraph.

(g) ADMINISTRATIVE COSTS.—

(1) IN GENERAL.—To compensate the program consortium for carrying out its activities under this section, the Secretary shall provide to the program consortium funds sufficient to administer the program. This compensation may include a management fee consistent with Department of Energy contracting practices and procedures.

(2) ADVANCE.—The Secretary shall advance funds to the program consortium upon selection of the consortium, which shall be deducted from amounts to be provided under paragraph (1).

(h) AUDIT.—The Secretary shall retain an independent, commercial auditor to determine the extent to which funds provided to the program consortium, and funds provided under awards made under subsection (f), have been expended in a manner consistent with the purposes and requirements of this subtitle. The auditor shall trans-

mit a report annually to the Secretary, who shall transmit the report to Congress, along with a plan to remedy any deficiencies cited in the report.

SEC. 613. UNCONVENTIONAL NATURAL GAS AND OTHER PETROLEUM RESOURCES PROGRAM.

(a) IN GENERAL.—The Secretary shall carry out activities under section 611(b)(3), to maximize the use of the onshore unconventional natural gas and other petroleum resources of the United States, by increasing the supply of such resources, through reducing the cost and increasing the efficiency of exploration for and production of such resources, while improving safety and minimizing environmental impacts.

(b) AWARDS.—

(1) IN GENERAL.—The Secretary shall carry out this section through awards to research consortia made through an open, competitive process. As a condition of award of funds, qualified research consortia shall—

(A) demonstrate capability and experience in unconventional onshore natural gas or other petroleum research and development;

(B) provide a research plan that demonstrates how additional natural gas or oil production will be achieved; and

(C) at the request of the Secretary, provide technical advice to the Secretary for the purposes of developing the annual plan required under subsection (e).

(2) PRODUCTION POTENTIAL.—The Secretary shall seek to ensure that the number and types of awards made under this subsection have reasonable potential to lead to additional oil and natural gas production on Federal lands.

(3) SCHEDULE.—To carry out this subsection, not later than 180 days after the date of enactment of this Act, the Secretary shall solicit proposals from research consortia, which shall be submitted not later than 360 days after the date of enactment of this Act. The Secretary shall select the first group of research consortia to receive awards under this subsection not later than 18 months after such date of enactment.

(c) AUDIT.—The Secretary shall retain an independent, commercial auditor to determine the extent to which funds provided under awards made under this section have been expended in a manner consistent with the purposes and requirements of this subtitle. The auditor shall transmit a report annually to the Secretary, who shall transmit the report to Congress, along with a plan to remedy any deficiencies cited in the report.

(d) FOCUS AREAS FOR AWARDS.—

(1) UNCONVENTIONAL RESOURCES.—Awards from allocations under section 619(d)(2) shall focus on areas including advanced coalbed methane, deep drilling, natural gas production from tight sands, natural gas production from gas shales, stranded gas, innovative exploration and production techniques, enhanced recovery techniques, and environmental mitigation of unconventional natural gas and other petroleum resources exploration and production.

(2) SMALL PRODUCERS.—Awards from allocations under section 619(d)(3) shall be made to consortia consisting of small producers or organized primarily for the benefit of small producers, and shall focus on areas including complex geology involving rapid changes in the type and quality of the oil and gas reservoirs across the reservoir; low reservoir pressure; unconventional natural gas reservoirs in coalbeds, deep reservoirs, tight sands, or shales; and unconventional oil reservoirs in tar sands and oil shales.

(e) ANNUAL PLAN.—

(1) IN GENERAL.—The program under this section shall be carried out pursuant to an annual plan prepared by the Secretary in accordance with paragraph (2).

(2) DEVELOPMENT.—

(A) WRITTEN RECOMMENDATIONS.—Before drafting an annual plan under this subsection, the Secretary shall solicit specific written recommendations from the research consortia receiving awards under subsection (b) and the Unconventional Resources Technology Advisory Committee for each element to be addressed in the plan, including those described in subparagraph (D).

(B) CONSULTATION.—The Secretary shall consult regularly with the research consortia throughout the preparation of the annual plan.

(C) PUBLICATION.—The Secretary shall transmit to Congress and publish in the Federal Register the annual plan, along with any written comments received under subparagraph (A).

(D) CONTENTS.—The annual plan shall describe the ongoing and prospective activities under this section and shall include a list of any solicitations for awards that the Secretary plans to issue to carry out research, development, demonstration, or commercial application activities, including the topics for such work, who would be

eligible to apply, selection criteria, and the duration of awards.

(3) ESTIMATES OF INCREASED ROYALTY RECEIPTS.—The Secretary, in consultation with the Secretary of the Interior, shall provide an annual report to Congress with the President's budget on the estimated cumulative increase in Federal royalty receipts (if any) resulting from the implementation of this subtitle. The initial report under this paragraph shall be submitted in the first President's budget following the completion of the first annual plan required under this subsection.

(f) ACTIVITIES BY THE UNITED STATES GEOLOGICAL SURVEY.—The Secretary of the Interior, through the United States Geological Survey, shall, where appropriate, carry out programs of long-term research to complement the programs under this section.

SEC. 614. ADDITIONAL REQUIREMENTS FOR AWARDS.

(a) DEMONSTRATION PROJECTS.—An application for an award under this subtitle for a demonstration project shall describe with specificity the intended commercial use of the technology to be demonstrated.

(b) FLEXIBILITY IN LOCATING DEMONSTRATION PROJECTS.—Subject to the limitation in section 611(c), a demonstration project under this subtitle relating to an

ultra-deepwater technology or an ultra-deepwater architecture may be conducted in deepwater depths.

(c) INTELLECTUAL PROPERTY AGREEMENTS.—If an award under this subtitle is made to a consortium (other than the program consortium), the consortium shall provide to the Secretary a signed contract agreed to by all members of the consortium describing the rights of each member to intellectual property used or developed under the award.

(d) TECHNOLOGY TRANSFER.—2.5 percent of the amount of each award made under this subtitle shall be designated for technology transfer and outreach activities under this subtitle.

(e) COST SHARING REDUCTION FOR INDEPENDENT PRODUCERS.—In applying the cost sharing requirements under [section ____] to an award under this subtitle the Secretary may reduce or eliminate the non-Federal requirement if the Secretary determines that the reduction is necessary and appropriate considering the technological risks involved in the project.

SEC. 615. ADVISORY COMMITTEES.

(a) ULTRA-DEEPWATER ADVISORY COMMITTEE.—

(1) ESTABLISHMENT.—Not later than 270 days after the date of enactment of this Act, the Secretary shall establish an advisory committee to be known as the Ultra-Deepwater Advisory Committee.

(2) MEMBERSHIP.—The advisory committee under this subsection shall be composed of members appointed by the Secretary including—

(A) individuals with extensive research experience or operational knowledge of offshore natural gas and other petroleum exploration and production;

(B) individuals broadly representative of the affected interests in ultra-deepwater natural gas and other petroleum production, including interests in environmental protection and safe operations;

(C) no individuals who are Federal employees; and

(D) no individuals who are board members, officers, or employees of the program consortium.

(3) DUTIES.—The advisory committee under this subsection shall—

(A) advise the Secretary on the development and implementation of programs under this subtitle related to ultra-deepwater natural gas and other petroleum resources; and

(B) carry out section 612(e)(2)(B).

