I

108TH CONGRESS
1ST SESSION

H. R. 238

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

IN THE HOUSE OF REPRESENTATIVES

JANUARY 8, 2003

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

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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.

This Act may be cited as the ''Energy Research, Development, Demonstration, and Commercial Application Act of 2003''.

TITLE I—RESEARCH AND DEVELOPMENT

SEC. 101. PURPOSES.

The purposes of this title are to—

(1) contribute to a national energy strategy through an energy research and development program that supports basic energy research and provides mechanisms to develop, demonstrate, and promote the commercial application of new energy technologies in partnership with industry;

(2) protect and strengthen the Nation's economy, standard of living, and national security by reducing dependence on imported energy;

(3) meet future needs for energy services at the lowest total cost to the Nation, giving balanced and comprehensive consideration to technologies that improve the efficiency of energy end uses and that enhance energy supply;

(4) reduce the environmental impacts of energy production, distribution, transportation, and use;

(5) help increase domestic production of energy, increase the availability of hydrocarbon reserves, and lower energy prices; and

(6) stimulate economic growth and enhance the ability of United States companies to compete in future markets for advanced energy technologies.

SEC. 102. GOALS.

(a) IN GENERAL.—In order to achieve the purposes of this title, the Secretary shall conduct a balanced set of programs of energy research, development, demonstration, and commercial application, guided by the following goals:

(1) ENERGY EFFICIENCY.—

(A) BUILDINGS.—Develop, in partnership with industry, technologies, designs, and production methods that will enable an average 25 percent increase by 2010 in the energy efficiency of all new buildings, as compared to a new building in 1996.

(B) INDUSTRY.—Develop, in partnership with industry, technologies, designs, and production methods that will enable the energy intensity of the major energy-consuming industries to improve by at least 25 percent by 2010 as compared to 1991.

(C) VEHICLES.—Develop, in partnership with industry, technologies that will enable—

(i) by 2010, mid-sized passenger automobiles with a fuel economy of 80 miles per gallon;

(ii) by 2010, light trucks (classes 1 and 2a) with a fuel economy of 60 miles per gallon;

(iii) by 2010, medium trucks and buses (classes 2b through 6 and class 8 transit buses) with a fuel economy, in ton-miles per gallon for trucks and passenger miles per gallon for buses, that is 3 times that of year 2000 equivalent vehicles;

(iv) by 2010, heavy trucks (classes 7 and 8) with a fuel economy, in ton-miles per gallon, that is 2 times that of year 2000 equivalent vehicles; and

(v) by 2015, mid-sized fuel cell powered passenger vehicles with a gasoline equivalent fuel economy of 110 miles per gallon.

(2) DISTRIBUTED ENERGY AND ELECTRIC ENERGY SYSTEMS.—

(A) DISTRIBUTED GENERATION.—Develop, in partnership with industry, technologies based on natural gas that achieve electricity gener-

ating efficiencies greater than 40 percent by 2015 for on-site, or distributed, generation technologies.

(B) ELECTRIC ENERGY SYSTEMS AND STORAGE.—Develop, in partnership with industry—

(i) technologies for generators and transmission, distribution, and storage systems that combine high capacity with high efficiency (particularly for electric transmission facilities in rural and remote areas);

(ii) new transmission and distribution technologies, including flexible alternating current transmission systems, composite conductor materials, advanced protection devices, and controllers;

(iii) technologies for interconnection of distributed energy resources with electric power systems;

(iv) high-temperature superconducting materials for power delivery equipment such as transmission and distribution cables, transformers, and generators; and

(v) real-time transmission and distribution system control technologies that provide for continual exchange of information between generation, transmission, distribution, and end-user facilities.

(3) RENEWABLE ENERGY.—

(A) WIND POWER.—Develop, in partnership with industry, technologies and designs that will—

(i) reduce the cost of wind power by 40 percent by 2007 as compared to 2000; and

(ii) expand utilization of class 3 and 4 winds.

(B) PHOTOVOLTAICS.—Develop, in partnership with industry, total photovoltaic systems with installed costs of $4000 per peak kilowatt by 2005 and $2000 per peak kilowatt by 2015.

(C) SOLAR THERMAL ELECTRIC SYSTEMS.—Develop, in partnership with industry, solar power technologies (including baseload solar power) that combine high-efficiency and high-temperature receivers with advanced ther-

mal storage and power cycles to accommodate peak loads and reduce lifecycle costs.

(D) GEOTHERMAL ENERGY.—Develop, in partnership with industry, technologies and processes based on advanced hydrothermal systems and advanced heat and power systems, including geothermal or ground source heat pump technology, with a specific focus on—

(i) improving exploration and characterization technology to increase the probability of drilling successful wells from 20 percent to 40 percent by 2006;

(ii) reducing the cost of drilling by 2008 to an average cost of $150 per foot; and

(iii) developing enhanced geothermal systems technology with the potential to double the usable geothermal resource base, as compared to the date of enactment of this Act.

(E) HYDROGEN.—Carry out the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 and title II of the Hydrogen Future Act of 1996, as amended by this Act.

(F) BIOMASS-BASED POWER SYSTEMS.—Develop, in partnership with industry, integrated power generating systems, advanced conversion, and feedstock technologies capable of producing electric power that is cost-competitive with fossil-fuel generated electricity by 2010, through co-production of fuels, chemicals, and other products under subparagraph (G).

(G) BIOFUELS.—Develop, in partnership with industry, new and emerging technologies and biotechnology processes capable of making—

(i) gaseous and liquid biofuels that are price-competitive, by 2010, with gasoline or diesel in either internal combustion engines or fuel cells; and

(ii) biofuels, biobased polymers, and chemicals, including those derived from lignocellulosic feedstock, with particular emphasis on developing biorefineries that use enzyme-based processing systems.

(H) HYDROPOWER.—Develop, in partnership with industry, a new generation of turbine technologies that will increase generating capac-

ity and be less damaging to fish and aquatic ecosystems.

(4) FOSSIL ENERGY.—

(A) POWER GENERATION.—Develop, in partnership with industry, technologies, including precombustion technologies, by 2015 with the capability of realizing—

(i) electricity generating efficiencies of 75 percent (lower heating value) for natural gas; and

(ii) widespread commercial application of combined heat and power with thermal efficiencies of more than 85 percent (higher heating value).

(B) OFFSHORE OIL AND GAS RESOURCES.—Develop, in partnership with industry, technologies to—

(i) extract methane hydrates in coastal waters of the United States; and

(ii) develop natural gas and oil reserves in the ultra-deepwater of the Central and Western Gulf of Mexico, with a focus on improving, while lowering costs and reducing environmental impacts, the safety and efficiency of—

(I) the recovery of ultra-deep-water resources; and

(II) sub-sea production technology used for such recovery.

(C) ONSHORE OIL AND GAS RESOURCES.—Advance the science and technology available to domestic onshore petroleum producers, particularly independent producers of oil or gas, through—

(i) advances in technology for exploration and production of domestic petroleum resources, particularly those not accessible with current technology;

(ii) improvement in the ability to extract hydrocarbons (including heavy oil) from known reservoirs and classes of reservoirs; and

(iii) development of technologies and practices that reduce the impact on the environment from petroleum exploration and production.

