I

109TH CONGRESS
1ST SESSION

H. R. 612

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

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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 Basic and Applied Sciences 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 and nuclear physics, biological and environmental research, basic energy sciences, advanced scientific and 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 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 Secretary 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 109(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, demonstration, 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 practical 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 Of-

fice 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 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 appro-

priate. 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 pay-

ment 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. 1087*ll*).

(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. 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.

(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.

(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.

(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.

(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.

(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 respon-

sibilities 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 Secretary on science issues;

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

(iii) advise the Secretary 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 Secretary 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 at least one third 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 respec-

tive 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 designate any new or existing facility as a user facility 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 ef-

forts 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 ex-

plore 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 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. 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, including the Next Generation Lighting Initiative described in subsection (b);

(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) NEXT GENERATION LIGHTING INITIATIVE.—The program conducted under subsection (a)(3)(A) shall include a Next Generation Lighting Initiative to support research, development, demonstration, and commercial application activities related to advanced lighting technologies for both general white light illumination needs and specialized applications such as exit ramp and stairway illumination. Such activities shall be focused on advanced lighting technologies, including solid-state organic and inorganic technologies that, compared to current lighting technologies, deliver superior performance, are longer lasting, are more energy-efficient, are better matched to customer needs, have less environmental impact, and are cost-competitive.

(c) 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 sub-

section, 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 C.F.R. part 434); and

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

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.

(c) REAUTHORIZATION OF STEEL AND ALUMINUM ENERGY CONSERVATION AND TECHNOLOGY COMPETITIVENESS ACT OF 1988.—

(1) AUTHORIZATION OF APPROPRIATIONS.—Section 9 of the Steel and Aluminum Energy Conservation and Technology Competitiveness Act of 1988 (15. U.S.C. 5108) is amended to read as follows:

"SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

''There are authorized to be appropriated to the Secretary to carry out this Act $20,000,000 for each of fiscal years 2006 through 2010.''.

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

(A) in subparagraph (H), by striking ''coatings for sheet steels'' and inserting ''sheet and bar steels''; and

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

''(K) The development of technologies which reduce greenhouse gas emissions.''.

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

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

(B) in section 4(b)—

(i) in the subsection heading, by inserting ''AND REPORT'' after ''MANAGEMENT PLAN'';

(ii) by striking ''Within 6 months after the date of enactment of this Act'' and inserting ''Not later than 6 months after the date of enactment of the Act enacting this sentence'';

(iii) by striking ''to expand the steel research and development initiative to include aluminum and''; and

(iv) by inserting '', and shall transmit such plan to Congress'' after ''carry out the purposes of this Act''.

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 effi-

ciency 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. DEFINITION OF COST-EFFECTIVE.

For purposes of this subtitle, the term ''cost-effective'' means resulting in a simple payback of costs in 10 years or less.

SEC. 308. AUTHORIZATION OF APPROPRIATIONS.

In addition to the sums authorized in the Steel and Aluminum Energy Conservation and Technology Competitiveness Act of 1988, as amended in section 304 of this Act, 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(c);

(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; and

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

(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(c);

(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; and

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

(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(c);

(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; and

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

(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(c);

(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; and

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

(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(c);

(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; and

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

SEC. 309. 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.

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, $210,000,000.

(2) For fiscal year 2007, $230,000,000.

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

(4) For fiscal year 2009, $270,000,000.

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

(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, $120,000,000.

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

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

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

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

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 research, 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 com-

mercial 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 average 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 Secretary's recommendations for implementing the results of the study.

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 en-

ergy 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 environ-

mental 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 stu-

dents, 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 INFRASTRUCTURE.—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 re-

search 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

commercial 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 appropriated 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 envi-

ronmental performance of fossil energy production, upgrading, conversion, 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 cleanup 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. 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, $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.

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 authority of the Secretary to review or revoke awards.

(C) PROVISION OF INFORMATION.—The Secretary shall provide to the program consor-

tium 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 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.

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 Sec-

retary 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 Government 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 ''uncon-

ventional 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.

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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''.

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