(4) COMPENSATION.—A member of the advisory committee under this subsection shall serve without

compensation but shall receive travel expenses in accordance with applicable provisions under subchapter I of chapter 57 of title 5, United States Code.

(b) UNCONVENTIONAL RESOURCES TECHNOLOGY ADVISORY COMMITTEE.—

(1) ESTABLISHMENT.—Not later than 270 days after the date of enactment of this Act, the Secretary shall establish an advisory committee to be known as the Unconventional Resources Technology Advisory Committee.

(2) MEMBERSHIP.—The advisory committee under this subsection shall be composed of members appointed by the Secretary including—

(A) a majority of members who are employees or representatives of independent producers of natural gas and other petroleum, including small producers;

(B) individuals with extensive research experience or operational knowledge of unconventional natural gas and other petroleum resource exploration and production;

(C) individuals broadly representative of the affected interests in unconventional natural gas and other petroleum resource exploration

and production, including interests in environmental protection and safe operations; and

(D) no individuals who are Federal employees.

(3) DUTIES.—The advisory committee under this subsection shall advise the Secretary on the development and implementation of activities under this subtitle related to unconventional natural gas and other petroleum resources.

(4) COMPENSATION.—A member of the advisory committee under this subsection shall serve without compensation but shall receive travel expenses in accordance with applicable provisions under subchapter I of chapter 57 of title 5, United States Code.

(c) PROHIBITION.—No advisory committee established under this section shall make recommendations on funding awards to particular consortia or other entities, or for specific projects.

SEC. 616. LIMITS ON PARTICIPATION.

An entity shall be eligible to receive an award under this subtitle only if the Secretary finds—

(1) that the entity's participation in the program under this subtitle would be in the economic interest of the United States; and

(2) that either—

(A) the entity is a United States-owned entity organized under the laws of the United States; or

(B) the entity is organized under the laws of the United States and has a parent entity organized under the laws of a country that affords—

(i) to United States-owned entities opportunities, comparable to those afforded to any other entity, to participate in any cooperative research venture similar to those authorized under this subtitle;

(ii) to United States-owned entities local investment opportunities comparable to those afforded to any other entity; and

(iii) adequate and effective protection for the intellectual property rights of United States-owned entities.

SEC. 617. SUNSET.

The authority provided by this subtitle shall terminate on September 30, 2015.

SEC. 618. DEFINITIONS.

In this subtitle:

(1) DEEPWATER.—The term "deepwater" means a water depth that is greater than 200 but less than 1,500 meters.

(2) INDEPENDENT PRODUCER OF OIL OR GAS.—

(A) IN GENERAL.—The term "independent producer of oil or gas" means any person that produces oil or gas other than a person to whom subsection (c) of section 613A of the Internal Revenue Code of 1986 does not apply by reason of paragraph (2) (relating to certain retailers) or paragraph (4) (relating to certain refiners) of section 613A(d) of such Code.

(B) RULES FOR APPLYING PARAGRAPHS (2) AND (4) OF SECTION 613A(d).—For purposes of subparagraph (A), paragraphs (2) and (4) of section 613A(d) of the Internal Revenue Code of 1986 shall be applied by substituting "calendar year" for "taxable year" each place it appears in such paragraphs.

(3) PROGRAM CONSORTIUM.—The term "program consortium" means the consortium selected under section 612(d).

(4) REMOTE OR INCONSEQUENTIAL.—The term "remote or inconsequential" has the meaning given that term in regulations issued by the Office of Gov-

ernment Ethics under section 208(b)(2) of title 18, United States Code.

(5) SMALL PRODUCER.—The term "small producer" means an entity organized under the laws of the United States with production levels of less than 1,000 barrels per day of oil equivalent.

(6) ULTRA-DEEPWATER.—The term "ultra-deepwater" means a water depth that is equal to or greater than 1,500 meters.

(7) ULTRA-DEEPWATER ARCHITECTURE.—The term "ultra-deepwater architecture" means the integration of technologies for the exploration for, or production of, natural gas or other petroleum resources located at ultra-deepwater depths.

(8) ULTRA-DEEPWATER TECHNOLOGY.—The term "ultra-deepwater technology" means a discrete technology that is specially suited to address 1 or more challenges associated with the exploration for, or production of, natural gas or other petroleum resources located at ultra-deepwater depths.

(9) UNCONVENTIONAL NATURAL GAS AND OTHER PETROLEUM RESOURCE.—The term "unconventional natural gas and other petroleum resource" means natural gas and other petroleum resource located onshore

in an economically inaccessible geological formation, including resources of small producers.

SEC. 619. FUNDING.

(a) IN GENERAL.—

(1) OIL AND GAS LEASE INCOME.—For each of fiscal years 2006 through 2015, from any Federal royalties, rents, and bonuses derived from Federal onshore and offshore oil and gas leases issued under the Outer Continental Shelf Lands Act and the Mineral Leasing Act which are deposited in the Treasury, and after distribution of any such funds as described in subsection (c), $150,000,000 shall be deposited into the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund (in this section referred to as the Fund). For purposes of this section, the term "royalties" excludes proceeds from the sale of royalty production taken in kind and royalty production that is transferred under section 27(a)(3) of the Outer Continental Shelf Lands Act (43 U.S.C. 1353(a)(3)).

(2) AUTHORIZATION OF APPROPRIATIONS.—In addition to amounts described in paragraph (1), there are authorized to be appropriated to the Secretary, to be deposited in the Fund, $50,000,000 for each of the

fiscal years 2006 through 2015, to remain available until expended.

(b) OBLIGATIONAL AUTHORITY.—Monies in the Fund shall be available to the Secretary for obligation under this subtitle without fiscal year limitation, to remain available until expended.

(c) PRIOR DISTRIBUTIONS.—The distributions described in subsection (a) are those required by law—

(1) to States and to the Reclamation Fund under the Mineral Leasing Act (30 U.S.C. 191(a)); and

(2) to other funds receiving monies from Federal oil and gas leasing programs, including—

(A) any recipients pursuant to section 8(g) of the Outer Continental Shelf Lands Act (43 U.S.C. 1337(g));

(B) the Land and Water Conservation Fund, pursuant to section 2(c) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601–5(c));

(C) the Historic Preservation Fund, pursuant to section 108 of the National Historic Preservation Act (16 U.S.C. 470h); and

(D) the Secure Energy Reinvestment Fund.

(d) ALLOCATION.—Amounts obligated from the Fund under this section in each fiscal year shall be allocated as follows:

(1) 50 percent shall be for activities under section 612.

(2) 35 percent shall be for activities under section 613(d)(1).

(3) 10 percent shall be for activities under section 613(d)(2).

(4) 5 percent shall be for research under section 611(d).

(e) FUND.—There is hereby established in the Treasury of the United States a separate fund to be known as the "Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund".

TITLE VII—HYDROGEN

SEC. 701. DEFINITIONS.

In this title:

(1) ADVISORY COMMITTEE.—The term "Advisory Committee" means the Hydrogen Technical and Fuel Cell Advisory Committee established under section 705.

(2) FUEL CELL.—The term "fuel cell" means a device that directly converts the chemical energy of a fuel and an oxidant into electricity by an electro-

chemical process taking place at separate electrodes in the device.

(3) INFRASTRUCTURE.—The term "infrastructure" means the equipment, systems, or facilities used to produce, distribute, deliver, or store hydrogen.