(D) TRANSPORTATION FUELS.—Increase the availability of transportation fuels by focusing research on—

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

(ii) indirect liquefaction of coal and biomass.

(5) NUCLEAR ENERGY.—

(A) EXISTING REACTORS.—Support research to extend the lifetimes of existing United States nuclear power reactors, and increase their reliability while optimizing their current operations for greater efficiencies.

(B) ADVANCED REACTORS.—Develop, in partnership with industry—

(i) advanced, efficient, lower cost, and passively safe reactor designs;

(ii) proliferation-resistant and high-burn-up nuclear fuels; and

(iii) technologies to minimize generation of radioactive materials and improve the management of nuclear waste.

(C) NUCLEAR SCIENTISTS AND ENGINEERS.—Attract new students and faculty to the nuclear sciences, nuclear engineering, and related fields (including health physics, nuclear

medicine, nuclear chemistry, and radiochemistry).

(b) REVIEW AND ASSESSMENT OF GOALS.—

(1) EVALUATION AND MODIFICATION.—Based on amounts appropriated and developments in science and technology, the Secretary shall evaluate the goals set forth in subsection (a) at least once every 5 years, and shall report to the Congress any proposed modifications to the goals.

(2) CONSULTATION.—In evaluating and proposing modifications to the goals as provided in paragraph (1), the Secretary shall solicit public input.

(3) PUBLIC COMMENT.—(A) After consultation under paragraph (2), the Secretary shall publish in the Federal Register a set of draft modifications to the goals for public comment.

(B) Not later than 60 days after the date of publication of draft modifications under subparagraph (A), and after consideration of any public comments received, the Secretary shall publish the final modifications, including a summary of the public comments received, in the Federal Register.

(4) EFFECTIVE DATE.—No modification to goals under this section shall take effect before the

date which is 5 years after the date of enactment of this Act.

(c) EFFECT OF GOALS.—(1) Nothing in paragraphs (1) through (5) of subsection (a), or any subsequent modification to the goals therein pursuant to subsection (b), shall—

(A) create any new—

(i) authority for any Federal agency; or

(ii) requirement for any other person;

(B) be used by a Federal agency to support the establishment of regulatory standards or regulatory requirements; or

(C) alter the authority of the Secretary to make grants or other awards.

(2) Nothing in this subsection shall be construed to limit the authority of the Secretary to impose conditions on grants or other awards based on the goals in subsection (a) or any subsequent modification thereto.

SEC. 103. DEFINITIONS.

For purposes of this title:

(1) DEPARTMENT.—The term ''Department'' means the Department of Energy.

(2) DEPARTMENTAL MISSION.—The term ''departmental mission'' means any of the functions vested in the Secretary of Energy by the Depart-

ment of Energy Organization Act (42 U.S.C. 7101 et seq.) or other law.

(3) INDEPENDENT PRODUCER OF OIL OR GAS.—

(A) IN GENERAL.—The term ''independent producer of oil or gas'' means any person who 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.

(4) 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)).

(5) JOINT VENTURE.—The term ''joint venture'' has the meaning given that term under section

2 of the National Cooperative Research and Production Act of 1993 (15 U.S.C. 4301).

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

(A) Ames National Laboratory.

(B) Argonne National Laboratory.

(C) Brookhaven National Laboratory.

(D) Fermi National Laboratory.

(E) Idaho National Engineering and Environmental 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) Thomas Jefferson National Accelerator Facility.

(7) NONMILITARY ENERGY LABORATORY.—The term ''nonmilitary energy laboratory'' means any of the following laboratories of the Department:

(A) Ames National Laboratory.

(B) Argonne National Laboratory.

(C) Brookhaven National Laboratory.

(D) Fermi National Laboratory.

(E) Lawrence Berkeley National Laboratory.

(F) Oak Ridge National Laboratory.

(G) Pacific Northwest National Laboratory.

(H) Princeton Plasma Physics Laboratory.

(I) Stanford Linear Accelerator Center.

(J) Thomas Jefferson National Accelerator Facility.

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

(9) SINGLE-PURPOSE RESEARCH FACILITY.—The term ''single-purpose research facility'' means any of the following primarily single-purpose entities owned by the Department:

(A) East Tennessee Technology Park.

(B) Environmental Measurement Laboratory.

(C) Fernald Environmental Management Project.

(D) Kansas City Plant.

(E) Nevada Test Site.

(F) New Brunswick Laboratory.

(G) Pantex Weapons Facility.

(H) Savannah River Technology Center.

(I) Stanford Linear Accelerator Center.

(J) Y–12 facility at Oak Ridge National Laboratory.

(K) Waste Isolation Pilot Plant.

(L) Any other similar organization of the Department designated by the Secretary that engages in technology transfer, partnering, or licensing activities.

Subtitle A—Energy Efficiency

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 104. ENERGY EFFICIENCY.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for energy efficiency and conservation research, development, demonstration, and commercial application activities, including activities authorized under this subtitle:

(1) For fiscal year 2003, $560,000,000.

(2) For fiscal year 2004, $616,000,000.

(3) For fiscal year 2005, $695,000,000.

(4) For fiscal year 2006, $772,000,000.

(5) For fiscal year 2007, $865,000,000.

(b) ALLOCATIONS.—From amounts authorized under subsection (a), the following sums are authorized:

(1) LIGHTING SYSTEMS.—For activities under section 105, $10,000,000 for fiscal year 2003 and $50,000,000 for each of fiscal years 2004 through 2007.

(2) SECONDARY ELECTRIC VEHICLE BATTERY USE PROGRAM.—For activities under section 108—

(A) for fiscal year 2003, $1,000,000;

(B) for fiscal year 2004, $4,000,000;

(C) for fiscal year 2005, $7,000,000;

(D) for fiscal year 2006, $7,000,000; and

(E) for fiscal year 2007, $7,000,000.

(3) ENERGY EFFICIENCY SCIENCE INITIATIVE.—For activities under section 110—

(A) for fiscal year 2003, $15,000,000;

(B) for fiscal year 2004, $20,000,000;

(C) for fiscal year 2005, $25,000,000;

(D) for fiscal year 2006, $30,000,000; and

(E) for fiscal year 2007, $35,000,000.

(c) EXTENDED AUTHORIZATION.—There are authorized to be appropriated to the Secretary for activities under section 105, $50,000,000 for each of fiscal years 2008 through 2012.

(d) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated under this section may be used for—

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

(2) the Weatherization Assistance Program under part A of title IV of the Energy Conservation and Production Act;

(3) the State Energy Program under part D of title III of the Energy Policy and Conservation Act; or

(4) the Federal Energy Management Program under part 3 of title V of the National Energy Conservation Policy Act.

PART 2—LIGHTING SYSTEMS

SEC. 105. NEXT GENERATION LIGHTING INITIATIVE.