(4) LIGHT DUTY VEHICLE.—The term "light duty vehicle" means a car or truck classified by the Department of Transportation as a Class I or IIA vehicle.

SEC. 702. PLAN.

Not later than 6 months after the date of enactment of this Act, the Secretary shall transmit to Congress a coordinated plan for the programs described in this title and any other programs of the Department that are directly related to fuel cells or hydrogen. The plan shall describe, at a minimum—

(1) the agenda for the next 5 years for the programs authorized under this title, including the agenda for each activity enumerated in section 703(a);

(2) the types of entities that will carry out the activities under this title and what role each entity is expected to play;

(3) the milestones that will be used to evaluate the programs for the next 5 years;

(4) the most significant technical and nontechnical hurdles that stand in the way of achieving the goals described in section 703(b), and how the programs will address those hurdles; and

(5) the policy assumptions that are implicit in the plan, including any assumptions that would affect the sources of hydrogen or the marketability of hydrogen-related products.

SEC. 703. PROGRAMS.

(a) ACTIVITIES.—The Secretary, in partnership with the private sector, shall conduct programs to address—

(1) production of hydrogen from diverse energy sources, including—

(A) fossil fuels, which may include carbon capture and sequestration;

(B) hydrogen-carrier fuels (including ethanol and methanol);

(C) renewable energy resources, including biomass; and

(D) nuclear energy;

(2) use of hydrogen for commercial, industrial, and residential electric power generation;

(3) safe delivery of hydrogen or hydrogen-carrier fuels, including—

(A) transmission by pipeline and other distribution methods; and

(B) convenient and economic refueling of vehicles either at central refueling stations or through distributed on-site generation;

(4) advanced vehicle technologies, including—

(A) engine and emission control systems;

(B) energy storage, electric propulsion, and hybrid systems;

(C) automotive materials; and

(D) other advanced vehicle technologies;

(5) storage of hydrogen or hydrogen-carrier fuels, including development of materials for safe and economic storage in gaseous, liquid, or solid form at refueling facilities and onboard vehicles;

(6) development of safe, durable, affordable, and efficient fuel cells, including fuel-flexible fuel cell power systems, improved manufacturing processes, high-temperature membranes, cost-effective fuel processing for natural gas, fuel cell stack and system reliability, low temperature operation, and cold start capability;

(7) development, after consultation with the private sector, of necessary codes and standards (including international codes and standards and voluntary

consensus standards adopted in accordance with OMB Circular A–119) and safety practices for the production, distribution, storage, and use of hydrogen, hydrogen-carrier fuels, and related products; and

(8) a public education program to develop improved knowledge and acceptability of hydrogen-based systems.

(b) PROGRAM GOALS.—

(1) VEHICLES.—For vehicles, the goals of the program are—

(A) to enable a commitment by automakers no later than year 2015 to offer safe, affordable, and technically viable hydrogen fuel cell vehicles in the mass consumer market; and

(B) to enable production, delivery, and acceptance by consumers of model year 2020 hydrogen fuel cell and other hydrogen-powered vehicles that will have—

(i) a range of at least 300 miles;

(ii) improved performance and ease of driving;

(iii) safety and performance comparable to vehicle technologies in the market; and

(iv) when compared to light duty vehicles in model year 2003—

(I) fuel economy that is substantially higher;

(II) substantially lower emissions of air pollutants; and

(III) equivalent or improved vehicle fuel system crash integrity and occupant protection.

(2) HYDROGEN ENERGY AND ENERGY INFRASTRUCTURE.—For hydrogen energy and energy infrastructure, the goals of the program are to enable a commitment not later than 2015 that will lead to infrastructure by 2020 that will provide—

(A) safe and convenient refueling;

(B) improved overall efficiency;

(C) widespread availability of hydrogen from domestic energy sources through—

(i) production, with consideration of emissions levels;

(ii) delivery, including transmission by pipeline and other distribution methods for hydrogen; and

(iii) storage, including storage in surface transportation vehicles;

(D) hydrogen for fuel cells, internal combustion engines, and other energy conversion devices for portable, stationary, and transportation applications; and

(E) other technologies consistent with the Department's plan.

(3) FUEL CELLS.—The goals for fuel cells and their portable, stationary, and transportation applications are to enable—

(A) safe, economical, and environmentally sound hydrogen fuel cells;

(B) fuel cells for light duty and other vehicles; and

(C) other technologies consistent with the Department's plan.

(c) DEMONSTRATION.—In carrying out the programs under this section, the Secretary shall fund a limited number of demonstration projects, consistent with a determination of the maturity, cost-effectiveness, and environmental impacts of technologies supporting each project. In selecting projects under this subsection, the Secretary shall, to the extent practicable and in the public interest, select projects that—

(1) involve using hydrogen and related products at existing facilities or installations, such as existing

office buildings, military bases, vehicle fleet centers, transit bus authorities, or units of the National Park System;

(2) depend on reliable power from hydrogen to carry out essential activities;

(3) lead to the replication of hydrogen technologies and draw such technologies into the marketplace;

(4) include vehicle, portable, and stationary demonstrations of fuel cell and hydrogen-based energy technologies;

(5) address the interdependency of demand for hydrogen fuel cell applications and hydrogen fuel infrastructure;

(6) raise awareness of hydrogen technology among the public;

(7) facilitate identification of an optimum technology among competing alternatives;

(8) address distributed generation using renewable sources; and

(9) address applications specific to rural or remote locations, including isolated villages and islands, the National Park System, and tribal entities. The Secretary shall give preference to projects which address multiple elements contained in paragraphs (1) through (9).

(d) DEPLOYMENT.—In carrying out the programs under this section, the Secretary shall, in partnership with the private sector, conduct activities to facilitate the deployment of hydrogen energy and energy infrastructure, fuel cells, and advanced vehicle technologies.

(e) FUNDING.—

(1) IN GENERAL.—The Secretary shall carry out the programs under this section using a competitive, merit-based review process and consistent with the generally applicable Federal laws and regulations governing awards of financial assistance, contracts, or other agreements.

(2) RESEARCH CENTERS.—Activities under this section may be carried out by funding nationally recognized university-based or Federal laboratory research centers.

(f) DISCLOSURE.—Section 623 of the Energy Policy Act of 1992 (42 U.S.C. 13293) relating to the protection of information shall apply to projects carried out through grants, cooperative agreements, or contracts under this title.

SEC. 704. INTERAGENCY TASK FORCE.

(a) ESTABLISHMENT.—Not later than 120 days after the date of enactment of this Act, the President shall establish an interagency task force chaired by the Secretary with representatives from each of the following:

(1) The Office of Science and Technology Policy within the Executive Office of the President.

(2) The Department of Transportation.

(3) The Department of Defense.

(4) The Department of Commerce (including the National Institute of Standards and Technology).

(5) The Department of State.

(6) The Environmental Protection Agency.

(7) The National Aeronautics and Space Administration.

(8) Other Federal agencies as the Secretary determines appropriate.

(b) DUTIES.—

(1) PLANNING.—The interagency task force shall work toward—

(A) a safe, economical, and environmentally sound fuel infrastructure for hydrogen and hydrogen-carrier fuels, including an infrastructure that supports buses and other fleet transportation;

(B) fuel cells in government and other applications, including portable, stationary, and transportation applications;

(C) distributed power generation, including the generation of combined heat, power, and clean fuels including hydrogen;

(D) uniform hydrogen codes, standards, and safety protocols; and

(E) vehicle hydrogen fuel system integrity safety performance.