(a) IN GENERAL.—The Secretary shall carry out a Next Generation Lighting Initiative in accordance with this section to support research, development, demonstration, and commercial application activities related to ad-

vanced solid-state lighting technologies based on white light emitting diodes.

(b) OBJECTIVES.—The objectives of the initiative shall be—

(1) to develop, by 2012, advanced solid-state lighting technologies based on white light emitting diodes that, compared to incandescent and fluorescent lighting technologies, are—

(A) longer lasting;

(B) more energy-efficient; and

(C) cost-competitive;

(2) to develop an inorganic white light emitting diode that has an efficiency of 160 lumens per watt and a 10-year lifetime; and

(3) to develop an organic white light emitting diode with an efficiency of 100 lumens per watt with a 5-year lifetime that—

(A) illuminates over a full color spectrum;

(B) covers large areas over flexible surfaces; and

(C) does not contain harmful pollutants, such as mercury, typical of fluorescent lamps.

(c) FUNDAMENTAL RESEARCH.—

(1) CONSORTIUM.—The Secretary shall carry out the fundamental research activities of the Next

Generation Lighting Initiative through a private consortium (which may include private firms, trade associations and institutions of higher education), which the Secretary shall select through a competitive process. Each proposed consortium shall submit to the Secretary such information as the Secretary may require, including a program plan agreed to by all participants of the consortium.

(2) JOINT VENTURE.—The consortium shall be structured as a joint venture among the participants of the consortium. The Secretary shall serve on the governing council of the consortium.

(3) ELIGIBILITY.—To be eligible to be selected as the consortium under paragraph (1), an applicant must be broadly representative of United States solid-state lighting research, development, and manufacturing expertise as a whole.

(4) GRANTS.—(A) The Secretary shall award grants for fundamental research to the consortium, which the consortium may disburse to researchers, including those who are not participants of the consortium.

(B) To receive a grant, the consortium must provide a description to the Secretary of the pro-

posed research and list the parties that will receive funding.

(C) Grants shall be matched by the consortium pursuant to section 182.

(5) NATIONAL LABORATORIES.—National Laboratories may participate in the research described in this section, and may receive funds from the consortium.

(6) INTELLECTUAL PROPERTY.—Participants in the consortium and the Federal Government shall have royalty-free nonexclusive rights to use intellectual property derived from research funded pursuant to this subsection.

(d) DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION.—The Secretary shall carry out the development, demonstration, and commercial application activities of the Next Generation Lighting Initiative through awards to private firms, trade associations, and institutions of higher education. In selecting awardees, the Secretary may give preference to members of the consortium selected pursuant to subsection (c).

(e) PLANS AND ASSESSMENTS.—(1) The consortium shall formulate an annual operating plan which shall include research priorities, technical milestones, and plans

for technology transfer, and which shall be subject to approval by the Secretary.

(2) The Secretary shall enter into an arrangement with the National Academy of Sciences to conduct periodic reviews of the Next Generation Lighting Initiative. The Academy shall review the research priorities, technical milestones, and plans for technology transfer established under paragraph (1) and evaluate the progress toward achieving them. The Secretary shall consider the results of such reviews in evaluating the plans submitted under paragraph (1).

(f) AUDIT.—The Secretary shall retain an independent, commercial auditor to perform an audit of the consortium to determine the extent to which the funds authorized by this section have been expended in a manner consistent with the purposes of this section. The auditor shall transmit a report annually to the Secretary, who shall transmit the report to the Congress, along with a plan to remedy any deficiencies cited in the report.

(g) SUNSET.—The Next Generation Lighting Initiative shall terminate no later than September 30, 2013.

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

(1) ADVANCED SOLID-STATE LIGHTING.—The term ''advanced solid-state lighting'' means a semiconducting device package and delivery system

that produces white light using externally applied voltage.

(2) FUNDAMENTAL RESEARCH.—The term ''fundamental research'' includes basic research on both solid-state materials and manufacturing processes.

(3) INORGANIC WHITE LIGHT EMITTING DIODE.—The term ''inorganic white light emitting diode'' means an inorganic semiconducting package that produces white light using externally applied voltage.

(4) ORGANIC WHITE LIGHT EMITTING DIODE.—The term ''organic white light emitting diode'' means an organic semiconducting compound that produces white light using externally applied voltage.

PART 3—BUILDINGS

SEC. 106. NATIONAL BUILDING PERFORMANCE INITIATIVE.

(a) INTERAGENCY GROUP.—Not later than 3 months after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall establish an interagency group to develop, in coordination with the advisory committee established under subsection (e), a National Building Performance Initiative (in this section referred to as the ''Initiative''). The interagency group shall be cochaired by appropriate officials of the Depart-

ment and the Department of Commerce, who shall jointly arrange for the provision of necessary administrative support to the group.

(b) INTEGRATION OF EFFORTS.—The Initiative shall integrate Federal, State, and voluntary private sector efforts to reduce the costs of construction, operation, maintenance, and renovation of commercial, industrial, institutional, and residential buildings.

(c) PLAN.—Not later than 1 year after the date of enactment of this Act, the interagency group shall submit to Congress a plan for carrying out the appropriate Federal role in the Initiative. The plan shall include—

(1) research, development, demonstration, and commercial application of systems and materials for new construction and retrofit relating to the building envelope and building system components; and

(2) the collection, analysis, and dissemination of research results and other pertinent information on enhancing building performance to industry, government entities, and the public.

(d) DEPARTMENT OF ENERGY ROLE.—Within the Federal portion of the Initiative, the Department shall be the lead agency for all aspects of building performance related to use and conservation of energy.

(e) ADVISORY COMMITTEE.—

(1) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy shall establish an advisory committee to—

(A) analyze and provide recommendations on potential private sector roles and participation in the Initiative; and

(B) review and provide recommendations on the plan described in subsection (c).

(2) MEMBERSHIP.—Membership of the advisory committee shall include representatives with a broad range of appropriate expertise, including expertise in—

(A) building research and technology;

(B) architecture, engineering, and building materials and systems; and

(C) the residential, commercial, and industrial sectors of the construction industry.

(f) CONSTRUCTION.—Nothing in this section provides any Federal agency with new authority to regulate building performance.

PART 4—VEHICLES

SEC. 107. DEFINITIONS.

For purposes of this part, the term—

(1) ''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; and

(2) ''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.

SEC. 108. ESTABLISHMENT OF SECONDARY ELECTRIC VEHICLE BATTERY USE PROGRAM.

(a) PROGRAM.—The Secretary shall establish and conduct a research, development, demonstration, and commercial application program for the secondary use of batteries. Such program shall be—

(1) designed to demonstrate the use of batteries in secondary application, 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 evaluate 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.

(b) SOLICITATION.—(1) Not later than 6 months after the date of the enactment of this Act, 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.