(2) ACTIVITIES.—The interagency task force may organize workshops and conferences, may issue publications, and may create databases to carry out its duties. The interagency task force shall—

(A) foster the exchange of generic, nonproprietary information and technology among industry, academia, and government;

(B) develop and maintain an inventory and assessment of hydrogen, fuel cells, and other advanced technologies, including the commercial capability of each technology for the economic and environmentally safe production, distribution, delivery, storage, and use of hydrogen;

(C) integrate technical and other information made available as a result of the programs and activities under this title;

(D) promote the marketplace introduction of infrastructure for hydrogen fuel vehicles; and

(E) conduct an education program to provide hydrogen and fuel cell information to potential end-users.

(c) AGENCY COOPERATION.—The heads of all agencies, including those whose agencies are not represented on the interagency task force, shall cooperate with and furnish information to the interagency task force, the Advisory Committee, and the Department.

SEC. 705. ADVISORY COMMITTEE.

(a) ESTABLISHMENT.—The Hydrogen Technical and Fuel Cell Advisory Committee is established to advise the Secretary on the programs and activities under this title.

(b) MEMBERSHIP.—

(1) MEMBERS.—The Advisory Committee shall be comprised of not fewer than 12 nor more than 25 members. The members shall be appointed by the Secretary to represent domestic industry, academia, professional societies, government agencies, Federal laboratories, previous advisory panels, and financial, environmental, and other appropriate organizations based on the Department's assessment of the technical and other qualifications of committee members and the needs of the Advisory Committee.

(2) TERMS.—The term of a member of the Advisory Committee shall not be more than 3 years. The

Secretary may appoint members of the Advisory Committee in a manner that allows the terms of the members serving at any time to expire at spaced intervals so as to ensure continuity in the functioning of the Advisory Committee. A member of the Advisory Committee whose term is expiring may be reappointed.

(3) CHAIRPERSON.—The Advisory Committee shall have a chairperson, who is elected by the members from among their number.

(c) REVIEW.—The Advisory Committee shall review and make recommendations to the Secretary on—

(1) the implementation of programs and activities under this title;

(2) the safety, economical, and environmental consequences of technologies for the production, distribution, delivery, storage, or use of hydrogen energy and fuel cells; and

(3) the plan under section 702.

(d) RESPONSE.—

(1) CONSIDERATION OF RECOMMENDATIONS.—The Secretary shall consider, but need not adopt, any recommendations of the Advisory Committee under subsection (c).

(2) BIENNIAL REPORT.—The Secretary shall transmit a biennial report to Congress describing any recommendations made by the Advisory Committee since the previous report. The report shall include a description of how the Secretary has implemented or plans to implement the recommendations, or an explanation of the reasons that a recommendation will not be implemented. The report shall be transmitted along with the President's budget proposal.

(e) SUPPORT.—The Secretary shall provide resources necessary in the judgment of the Secretary for the Advisory Committee to carry out its responsibilities under this title.

SEC. 706. EXTERNAL REVIEW.

(a) PLAN.—The Secretary shall enter into an arrangement with the National Academy of Sciences to review the plan prepared under section 702, which shall be completed not later than 6 months after the Academy receives the plan. Not later than 45 days after receiving the review, the Secretary shall transmit the review to Congress along with a plan to implement the review's recommendations or an explanation of the reasons that a recommendation will not be implemented.

(b) ADDITIONAL REVIEW.—The Secretary shall enter into an arrangement with the National Academy of Sciences under which the Academy will review the pro-

grams under section 703 during the fourth year following the date of enactment of this Act. The Academy's review shall include the research priorities and technical milestones, and evaluate the progress toward achieving them. The review shall be completed not later than 5 years after the date of enactment of this Act. Not later than 45 days after receiving the review, the Secretary shall transmit the review to Congress along with a plan to implement the review's recommendations or an explanation for the reasons that a recommendation will not be implemented.

SEC. 707. MISCELLANEOUS PROVISIONS.

(a) REPRESENTATION.—The Secretary may represent the United States interests with respect to activities and programs under this title, in coordination with the Department of Transportation, the National Institute of Standards and Technology, and other relevant Federal agencies, before governments and nongovernmental organizations including—

(1) other Federal, State, regional, and local governments and their representatives;

(2) industry and its representatives, including members of the energy and transportation industries; and

(3) in consultation with the Department of State, foreign governments and their representatives including international organizations.

(b) REGULATORY AUTHORITY.—Nothing in this title shall be construed to alter the regulatory authority of the Department.

SEC. 708. SAVINGS CLAUSE.

Nothing in this title shall be construed to affect the authority of the Secretary of Transportation that may exist prior to the date of enactment of this Act with respect to—

(1) research into, and regulation of, hydrogen-powered vehicles fuel systems integrity, standards, and safety under subtitle VI of title 49, United States Code;

(2) regulation of hazardous materials transportation under chapter 51 of title 49, United States Code;

(3) regulation of pipeline safety under chapter 601 of title 49, United States Code;

(4) encouragement and promotion of research, development, and deployment activities relating to advanced vehicle technologies under section 5506 of title 49, United States Code;

(5) regulation of motor vehicle safety under chapter 301 of title 49, United States Code;

(6) automobile fuel economy under chapter 329 of title 49, United States Code; or

(7) representation of the interests of the United States with respect to the activities and programs under the authority of title 49, United States Code.

SEC. 709. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary to carry out this title, in addition to any amounts made available for these purposes under other Acts—

(1) $273,500,000 for fiscal year 2006;

(2) $375,000,000 for fiscal year 2007;

(3) $450,000,000 for fiscal year 2008;

(4) $500,000,000 for fiscal year 2009; and

(5) $550,000,000 for fiscal year 2010.

TITLE VIII—ADVANCED VEHICLES

Subtitle A—Pilot Program

SEC. 801. DEFINITIONS.

In this subtitle:

(1) ALTERNATIVE FUELED VEHICLE.—

(A) IN GENERAL.—The term ''alternative fueled vehicle'' means a vehicle propelled solely on an alternative fuel (as defined in section 301 of the Energy Policy Act of 1992 (42 U.S.C. 13211)).

(B) EXCLUSION.—The term "alternative fueled vehicle" does not include a vehicle that the Secretary determines, by regulation, does not yield substantial environmental benefits over a vehicle operating solely on gasoline or diesel derived from fossil fuels.

(2) FUEL CELL VEHICLE.—The term "fuel cell vehicle" means a vehicle propelled by an electric motor powered by a fuel cell system that converts chemical energy into electricity by combining oxygen (from air) with hydrogen fuel that is stored on the vehicle or is produced onboard by reformation of a hydrocarbon fuel. Such fuel cell system may or may not include the use of auxiliary energy storage systems to enhance vehicle performance.

(3) HYBRID VEHICLE.—The term "hybrid vehicle" means a medium or heavy duty vehicle propelled by an internal combustion engine or heat engine using any combustible fuel and an onboard rechargeable energy storage device.

(4) NEIGHBORHOOD ELECTRIC VEHICLE.—The term "neighborhood electric vehicle" means a motor vehicle that—

(A) meets the definition of a low-speed vehicle (as defined in part 571 of title 49, Code of Federal Regulations);

(B) meets the definition of a zero-emission vehicle (as defined in section 86.1702–99 of title 40, Code of Federal Regulations);

(C) meets the requirements of Federal Motor Vehicle Safety Standard No. 500; and

(D) has a maximum speed of not greater than 25 miles per hour.

(5) PILOT PROGRAM.—The term "pilot program" means the competitive grant program established under section 802.

(6) ULTRA-LOW SULFUR DIESEL VEHICLE.—The term "ultra-low sulfur diesel vehicle" means a vehicle manufactured in model year 2005 or 2006 powered by a heavy-duty diesel engine that—

(A) is fueled by diesel fuel that contains sulfur at not more than 15 parts per million; and

(B) emits not more than the lesser of—

(i) 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; or

(ii) the quantity of emissions of non-methane hydrocarbons, oxides of nitrogen, and particulate matter of the best-performing technology of ultra-low sulfur diesel vehicles of the same class and application that are commercially available.

SEC. 802. PILOT PROGRAM.

(a) ESTABLISHMENT.—The Secretary, in consultation with the Secretary of Transportation, shall establish a competitive grant pilot program, to be administered through the Clean Cities Program of the Department of Energy, to provide not more than 15 geographically dispersed project grants to State governments, local governments, or metropolitan transportation authorities to carry out a project or projects for the purposes described in subsection (b).

(b) GRANT PURPOSES.—A grant under this section may be used for the following purposes:

(1) The acquisition of alternative fueled vehicles or fuel cell vehicles, including—

(A) passenger vehicles (including neighborhood electric vehicles); and

(B) motorized 2-wheel bicycles, scooters, or other vehicles for use by law enforcement personnel or other State or local government or metropolitan transportation authority employees.

(2) The acquisition of alternative fueled vehicles, hybrid vehicles, or fuel cell vehicles, including—

(A) buses used for public transportation or transportation to and from schools;

(B) delivery vehicles for goods or services; and

(C) ground support vehicles at public airports (including vehicles to carry baggage or push or pull airplanes toward or away from terminal gates).

(3) The acquisition of ultra-low sulfur diesel vehicles.

(4) Installation or acquisition of infrastructure necessary to directly support an alternative fueled vehicle, fuel cell vehicle, or hybrid vehicle project funded by the grant, including fueling and other support equipment.

(5) Operation and maintenance of vehicles, infrastructure, and equipment acquired as part of a project funded by the grant.

(c) APPLICATIONS.—

(1) REQUIREMENTS.—

(A) IN GENERAL.—The Secretary shall issue requirements for applying for grants under the pilot program.

(B) MINIMUM REQUIREMENTS.—At a minimum, the Secretary shall require that an application for a grant—

(i) be submitted by the head of a State or local government or a metropolitan transportation authority, or any combination thereof, and a registered participant in the Clean Cities Program of the Department of Energy; and

(ii) include—

(I) a description of the project proposed in the application, including how the project meets the requirements of this subtitle;

(II) an estimate of the ridership or degree of use of the project;

(III) an estimate of the air pollution emissions reduced and fossil fuel displaced as a result of the project, and a plan to collect and disseminate environmental data, related to the project to be funded under the grant, over the life of the project;

(IV) a description of how the project will be sustainable without Fed-

eral assistance after the completion of the term of the grant;

(V) a complete description of the costs of the project, including acquisition, construction, operation, and maintenance costs over the expected life of the project;

(VI) a description of which costs of the project will be supported by Federal assistance under this subtitle; and

(VII) documentation to the satisfaction of the Secretary that diesel fuel containing sulfur at not more than 15 parts per million is available for carrying out the project, and a commitment by the applicant to use such fuel in carrying out the project.

(2) PARTNERS.—An applicant under paragraph (1) may carry out a project under the pilot program in partnership with public and private entities.

(d) SELECTION CRITERIA.—In evaluating applications under the pilot program, the Secretary shall—

(1) consider each applicant's previous experience with similar projects; and

(2) give priority consideration to applications that—

(A) are most likely to maximize protection of the environment;

(B) demonstrate the greatest commitment on the part of the applicant to ensure funding for the proposed project and the greatest likelihood that the project will be maintained or expanded after Federal assistance under this subtitle is completed; and

(C) exceed the minimum requirements of subsection (c)(1)(B)(ii).

(e) PILOT PROJECT REQUIREMENTS.—

(1) MAXIMUM AMOUNT.—The Secretary shall not provide more than $20,000,000 in Federal assistance under the pilot program to any applicant.

(2) COST SHARING.—The Secretary shall not provide more than 50 percent of the cost, incurred during the period of the grant, of any project under the pilot program.

(3) MAXIMUM PERIOD OF GRANTS.—The Secretary shall not fund any applicant under the pilot program for more than 5 years.

(4) DEPLOYMENT AND DISTRIBUTION.—The Secretary shall seek to the maximum extent practicable

to ensure a broad geographic distribution of project sites.

(5) TRANSFER OF INFORMATION AND KNOWLEDGE.—The Secretary shall establish mechanisms to ensure that the information and knowledge gained by participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(f) SCHEDULE.—

(1) PUBLICATION.—Not later than 90 days after the date of enactment of this Act, the Secretary shall publish in the Federal Register, Commerce Business Daily, and elsewhere as appropriate, a request for applications to undertake projects under the pilot program. Applications shall be due not later than 180 days after the date of publication of the notice.

(2) SELECTION.—Not later than 180 days after the date by which applications for grants are due, the Secretary shall select by competitive, peer reviewed proposal, all applications for projects to be awarded a grant under the pilot program.

(g) LIMIT ON FUNDING.—The Secretary shall provide not less than 20 nor more than 25 percent of the grant fund-

ing made available under this section for the acquisition of ultra-low sulfur diesel vehicles.

SEC. 803. REPORTS TO CONGRESS.

(a) INITIAL REPORT.—Not later than 60 days after the date on which grants are awarded under this subtitle, the Secretary shall submit to Congress a report containing—

(1) an identification of the grant recipients and a description of the projects to be funded;

(2) an identification of other applicants that submitted applications for the pilot program; and

(3) a description of the mechanisms used by the Secretary to ensure that the information and knowledge gained by participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(b) EVALUATION.—Not later than 3 years after the date of enactment of this Act, and annually thereafter until the pilot program ends, the Secretary shall submit to Congress a report containing an evaluation of the effectiveness of the pilot program, including—

(1) an assessment of the benefits to the environment derived from the projects included in the pilot program; and

(2) an estimate of the potential benefits to the environment to be derived from widespread application of alternative fueled vehicles and ultra-low sulfur diesel vehicles.

SEC. 804. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary to carry out this subtitle $200,000,000, to remain available until expended.

Subtitle B—Clean School Buses

SEC. 811. DEFINITIONS.

In this subtitle:

(1) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) ALTERNATIVE FUEL.—The term "alternative fuel" means liquefied natural gas, compressed natural gas, liquefied petroleum gas, hydrogen, propane, or methanol or ethanol at no less than 85 percent by volume.

(3) ALTERNATIVE FUEL SCHOOL BUS.—The term "alternative fuel school bus" means a school bus that meets all of the requirements of this subtitle and is operated solely on an alternative fuel.