(2)(A) Proposals submitted in response to a solicitation under this section shall include—

(i) a description of the project, including the batteries to be used in the project, the proposed locations and applications for the batteries, the number of batteries to be demonstrated, and the type, characteristics, and estimated life-cycle costs of the batteries compared to other energy storage devices currently used;

(ii) the contribution, if any, of State or local governments and other persons to the demonstration project;

(iii) the type of associated equipment and supporting infrastructure to be demonstrated; and

(iv) any other information the Secretary considers appropriate.

(B) If the proposal includes a lease arrangement, the proposal shall indicate the terms of such lease arrangement for the batteries and associated equipment.

(c) SELECTION OF PROPOSALS.—(1)(A) The Secretary shall, not later than 3 months after the closing date established by the Secretary for receipt of proposals under subsection (b), select at least 5 proposals to receive financial assistance under this section.

(B) No one project selected under this section shall receive more than 25 percent of the funds authorized under this section. No more than 3 projects selected under this section shall demonstrate the same battery type.

(2) In selecting a proposal under this section, the Secretary shall consider—

(A) the ability of the proposer to acquire the batteries and associated equipment and to successfully manage and conduct the demonstration project, including satisfying the reporting requirements set forth in paragraph (3)(B);

(B) the geographic and climatic diversity of the projects selected;

(C) the long-term technical and competitive viability of the batteries to be used in the project and of the original manufacturer of such batteries;

(D) the suitability of the batteries for their intended uses;

(E) the technical performance of the batteries, including the expected additional useful life and the batteries' ability to retain energy;

(F) the environmental effects of the use of and disposal of the batteries proposed to be used in the project selected;

(G) the extent of involvement of State or local government and other persons in the demonstration project and whether such involvement will—

(i) permit a reduction of the Federal cost share per project; or

(ii) otherwise be used to allow the Federal contribution to be provided to demonstrate a greater number of batteries; and

(H) such other criteria as the Secretary considers appropriate.

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

(A) as a part of a demonstration project, the users of the batteries provide to the proposer information regarding the operation, maintenance, performance, and use of the batteries, and the proposer provide such information to the battery manufacturer, for 3 years after the beginning of the demonstration project;

(B) the proposer provide to the Secretary such information regarding the operation, maintenance, performance, and use of the batteries as the Secretary may request;

(C) 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; and

(D) the proposer provide at least 50 percent of the costs associated with the proposal.

SEC. 109. ADVANCED VEHICLE TECHNOLOGY.

The Secretary shall expand research and development programs of the Department related to advanced vehicle technologies, including—

(1) fuel cells, including high temperature membranes for fuel cells and fuel cell auxiliary power systems, and hydrogen storage;

(2) vehicle engine systems and emission control systems;

(3) batteries and power electronics for hybrid vehicles;

(4) combustion and after-treatment technologies for use in direct injected gasoline and diesel fueled motor vehicles; and

(5) other advanced fuels and materials.

PART 5—ENERGY EFFICIENCY SCIENCE INITIATIVE

SEC. 110. ENERGY EFFICIENCY SCIENCE INITIATIVE.

(a) ESTABLISHMENT.—The Secretary shall establish an Energy Efficiency Science Initiative to be managed by the Assistant Secretary in the Department with responsibility for energy conservation under section 203(a)(9) of the Department of Energy Organization Act (42 U.S.C. 7133(a)(9)), in consultation with the Director of the Office of Science, for grants to be competitively awarded and subject to peer review for research relating to energy efficiency.

(b) REPORT.—The Secretary shall submit to the Congress, along with the President's annual budget request under section 1105(a) of title 31, United States Code, a report on the activities of the Energy Efficiency Science Initiative, including a description of the process used to award the funds and an explanation of how the research relates to energy efficiency.

Subtitle B—Distributed Energy and Electric Energy Systems

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 111. DISTRIBUTED ENERGY AND ELECTRIC ENERGY SYSTEMS.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for distributed energy and electric energy systems activities, including activities authorized under this subtitle:

(1) For fiscal year 2003, $155,000,000.

(2) For fiscal year 2004, $190,000,000.

(3) For fiscal year 2005, $200,000,000.

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

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

(b) MICRO-COGENERATION ENERGY TECHNOLOGY.—From amounts authorized under subsection (a), $2,000,000 for fiscal year 2003 and $20,000,000 for fiscal year 2004 shall be available for activities under section 114.

PART 2—DISTRIBUTED POWER

SEC. 112. STRATEGY.

(a) REQUIREMENT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall develop and transmit to the Congress a strategy for a comprehensive research, development, demonstration, and commer-

cial application program to develop hybrid distributed power systems that combine—

(1) one or more renewable electric power generation technologies of 10 megawatts or less located near the site of electric energy use; and

(2) nonintermittent electric power generation technologies suitable for use in a distributed power system.

(b) CONTENTS.—The strategy shall—

(1) identify the needs best met with such hybrid distributed power systems and the technological barriers to the use of such systems;

(2) provide for the development of methods to design, test, integrate into systems, and operate such hybrid distributed power systems;

(3) include, as appropriate, research, development, demonstration, and commercial application on related technologies needed for the adoption of such hybrid distributed power systems, including energy storage devices and environmental control technologies; and

(4) describe how activities under the strategy will be integrated with other research, development, demonstration, and commercial application activities

supported by the Department of Energy related to electric power technologies.

SEC. 113. HIGH POWER DENSITY INDUSTRY PROGRAM.

The Secretary shall establish a comprehensive research, development, demonstration, and commercial application program to improve energy efficiency of high power density facilities, including data centers, server farms, and telecommunications facilities. Such program shall consider technologies that provide significant improvement in thermal controls, metering, load management, peak load reduction, or the efficient cooling of electronics.

SEC. 114. 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 the use of small-scale combined heat and power in residential heating appliances.

PART 3—TRANSMISSION SYSTEMS

SEC. 115. TRANSMISSION INFRASTRUCTURE SYSTEMS RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION.

(a) PROGRAM AUTHORIZED.—The Secretary shall develop and implement a comprehensive research, development, demonstration, and commercial application program

to promote improved reliability and efficiency of electrical transmission systems. Such program may include—

(1) advanced energy technologies, materials, and systems;

(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) any other infrastructure technologies, as appropriate; and

(9) technology transfer and education.

(b) PROGRAM PLAN.—Not later than 1 year after the date of the enactment of this Act, the Secretary, in consultation with other appropriate Federal agencies, shall prepare and transmit to Congress a 5-year program plan to guide activities under this section. In preparing the program plan, the Secretary shall consult with utilities, energy services providers, manufacturers, institutions of higher education, other appropriate State and local agencies, environmental organizations, professional and technical societies, and any other persons the Secretary considers appropriate.

(c) REPORT.—Not later than 2 years after the transmittal of the plan under subsection (b), the Secretary shall transmit a report to Congress describing the progress made under this section and identifying any additional resources needed to continue the development and commercial application of transmission infrastructure technologies.

Subtitle C—Renewable Energy

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 121. RENEWABLE ENERGY.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for renewable energy research, development, demonstration, and commer-

cial application activities, including activities authorized under this subtitle, including the amounts authorized under the amendments made by sections 124 and 125:

(1) For fiscal year 2003, $390,000,000.