(4) EMISSIONS CONTROL RETROFIT TECHNOLOGY.—The term "emissions control retrofit tech-

nology'' means a particulate filter or other emissions control equipment that is verified or certified by the Administrator or the California Air Resources Board as an effective emission reduction technology when installed on an existing school bus.

(5) IDLING.—The term ''idling'' means operating an engine while remaining stationary for more than approximately 15 minutes, except that the term does not apply to routine stoppages associated with traffic movement or congestion.

(6) ULTRA-LOW SULFUR DIESEL FUEL.—The term ''ultra-low sulfur diesel fuel'' means diesel fuel that contains sulfur at not more than 15 parts per million.

(7) ULTRA-LOW SULFUR DIESEL FUEL SCHOOL BUS.—The term ''ultra-low sulfur diesel fuel school bus'' means a school bus that meets all of the requirements of this subtitle and is operated solely on ultra-low sulfur diesel fuel.

SEC. 812. PROGRAM FOR REPLACEMENT OF CERTAIN SCHOOL BUSES WITH CLEAN SCHOOL BUSES.

(a) ESTABLISHMENT.—The Administrator, in consultation with the Secretary and other appropriate Federal departments and agencies, shall establish a program for awarding grants on a competitive basis to eligible entities

for the replacement of existing school buses manufactured before model year 1991 with alternative fuel school buses and ultra-low sulfur diesel fuel school buses.

(b) REQUIREMENTS.—

(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Administrator shall establish and publish in the Federal Register grant requirements on eligibility for assistance, and on implementation of the program established under subsection (a), including instructions for the submission of grant applications and certification requirements to ensure compliance with this subtitle.

(2) APPLICATION DEADLINES.—The requirements established under paragraph (1) shall require submission of grant applications not later than—

(A) in the case of the first year of program implementation, the date that is 180 days after the publication of the requirements in the Federal Register; and

(B) in the case of each subsequent year, June 1 of the year.

(c) ELIGIBLE RECIPIENTS.—A grant shall be awarded under this section only—

(1) to 1 or more local or State governmental entities responsible for providing school bus service to 1

or more public school systems or responsible for the purchase of school buses;

(2) to 1 or more contracting entities that provide school bus service to 1 or more public school systems, if the grant application is submitted jointly with the 1 or more school systems to be served by the buses, except that the application may provide that buses purchased using funds awarded shall be owned, operated, and maintained exclusively by the 1 or more contracting entities; or

(3) to a nonprofit school transportation association representing private contracting entities, if the association has notified and received approval from the 1 or more school systems to be served by the buses.

(d) AWARD DEADLINES.—

(1) IN GENERAL.—Subject to paragraph (2), the Administrator shall award a grant made to a qualified applicant for a fiscal year—

(A) in the case of the first fiscal year of program implementation, not later than the date that is 90 days after the application deadline established under subsection (b)(2); and

(B) in the case of each subsequent fiscal year, not later than August 1 of the fiscal year.

(2) INSUFFICIENT NUMBER OF QUALIFIED GRANT APPLICATIONS.—If the Administrator does not receive a sufficient number of qualified grant applications to meet the requirements of subsection (i)(1) for a fiscal year, the Administrator shall award a grant made to a qualified applicant under subsection (i)(2) not later than September 30 of the fiscal year.

(e) TYPES OF GRANTS.—

(1) IN GENERAL.—A grant under this section shall be used for the replacement of school buses manufactured before model year 1991 with alternative fuel school buses and ultra-low sulfur diesel fuel school buses.

(2) NO ECONOMIC BENEFIT.—Other than the receipt of the grant, a recipient of a grant under this section may not receive any economic benefit in connection with the receipt of the grant.

(3) PRIORITY OF GRANT APPLICATIONS.—The Administrator shall give priority to applicants that propose to replace school buses manufactured before model year 1977.

(f) CONDITIONS OF GRANT.—A grant provided under this section shall include the following conditions:

(1) SCHOOL BUS FLEET.—All buses acquired with funds provided under the grant shall be operated

as part of the school bus fleet for which the grant was made for a minimum of 5 years.

(2) USE OF FUNDS.—Funds provided under the grant may only be used—

(A) to pay the cost, except as provided in paragraph (3), of new alternative fuel school buses or ultra-low sulfur diesel fuel school buses, including State taxes and contract fees associated with the acquisition of such buses; and

(B) to provide—

(i) up to 20 percent of the price of the alternative fuel school buses acquired, for necessary alternative fuel infrastructure if the infrastructure will only be available to the grant recipient; and

(ii) up to 25 percent of the price of the alternative fuel school buses acquired, for necessary alternative fuel infrastructure if the infrastructure will be available to the grant recipient and to other bus fleets.

(3) GRANT RECIPIENT FUNDS.—The grant recipient shall be required to provide at least—

(A) in the case of a grant recipient described in paragraph (1) or (3) of subsection (c), the lesser of—

(i) an amount equal to 15 percent of the total cost of each bus received; or

(ii) $15,000 per bus; and

(B) in the case of a grant recipient described in subsection (c)(2), the lesser of—

(i) an amount equal to 20 percent of the total cost of each bus received; or

(ii) $20,000 per bus.

(4) ULTRA-LOW SULFUR DIESEL FUEL.—In the case of a grant recipient receiving a grant for ultra-low sulfur diesel fuel school buses, the grant recipient shall be required to provide documentation to the satisfaction of the Administrator that diesel fuel containing sulfur at not more than 15 parts per million is available for carrying out the purposes of the grant, and a commitment by the applicant to use such fuel in carrying out the purposes of the grant.

(5) TIMING.—All alternative fuel school buses, ultra-low sulfur diesel fuel school buses, or alternative fuel infrastructure acquired under a grant awarded under this section shall be purchased and placed in service as soon as practicable.

(g) BUSES.—

(1) IN GENERAL.—Except as provided in paragraph (2), funding under a grant made under this

section for the acquisition of new alternative fuel school buses or ultra-low sulfur diesel fuel school buses shall only be used to acquire school buses—

(A) with a gross vehicle weight of greater than 14,000 pounds;

(B) that are powered by a heavy duty engine;

(C) in the case of alternative fuel school buses manufactured in model years 2005 and 2006, that emit not more than 1.8 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(D) in the case of ultra-low sulfur diesel fuel school buses manufactured in model years 2005 and 2006, that emit not more than 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter.

(2) LIMITATIONS.—A bus shall not be acquired under this section that emits nonmethane hydrocarbons, oxides of nitrogen, or particulate matter at a rate greater than the best performing technology of

the same class of ultra-low sulfur diesel fuel school buses commercially available at the time the grant is made.

(h) DEPLOYMENT AND DISTRIBUTION.—The Administrator shall—

(1) seek, to the maximum extent practicable, to achieve nationwide deployment of alternative fuel school buses and ultra-low sulfur diesel fuel school buses through the program under this section; and

(2) ensure a broad geographic distribution of grant awards, with a goal of no State receiving more than 10 percent of the grant funding made available under this section for a fiscal year.

(i) ALLOCATION OF FUNDS.—

(1) IN GENERAL.—Subject to paragraph (2), of the amount of grant funding made available to carry out this section for any fiscal year, the Administrator shall use—

(A) 70 percent for the acquisition of alternative fuel school buses or supporting infrastructure; and

(B) 30 percent for the acquisition of ultra-low sulfur diesel fuel school buses.

(2) INSUFFICIENT NUMBER OF QUALIFIED GRANT APPLICATIONS.—After the first fiscal year in which

this program is in effect, if the Administrator does not receive a sufficient number of qualified grant applications to meet the requirements of subparagraph (A) or (B) of paragraph (1) for a fiscal year, effective beginning on August 1 of the fiscal year, the Administrator shall make the remaining funds available to other qualified grant applicants under this section.

(j) REDUCTION OF SCHOOL BUS IDLING.—Each local educational agency (as defined in section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801)) that receives Federal funds under the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6301 et seq.) is encouraged to develop a policy, consistent with the health, safety, and welfare of students and the proper operation and maintenance of school buses, to reduce the incidence of unnecessary school bus idling at schools when picking up and unloading students.

(k) ANNUAL REPORT.—

(1) IN GENERAL.—Not later than January 31 of each year, the Administrator shall transmit to Congress a report evaluating implementation of the programs under this section and section 813.

(2) COMPONENTS.—The reports shall include a description of—

(A) the total number of grant applications received;

(B) the number and types of alternative fuel school buses, ultra-low sulfur diesel fuel school buses, and retrofitted buses requested in grant applications;

(C) grants awarded and the criteria used to select the grant recipients;

(D) certified engine emission levels of all buses purchased or retrofitted under the programs under this section and section 813;

(E) an evaluation of the in-use emission level of buses purchased or retrofitted under the programs under this section and section 813; and

(F) any other information the Administrator considers appropriate.

(l) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section—

(1) $45,000,000 for fiscal year 2006; and

(2) $65,000,000 for fiscal year 2007.

SEC. 813. DIESEL RETROFIT PROGRAM.

(a) ESTABLISHMENT.—The Administrator, in consultation with the Secretary, shall establish a program for

awarding grants on a competitive basis to entities for the installation of retrofit technologies for diesel school buses.

(b) ELIGIBLE RECIPIENTS.—A grant shall be awarded under this section only—

(1) to a local or State governmental entity responsible for providing school bus service to 1 or more public school systems;

(2) to 1 or more contracting entities that provide school bus service to 1 or more public school systems, if the grant application is submitted jointly with the 1 or more school systems that the buses will serve, except that the application may provide that buses purchased using funds awarded shall be owned, operated, and maintained exclusively by the 1 or more contracting entities; or

(3) to a nonprofit school transportation association representing private contracting entities, if the association has notified and received approval from the 1 or more school systems to be served by the buses.

(c) AWARDS.—

(1) IN GENERAL.—The Administrator shall seek, to the maximum extent practicable, to ensure a broad geographic distribution of grants under this section.

(2) PREFERENCES.—In making awards of grants under this section, the Administrator shall give preference to proposals that—

(A) will achieve the greatest reductions in emissions of nonmethane hydrocarbons, oxides of nitrogen, or particulate matter per proposal or per bus; or

(B) involve the use of emissions control retrofit technology on diesel school buses that operate solely on ultra-low sulfur diesel fuel.

(d) CONDITIONS OF GRANT.—A grant shall be provided under this section on the conditions that—

(1) buses on which retrofit emissions-control technology are to be demonstrated—

(A) will operate on ultra-low sulfur diesel fuel where such fuel is reasonably available or required for sale by State or local law or regulation;

(B) were manufactured in model year 1991 or later; and

(C) will be used for the transportation of school children to and from school for a minimum of 5 years;

(2) grant funds will be used for the purchase of emission control retrofit technology, including State taxes and contract fees; and

(3) grant recipients will provide at least 15 percent of the total cost of the retrofit, including the purchase of emission control retrofit technology and all necessary labor for installation of the retrofit.

(e) VERIFICATION.—Not later than 90 days after the date of enactment of this Act, the Administrator shall publish in the Federal Register procedures to verify—

(1) the retrofit emissions-control technology to be demonstrated;

(2) that buses powered by ultra-low sulfur diesel fuel on which retrofit emissions-control technology are to be demonstrated will operate on diesel fuel containing not more than 15 parts per million of sulfur; and

(3) that grants are administered in accordance with this section.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section—

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

(2) $35,000,000 for fiscal year 2007.

SEC. 814. FUEL CELL SCHOOL BUSES.

(a) ESTABLISHMENT.—The Secretary shall establish a program for entering into cooperative agreements—

(1) with private sector fuel cell bus developers for the development of fuel cell-powered school buses; and

(2) subsequently, with not less than 2 units of local government using natural gas-powered school buses and such private sector fuel cell bus developers to demonstrate the use of fuel cell-powered school buses.

(b) COST SHARING.—The non-Federal contribution for activities funded under this section shall be not less than—

(1) 20 percent for fuel infrastructure development activities; and

(2) 50 percent for demonstration activities and for development activities not described in paragraph (1).

(c) REPORTS TO CONGRESS.—Not later than 3 years after the date of enactment of this Act, the Secretary shall transmit to Congress a report that—

(1) evaluates the process of converting natural gas infrastructure to accommodate fuel cell-powered school buses; and

(2) assesses the results of the development and demonstration program under this section.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section $25,000,000 for the period of fiscal years 2006 through 2008.

Subtitle C—Fuel Cell Transit Bus Demonstration

SEC. 821. FUEL CELL TRANSIT BUS DEMONSTRATION.

(a) IN GENERAL.—The Secretary, in consultation with the Secretary of Transportation, shall establish a transit bus demonstration program to make competitive, merit-based awards for 5-year projects to demonstrate not more than 25 fuel cell transit buses (and necessary infrastructure) in 5 geographically dispersed localities.

(b) PREFERENCE.—In selecting projects under this section, the Secretary shall give preference to projects that are most likely to mitigate congestion and improve air quality.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section $10,000,000 for each of fiscal years 2006 through 2010.

TITLE IX—CLEAN COAL POWER INITIATIVE

SEC. 901. AUTHORIZATION OF APPROPRIATIONS.

(a) CLEAN COAL POWER INITIATIVE.—There are authorized to be appropriated to the Secretary to carry out

the activities authorized by this title $200,000,000 for each of fiscal years 2006 through 2012, to remain available until expended.

(b) REPORT.—The Secretary shall transmit to Congress the report required by this subsection not later than March 31, 2006. The report shall include, with respect to subsection (a), a 10-year plan containing—

(1) a detailed assessment of whether the aggregate funding levels provided under subsection (a) are the appropriate funding levels for that program;

(2) a detailed description of how proposals will be solicited and evaluated, including a list of all activities expected to be undertaken;

(3) a detailed list of technical milestones for each coal and related technology that will be pursued; and

(4) a detailed description of how the program will avoid problems enumerated in General Accounting Office reports on the Clean Coal Technology Program, including problems that have resulted in unspent funds and projects that failed either financially or scientifically.

SEC. 902. PROJECT CRITERIA.

(a) IN GENERAL.—The Secretary shall not provide funding under this title for any project that does not advance efficiency, environmental performance, and cost com-

petitiveness well beyond the level of technologies that are in commercial service or have been demonstrated on a scale that the Secretary determines is sufficient to demonstrate that commercial service is viable as of the date of enactment of this Act.

(b) TECHNICAL CRITERIA FOR CLEAN COAL POWER INITIATIVE.—

(1) GASIFICATION PROJECTS.—

(A) IN GENERAL.—In allocating the funds made available under section 901(a), the Secretary shall ensure that at least 60 percent of the funds are used only for projects on coal-based gasification technologies, including gasification combined cycle, gasification fuel cells, gasification coproduction, and hybrid gasification/combustion.