(2) For fiscal year 2004, $460,000,000.

(3) For fiscal year 2005, $510,000,000.

(4) For fiscal year 2006, $560,000,000.

(5) For fiscal year 2007, $609,000,000.

(b) BIOENERGY.—From the amounts authorized under subsection (a), the following sums are authorized to be appropriated to carry out section 122 and section 176:

(1) For fiscal year 2003, $117,800,000.

(2) For fiscal year 2004, $135,425,000.

(3) For fiscal year 2005, $155,600,000.

(4) For fiscal year 2006, $167,650,000.

(5) For fiscal year 2007, $180,000,000.

(c) LIMITS ON USE OF FUNDS.—

(1) EXCLUSION.—None of the funds authorized to be appropriated under this section may be used for Renewable Support and Implementation.

(2) BIOENERGY.—Of the funds authorized under subsection (b), 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.

(3) RURAL AND REMOTE LOCATIONS.—In carrying out this section, the Secretary, in consultation with the Secretary of Agriculture, shall demonstrate the use of advanced wind power technology, biomass, geothermal energy systems, and other renewable energy technologies to assist in delivering electricity to rural and remote locations.

PART 2—BIOENERGY

SEC. 122. BIOENERGY PROGRAMS.

The Secretary shall conduct a program of research, development, demonstration, and commercial application for bioenergy, including—

(1) biopower energy systems;

(2) biofuels;

(3) integrated applications of both biopower and biofuels;

(4) cross-cutting research and development in feedstocks; and

(5) economic analysis.

PART 3—HYDROGEN

SEC. 123. SHORT TITLE.

This part may be cited as the ''George E. Brown, Jr. and Robert S. Walker Hydrogen Future Act of 2003''.

SEC. 124. MATSUNAGA ACT AMENDMENT.

The Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 (42 U.S.C. 12401 et seq.) is amended by striking sections 102 through 109 and inserting the following:

"SEC. 102. FINDING, PURPOSES, AND DEFINITIONS.

''(a) FINDING.—Congress finds that it is in the national interest to accelerate efforts to develop a domestic capability to economically produce hydrogen in quantities that will make a significant contribution toward reducing the Nation's dependence on conventional fuels.

''(b) PURPOSES.—The purposes of this Act are—

''(1) to promote a research, development, and demonstration program leading to the economical and environmentally sound production, storage, transport, and use of hydrogen as an energy source for industrial, commercial, residential, transportation, and utility applications; and

''(2) to promote and coordinate activities in technology transfer, education, and other information transfer among Federal, State, and local agencies; members of the energy, transportation, and other industries; foreign nations; and other entities.

''(c) DEFINITIONS.—As used in this Act, the term—

''(1) 'advisory committee' means the advisory committee established under section 108;

''(2) 'critical technology' (or 'critical technical issue') means a technology (or issue) that, in the opinion of the Secretary, requires understanding and development in order to take the next step needed in the development of hydrogen as an economic fuel or storage medium;

''(3) 'Department' means the Department of Energy; and

''(4) 'Secretary' means the Secretary of Energy.

''SEC. 103. PLAN; REPORT.

''(a) COORDINATION PLAN.—The Secretary, in consultation with other Federal agencies, shall prepare a comprehensive coordination plan for activities under this Act and under title II of the Hydrogen Future Act of 1996. The Secretary shall take into account any plan under section 202(b) of the Hydrogen Future Act of 1996.

''(b) REPORT.—

''(1) REQUIREMENT.—Not later than 1 year after the date of enactment of the George E. Brown, Jr. and Robert S. Walker Hydrogen Future Act of 2003, and biennially thereafter, the Secretary shall transmit to Congress a detailed report, based on the plan prepared under subsection (a), on the status and progress of the programs authorized under this Act.

''(2) CONTENTS.—A report under paragraph (1) shall include, in addition to any views and recommendations of the Secretary—

''(A) an assessment of the effectiveness of the programs authorized under this Act and of the extent to which they are meeting the purposes specified in section 102(b);

''(B) recommendations of the advisory committee for any improvements in the program that are needed, including recommendations for additional legislation; and

''(C) to the extent practicable, an analysis of Federal, State, local, and private sector hydrogen-related research, development, and demonstration activities to identify productive areas for increased intergovernmental and private-public sector collaboration.

''SEC. 104. HYDROGEN RESEARCH AND DEVELOPMENT.

''(a) PROGRAM.—The Secretary shall conduct a research and development program relating to the production, storage, transportation, and use of hydrogen as an energy source, with the goal of enabling the private sector to demonstrate the technical feasibility of using hydrogen for industrial, commercial, residential, transportation, and utility applications.

''(b) ELEMENTS.—In conducting the program authorized by this section, the Secretary shall—

''(1) initiate or accelerate research and development in critical technical issues that will contribute to the development of more economical and environmentally sound hydrogen energy systems, including critical technical issues with respect to—

''(A) production, with consideration of cost-effective production from renewable energy sources;

''(B) liquefaction, transmission, and distribution;

''(C) storage, including storage of hydrogen in surface transportation; and

''(D) use, including use in—

''(i) surface transportation;

''(ii) isolated villages, islands, and communities in which other energy sources are not available or are very expensive;

''(iii) fuel cells and components, including proton exchange membrane technologies; and

''(iv) foreign markets, particularly where an energy infrastructure is not well developed;

''(2) give particular attention to resolving critical technical issues preventing the introduction of hydrogen as an energy source into the marketplace, so as to enable the development of voluntary consensus technical standards; and

''(3) survey private sector hydrogen energy research and development activities worldwide and take steps to ensure that research and development activities under this section do not—

''(A) unnecessarily duplicate any available research and development; or

''(B) displace or compete with the privately funded hydrogen energy research and development activities of United States industry.

''(c) RESEARCH AND DEVELOPMENT SUPPORT.—The Secretary is authorized to arrange for tests and demonstrations and to disseminate to researchers and developers information, data, and other materials necessary to support the research and development activities authorized under this section and other efforts authorized under this Act, consistent with section 106.

''(d) FEDERAL FUNDING.—The Secretary shall carry out the research and development activities authorized under this section using a competitive merit review process.

''(e) COST SHARING.—

''(1) IN GENERAL.—The Secretary shall require a commitment from non-Federal sources of at least 20 percent of the cost of proposed research and development projects under this section.

''(2) REDUCTION OR ELIMINATION.—The Secretary may reduce or eliminate the cost sharing requirement under paragraph (1)—

''(A) if the Secretary determines that the research and development is of a basic or fundamental nature; or

''(B) for technical analyses, outreach activities, and educational programs that the Secretary does not expect to result in a marketable product.

"SEC. 105. DEMONSTRATIONS.

''(a) REQUIREMENT.—The Secretary shall conduct demonstrations of critical technologies so that technical and nontechnical parameters can be evaluated to best determine commercial applicability of such technologies. Demonstrations under this section shall include fuel cells and fuel cell components, including proton exchange membrane technologies, for commercial, residential, and transportation applications, using improved manufacturing production and processes.