(B) TECHNICAL MILESTONES.—The Secretary shall periodically set technical milestones specifying the emission and thermal efficiency levels that coal gasification projects under this title shall be designed, and reasonably expected, to achieve. The technical milestones shall become more restrictive during the life of the program. The Secretary shall set the periodic milestones so

as to achieve by 2020 coal gasification projects able—

(i) to remove 99 percent of sulfur dioxide;

(ii) to emit not more than .05 lbs of NO_x per million Btu;

(iii) to achieve substantial reductions in mercury emissions; and

(iv) to achieve a thermal efficiency of—

(I) 60 percent for coal of more than 9,000 Btu;

(II) 59 percent for coal of 7,000 to 9,000 Btu; and

(III) 50 percent for coal of less than 7,000 Btu.

(2) OTHER PROJECTS.—The Secretary shall periodically set technical milestones and ensure that up to 40 percent of the funds appropriated pursuant to section 901(a) are used for projects not described in paragraph (1). The milestones shall specify the emission and thermal efficiency levels that projects funded under this paragraph shall be designed to and reasonably expected to achieve. The technical milestones shall become more restrictive during the life of the

program. The Secretary shall set the periodic milestones so as to achieve by 2010 projects able—

(A) to remove 97 percent of sulfur dioxide;

(B) to emit no more than .08 lbs of NO_x per million Btu;

(C) to achieve substantial reductions in mercury emissions; and

(D) to achieve a thermal efficiency of—

(i) 45 percent for coal of more than 9,000 Btu;

(ii) 44 percent for coal of 7,000 to 9,000 Btu; and

(iii) 40 percent for coal of less than 7,000 Btu.

(3) CONSULTATION.—Before setting the technical milestones under paragraphs (1)(B) and (2), the Secretary shall consult with the Administrator of the Environmental Protection Agency and interested entities, including coal producers, industries using coal, organizations to promote coal or advanced coal technologies, environmental organizations, and organizations representing workers.

(4) EXISTING UNITS.—In the case of projects at units in existence on the date of enactment of this Act, in lieu of the thermal efficiency requirements set

forth in paragraph (1)(B)(iv) and (2)(D), the milestones shall be designed to achieve an overall thermal design efficiency improvement, compared to the efficiency of the unit as operated, of not less than—

(A) 7 percent for coal of more than 9,000 Btu;

(B) 6 percent for coal of 7,000 to 9,000 Btu; or

(C) 4 percent for coal of less than 7,000 Btu.

(5) PERMITTED USES.—In carrying out this title, the Secretary may fund projects that include, as part of the project, the separation and capture of carbon dioxide.

(c) FINANCIAL CRITERIA.—The Secretary shall not provide a funding award under this title unless the recipient documents to the satisfaction of the Secretary that—

(1) the award recipient is financially viable without the receipt of additional Federal funding;

(2) the recipient will provide sufficient information to the Secretary to enable the Secretary to ensure that the award funds are spent efficiently and effectively; and

(3) a market exists for the technology being demonstrated or applied, as evidenced by statements of

interest in writing from potential purchasers of the technology.

(d) FINANCIAL ASSISTANCE.—The Secretary shall provide financial assistance to projects that meet the requirements of subsections (a), (b), and (c) and are likely to—

(1) achieve overall cost reductions in the utilization of coal to generate useful forms of energy;

(2) improve the competitiveness of coal among various forms of energy in order to maintain a diversity of fuel choices in the United States to meet electricity generation requirements; and

(3) demonstrate methods and equipment that are applicable to 25 percent of the electricity generating facilities, using various types of coal, that use coal as the primary feedstock as of the date of enactment of this Act.

(e) FEDERAL SHARE.—The Federal share of the cost of a coal or related technology project funded by the Secretary under this title shall not exceed 50 percent.

(f) APPLICABILITY.—No technology, or level of emission reduction, shall be treated as adequately demonstrated for purposes of section 111 of the Clean Air Act (42 U.S.C. 7411), achievable for purposes of section 169 of that Act (42 U.S.C. 7479), or achievable in practice for purposes of section 171 of that Act (42 U.S.C. 7501) solely by reason

of the use of such technology, or the achievement of such emission reduction, by 1 or more facilities receiving assistance under this title.

SEC. 903. REPORT.

Not later than 1 year after the date of enactment of this Act, and once every 2 years thereafter through 2012, the Secretary, in consultation with other appropriate Federal agencies, shall transmit to Congress a report describing—

(1) the technical milestones set forth in section 902 and how those milestones ensure progress toward meeting the requirements of subsections (b)(1)(B) and (b)(2) of section 902; and

(2) the status of projects funded under this title.

SEC. 904. CLEAN COAL CENTERS OF EXCELLENCE.

As part of the program authorized in section 901, the Secretary shall award competitive, merit-based grants to universities for the establishment of Centers of Excellence for Energy Systems of the Future. The Secretary shall provide grants to universities that show the greatest potential for advancing new clean coal technologies.

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

SEC. 1001. IMPROVED COORDINATION AND MANAGEMENT OF CIVILIAN SCIENCE AND TECHNOLOGY PROGRAMS.

(a) RECONFIGURATION OF POSITION OF DIRECTOR OF THE OFFICE OF SCIENCE.—Section 209 of the Department of Energy Organization Act (42 U.S.C. 7139) is amended to read as follows:

"OFFICE OF SCIENCE

"SEC. 209. (a) There shall be within the Department an Office of Science, to be headed by an Assistant Secretary of Science, who shall be appointed by the President, by and with the advice and consent of the Senate, and who shall be compensated at the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code.

"(b) The Assistant Secretary of Science shall be in addition to the Assistant Secretaries provided for under section 203 of this Act.

"(c) It shall be the duty and responsibility of the Assistant Secretary of Science to carry out the fundamental science and engineering research functions of the Depart-

ment, including the responsibility for policy and management of such research, as well as other functions vested in the Secretary which he may assign to the Assistant Secretary.".

(b) ADDITIONAL ASSISTANT SECRETARY POSITION TO ENABLE IMPROVED MANAGEMENT OF NUCLEAR ENERGY ISSUES.—(1) Section 203(a) of the Department of Energy Organization Act (42 U.S.C. 7133(a)) is amended by striking "There shall be in the Department six Assistant Secretaries" and inserting "Except as provided in section 209, there shall be in the Department seven Assistant Secretaries".

(2) It is the sense of the Congress that the leadership for departmental missions in nuclear energy should be at the Assistant Secretary level.

(c) TECHNICAL AND CONFORMING AMENDMENTS.—(1) Section 5315 of title 5, United States Code, is amended by—

(A) striking "Director, Office of Science, Department of Energy."; and

(B) striking "Assistant Secretaries of Energy (6)" and inserting "Assistant Secretaries of Energy (8)".

(2) The table of contents for the Department of Energy Organization Act (42 U.S.C. 7101 note) is amended—

(A) by striking "Section 209" and inserting "Sec. 209";

(B) by striking "213." and inserting "Sec. 213.";

(C) by striking "214." and inserting "Sec. 214.";

(D) by striking "215." and inserting "Sec. 215."; and

(E) by striking "216." and inserting "Sec. 216.".

Union Calendar No. 123

109TH CONGRESS
1ST 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