''(b) DEMONSTRATIONS WITH RESEARCH AND DEVELOPMENT ACTIVITIES.—Concurrently with activities conducted pursuant to section 104, the Secretary shall conduct small-scale demonstrations of hydrogen energy technology at self-contained sites.

''(c) COST SHARING.—

''(1) IN GENERAL.—The Secretary shall require a commitment from non-Federal sources of at least 50 percent of the costs directly relating to a demonstration project under this section.

''(2) REDUCTION.—The Secretary may reduce the non-Federal requirement under paragraph (1) if the Secretary determines that the reduction is appropriate considering the technological risks involved in the project.

''SEC. 106. TECHNOLOGY ASSESSMENT AND TRANSFER.

''(a) PROGRAM.—

''(1) IN GENERAL.—The Secretary shall conduct a program designed to transfer critical technologies to the private sector, including application in foreign countries to increase the global market for the technologies and foster global development without harmful environmental effects.

''(2) ADVICE AND ASSISTANCE.—The Secretary shall direct the program authorized by this sub-

section with the advice and assistance of the advisory committee.

''(b) INFORMATION.—

''(1) IN GENERAL.—The Secretary, in carrying out the program authorized by subsection (a), shall—

''(A) undertake an update of the inventory and assessment of hydrogen energy technologies and their commercial capability to economically produce, store, transport, and use hydrogen as an energy source in the industrial, commercial, residential, transportation, and utility sectors; and

''(B) develop with the National Aeronautics and Space Administration, other Federal agencies as appropriate, and industry, an information exchange program to improve technology transfer for hydrogen energy technologies.

''(2) ACTIVITIES.—The information exchange program may consist of workshops, publications, conferences, and a database for the use by the public and private sectors. The Secretary shall also foster the exchange of generic, nonproprietary information and technology, developed pursuant to this Act,

among industry, academia, and the Federal Government, to help the United States economy attain the economic benefits of this information and technology.

"SEC. 107. COORDINATION AND CONSULTATION.

''(a) SECRETARY'S RESPONSIBILITY.—The Secretary shall have overall management responsibility for carrying out programs under this Act. In carrying out such programs, the Secretary, consistent with such overall management responsibility—

''(1) shall establish a central point for the coordination of all hydrogen energy research, development, and demonstration activities of the Department; and

''(2) may use the expertise of any other Federal agency in accordance with subsection (b) in carrying out any activities under this Act, to the extent that the Secretary determines that any such agency has capabilities which would allow such agency to contribute to the purposes of this Act.

''(b) ASSISTANCE.—The Secretary may, in accordance with subsection (a), obtain the assistance of any Federal agency upon written request, on a reimbursable basis or otherwise and with the consent of such agency. Each

such request shall identify the assistance the Secretary considers necessary to carry out any duty under this Act.

''(c) CONSULTATION.—The Secretary shall consult with other Federal agencies as appropriate, and the advisory committee, in carrying out the Secretary's authorities pursuant to this Act.

''SEC. 108. ADVISORY COMMITTEE.

''(a) ESTABLISHMENT.—There is hereby established the Hydrogen Technical Advisory Committee to advise the Secretary on the programs under this Act and under title II of the Hydrogen Future Act of 1996, to remain in existence for the duration of such programs.

''(b) MEMBERSHIP.—

''(1) IN GENERAL.—The advisory committee shall be comprised of not fewer than 9 nor more than 15 members appointed by the Secretary, and shall be comprised of such representatives from domestic industry, universities, professional societies, Government laboratories, and financial, environmental, and other organizations as the Secretary considers appropriate based on the Secretary's assessment of the technical and other qualifications of such representatives.

''(2) TERMS.—

''(A) IN GENERAL.—The term of a member of the advisory committee shall not be more than three years.

''(B) STAGGERED TERMS.—The Secretary may appoint members of the advisory committee in a manner that allows the terms of the members serving at any time to expire at spaced intervals so as to ensure continuity in the functioning of the advisory committee.

''(C) REAPPOINTMENT.—A member of the advisory committee whose term expires may be reappointed.

''(3) CHAIRPERSON.—The advisory committee shall have a chairperson, who shall be elected by the members from among their number.

''(c) COOPERATION.—The heads of Federal agencies shall cooperate with the advisory committee in carrying out the requirements of this section and shall furnish to the advisory committee such information as the advisory committee considers necessary to carry out this section.

''(d) REVIEW.—The advisory committee shall review and make any necessary recommendations to the Secretary on—

''(1) the implementation and conduct of programs under this Act;

''(2) the economic, technological, and environmental consequences of the deployment of technologies for the production, storage, transportation, and use of hydrogen as an energy source; and

''(3) the coordination plan prepared by the Secretary under section 103 and the plan developed by the interagency task force under section 202(b) of the Hydrogen Future Act of 1996.

''(e) RESPONSE TO RECOMMENDATIONS.—The Secretary shall consider, but need not adopt, any recommendations of the advisory committee under subsection (d). The Secretary shall either describe the implementation, or provide an explanation of the reasons that any such recommendations will not be implemented, in the report to Congress under section 103(b).

''(f) SUPPORT.—The Secretary shall provide such staff, funds, and other support as may be necessary to enable the advisory committee to carry out its functions.

''SEC. 109. NATIONAL ACADEMY OF SCIENCES REVIEW.

''Beginning 2 years after the date of the enactment of this section, and every 4 years thereafter, the National Academy of Sciences shall perform a review of the progress made through the programs and activities authorized under this Act and title II of the Hydrogen Fu-

ture Act of 1996, and shall report to the Congress on the results of such reviews.

"SEC. 110. AUTHORIZATION OF APPROPRIATIONS.

"There are authorized to be appropriated to carry out the purposes of this Act (in addition to any amounts made available for such purposes under other Acts)—

"(1) $3,000,000 for fiscal year 1992;

"(2) $7,000,000 for fiscal year 1993;

"(3) $10,000,000 for fiscal year 1994;

"(4) $14,500,000 for fiscal year 1996;

"(5) $20,000,000 for fiscal year 1997;

"(6) $25,000,000 for fiscal year 1998;

"(7) $30,000,000 for fiscal year 1999;

"(8) $35,000,000 for fiscal year 2000;

"(9) $40,000,000 for fiscal year 2001;

"(10) $45,000,000 for fiscal year 2002;

"(11) $50,000,000 for fiscal year 2003;

"(12) $55,000,000 for fiscal year 2004;

"(13) $60,000,000 for fiscal year 2005;

"(14) $65,000,000 for fiscal year 2006; and

"(15) $70,000,000 for fiscal year 2007.".

SEC. 125. HYDROGEN FUTURE ACT AMENDMENT.

Title II of the Hydrogen Future Act of 1996 (42 U.S.C. 12403 note) is amended to read as follows:

"TITLE II—FUEL CELLS

"SEC. 201. INTEGRATION OF FUEL CELLS WITH HYDROGEN SYSTEMS.

"(a) IN GENERAL.—The Secretary shall solicit proposals for projects demonstrating hydrogen technologies needed to use fuel cells in Federal, State, and local government stationary and transportation applications.

"(b) COMPETITIVE EVALUATION.—Each proposal submitted in response to the solicitation under this section shall be evaluated on a competitive basis using peer review. The Secretary is not required to make an award under this section in the absence of a meritorious proposal.

"(c) PREFERENCE.—The Secretary shall give preference, in making an award under this section, to proposals that—

"(1) are submitted jointly from consortia including academic institutions, industry, State or local governments, and Federal laboratories; and

"(2) reflect proven experience and capability with technologies relevant to the projects proposed.

"(d) NON-FEDERAL SHARE.—

"(1) IN GENERAL.—Except as provided in paragraph (2), the Secretary shall require a commitment from non-Federal sources of at least 50 percent of

the costs directly relating to a demonstration project under this section.

''(2) REDUCTION.—The Secretary may reduce the non-Federal requirement under paragraph (1) if the Secretary determines that the reduction is appropriate considering the technological risks involved in the project.

''SEC. 202. INTERAGENCY TASK FORCE.

''(a) ESTABLISHMENT.—Not later than 120 days after the date of enactment of the George E. Brown, Jr. and Robert S. Walker Hydrogen Future Act of 2003, the Secretary shall establish an interagency task force led by the Secretary's designee and comprised of representatives of—

''(1) the Office of Science and Technology Policy;

''(2) the Department of Transportation;

''(3) the Department of Defense;

''(4) the Department of Commerce (including the National Institute of Standards and Technology);

''(5) the Environmental Protection Agency;

''(6) the National Aeronautics and Space Administration; and

''(7) other Federal agencies as appropriate.

''(b) DUTIES.—

''(1) DEVELOPMENT OF PLAN.—The task force shall develop a plan for carrying out this title.

''(2) FOCUS OF PLAN.—The plan shall focus on development and demonstration of integrated systems and components for—

''(A) the production, storage, transport, and use of hydrogen as an energy source for Federal, State, and local government stationary and transportation applications;

''(B) hydrogen-based infrastructure for buses and other fleet transportation systems that include zero-emission vehicles; and

''(C) hydrogen-based distributed power generation, including the generation of combined heat, power, and hydrogen.

''SEC. 203. COOPERATIVE AND COST-SHARING AGREEMENTS.

''The Secretary shall enter into cooperative and cost-sharing agreements with Federal, State, and local agencies for participation by the agencies in demonstrations at facilities administered by the agencies, with the aim of integrating high-efficiency hydrogen systems using fuel cells into the facilities to provide near-term benefits and promote a smooth transition to hydrogen as an energy source.

''SEC. 204. INTEGRATION AND DISSEMINATION OF TECHNICAL INFORMATION.

''The Secretary shall—

''(1) integrate all the technical information available as a result of development and demonstration projects under this title;

''(2) make the information available to all interested persons; and

''(3) foster the exchange of generic, nonproprietary information and technology developed under this title among industry, academia, and Federal, State, and local governments, to help the United States economy attain the economic benefits of the information and technology.

''SEC. 205. AUTHORIZATION OF APPROPRIATIONS.

''There are authorized to be appropriated to the Secretary, for activities under this title—

''(1) $5,000,000 for fiscal year 2003;

''(2) $25,000,000 for fiscal year 2004;

''(3) $30,000,000 for fiscal year 2005;

''(4) $35,000,000 for fiscal year 2006; and

''(5) $40,000,000 for fiscal year 2007.''.

PART 4—MISCELLANEOUS PROJECTS

SEC. 126. MISCELLANEOUS PROJECTS.

The Secretary shall conduct research, development, demonstration, and commercial application programs for—

(1) ocean energy, including wave energy;

(2) the combined use of renewable energy technologies with one another and with other energy technologies, including the combined use of wind power and coal gasification technologies; and

(3) hydrogen carrier fuels.

Subtitle D—Nuclear Energy

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 131. NUCLEAR ENERGY.

(a) CORE PROGRAMS.—The following sums are authorized to be appropriated to the Secretary for nuclear energy research, development, demonstration, and commercial application activities, including activities authorized under this subtitle, other than those described in subsection (b):

(1) For fiscal year 2003, $200,000,000.

(2) For fiscal year 2004, $233,000,000.

(3) For fiscal year 2005, $266,000,000.

(4) For fiscal year 2006, $300,000,000.

(5) For fiscal year 2007, $334,000,000.

(b) NUCLEAR INFRASTRUCTURE SUPPORT.—The following sums are authorized to be appropriated to the Secretary for activities under section 132(f):

(1) For fiscal year 2003, $120,000,000.

(2) For fiscal year 2004, $125,000,000.

(3) For fiscal year 2005, $130,000,000.

(4) For fiscal year 2006, $135,000,000.

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

(c) ALLOCATIONS.—From amounts authorized under subsection (a), the following sums are authorized:

(1) ADVANCED FUEL RECYCLING PROGRAM.—For activities under section 133—

(A) for fiscal year 2003, $80,000,000;

(B) for fiscal year 2004, $93,000,000;

(C) for fiscal year 2005, $106,000,000;

(D) for fiscal year 2006, $120,000,000; and

(E) for fiscal year 2007, $134,000,000.

(2) UNIVERSITY PROGRAMS.—For activities under section 134—

(A) for fiscal year 2003, $25,000,000;

(B) for fiscal year 2004, $33,000,000;

(C) for fiscal year 2005, $37,900,000;

(D) for fiscal year 2006, $43,600,000; and

(E) for fiscal year 2007, $50,100,000.

(d) LIMIT ON USE OF FUNDS.—None of the funds authorized under this section may be used for decommissioning the Fast Flux Test Facility.

PART 2—NUCLEAR ENERGY RESEARCH PROGRAMS

SEC. 132. NUCLEAR ENERGY RESEARCH PROGRAMS.

(a) NUCLEAR ENERGY RESEARCH INITIATIVE.—The Secretary shall carry out a Nuclear Energy Research Initiative for research and development related to nuclear energy.

(b) NUCLEAR ENERGY PLANT OPTIMIZATION PROGRAM.—The Secretary shall carry out a Nuclear Energy Plant Optimization Program to support research and development activities addressing reliability, availability, productivity, and component aging in existing nuclear power plants.

(c) 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—

(1) rely on the expertise and capabilities of the National Laboratories in the areas of advanced nuclear fuels cycles and fuels testing;

(2) pursue an approach that considers a variety of reactor designs;

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

(4) encourage industry participation.

(d) 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 and development necessary to make an informed technical decision about the most promising candidates for eventual commercial application. 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) utilize improved instrumentation.

(e) REACTOR PRODUCTION OF HYDROGEN.—The Secretary shall carry out research to examine designs for high-temperature reactors capable of producing large-scale quantities of hydrogen using thermochemical processes.

(f) NUCLEAR INFRASTRUCTURE SUPPORT.—The Secretary shall develop and implement a strategy for the facilities of the Office of Nuclear Energy, Science, and Technology and shall transmit a report containing the strategy along with the President's budget request to the Congress for fiscal year 2005. Such strategy shall provide a cost-effective means for—

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

(2) closing unneeded facilities;

(3) making facility upgrades and modifications; and

(4) building new facilities.

PART 3—ADVANCED FUEL RECYCLING

SEC. 133. ADVANCED FUEL RECYCLING PROGRAM.

(a) IN GENERAL.—The Secretary, through the Director of the Office of Nuclear Energy, Science and Tech-

nology, shall conduct an advanced fuel recycling technology research and development program to evaluate proliferation-resistant fuel recycling and transmutation technologies which minimize environmental or 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 the Generation IV advanced reactor concepts, subject to annual review by the Secretary's Nuclear Energy Research Advisory Committee or other independent entity, as appropriate. Opportunities to enhance progress of this program through international cooperation should be sought.

(b) REPORTS.—The Secretary shall report on the activities of the advanced fuel recycling technology research and development program, as part of the Department's annual budget submission.

PART 4—UNIVERSITY PROGRAMS

SEC. 134. UNIVERSITY NUCLEAR SCIENCE AND ENGINEERING SUPPORT.

(a) ESTABLISHMENT.—The Secretary shall support a program to invest in human resources and infrastructure in the nuclear sciences and engineering and related fields (including health physics and nuclear and radiochemistry),

consistent with departmental missions related to civilian nuclear research and development.

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

(1) establish a graduate and undergraduate fellowship program to attract new and talented students;

(2) establish a Junior Faculty Research Initiation Grant Program to assist institutions of higher education in recruiting and retaining new faculty in the nuclear sciences and engineering;

(3) support fundamental nuclear sciences and engineering research through the Nuclear Engineering Education Research Program;

(4) encourage collaborative nuclear research among industry, National Laboratories, and institutions of higher education through the Nuclear Energy Research Initiative; and

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

(c) MAINTAINING UNIVERSITY RESEARCH AND TRAINING REACTORS AND ASSOCIATED INFRASTRUCTURE.—Activities under this section may include—

(1) converting research reactors currently using high-enrichment fuels to low-enrichment fuels, up-

grading operational instrumentation, and sharing of reactors among institutions of higher education;

(2) providing technical assistance, in collaboration with the United States nuclear industry, in relicensing and upgrading training reactors as part of a student training program; and

(3) providing funding for reactor improvements as part of a focused effort that emphasizes research, training, and education.

(d) UNIVERSITY-NATIONAL LABORATORY INTERACTIONS.—The Secretary shall develop—

(1) a sabbatical fellowship program for professors at institutions of higher education to spend extended periods of time 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.

The Secretary may provide fellowships for students to spend time at National Laboratories in the area of nuclear science with a member of the Laboratory staff acting as a mentor.

(e) OPERATING AND MAINTENANCE COSTS.—Funding for a research project provided under this section may be used to offset a portion of the operating and mainte-

nance costs of a research reactor at an institution of higher education used in the research project.

Subtitle E—Fossil Energy

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 141. FOSSIL ENERGY.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for fossil energy research, development, demonstration, and commercial application activities, including activities authorized under this subtitle, other than those described in subsection (b):

(1) For fiscal year 2003, $505,000,000.

(2) For fiscal year 2004, $523,000,000.

(3) For fiscal year 2005, $542,000,000.

(4) For fiscal year 2006, $558,000,000.

(5) For fiscal year 2007, $585,000,000.

(b) ULTRA-DEEPWATER AND UNCONVENTIONAL RESOURCES.—

(1) OIL AND GAS LEASE INCOME.—For each of fiscal years 2003 through 2010, from any royalties, rents, and bonuses derived from Federal onshore and offshore oil and gas leases issued under the Outer Continental Shelf Lands Act and the Mineral Leasing Act which are deposited in the Treasury, and after distribution of any such funds as described in paragraph (2), an amount equal to 7.5 percent of

the amount of royalties, rents, and bonuses derived from those leases deposited in the Treasury shall be deposited into the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund (in this subsection referred to as the Fund). For purposes of this subsection, the term ''royalties'' excludes proceeds from the sale of royalty production taken in kind and royalty production that is transferred under section 27(a)(3) of the Outer Continental Shelf Lands Act (43 U.S.C. 1353(a)(3)). Monies in the Fund shall be available to the Secretary for obligation under part 3, without fiscal year limitation, to the extent provided in advance in appropriations Acts.

(2) PRIOR DISTRIBUTIONS.—The distributions described in paragraph (1) are those required by law—

(A) to States and to the Reclamation Fund under the Mineral Leasing Act (30 U.S.C. 191(a)); and

(B) to other funds receiving monies from Federal oil and gas leasing programs, including—

(i) any recipients pursuant to section 8(g) of the Outer Continental Shelf Lands Act (43 U.S.C. 1337(g));

(ii) 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)); and

(iii) the Historic Preservation Fund, pursuant to section 108 of the National Historic Preservation Act (16 U.S.C. 470h).

(3) ALLOCATION.—Amounts made available under this subsection in each fiscal year shall be allocated as follows:

(A) 67.5 percent shall be for ultra-deepwater natural gas and other petroleum activities under section 145;

(B) 22.5 percent shall be for unconventional natural gas and other petroleum resource activities under section 146; and

(C) 10 percent shall be for research complementary to research under section 144(b)(1) through (3).

(c) ALLOCATIONS.—From amounts authorized under subsection (a), the following sums are authorized:

(1) FUEL CELL PROTON EXCHANGE MEMBRANE TECHNOLOGY.—For activities under section 142(c)(2), $28,000,000 for each of the fiscal years 2003 through 2007.

(2) COAL MINING TECHNOLOGIES.—For activities under section 143—

(A) for fiscal year 2004, $12,000,000; and

(B) for fiscal year 2005, $15,000,000.

(3) OFFICE OF ARCTIC ENERGY.—For the Office of Arctic Energy under section 3197 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106–398), $25,000,000 for each of fiscal years 2003 through 2007.

(d) EXTENDED AUTHORIZATION.—There are authorized to be appropriated to the Secretary for the Office of Arctic Energy under section 3197 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106–398), $25,000,000 for each of fiscal years 2008 through 2011.

(e) LIMITS ON USE OF FUNDS.—

(1) EXCLUSIONS.—None of the funds authorized under this section may be used for—

(A) Fossil Energy Environmental Restoration; or

(B) Import/Export Authorization.

(2) UNIVERSITY COAL MINING RESEARCH.—Of the funds authorized under subsection (c)(2), not less than 20 percent of the funds appropriated for each fiscal year shall be dedicated to research and development carried out at institutions of higher education.

PART 2—RESEARCH PROGRAMS

SEC. 142. FOSSIL ENERGY RESEARCH PROGRAMS.

(a) COAL RESEARCH.—(1) In addition to the Clean Coal Power Initiative authorized under title V, the Secretary shall conduct a program of research, development, demonstration, and commercial application for coal and power systems, including—

(A) central systems;

(B) sequestration research and development;

(C) fuels;

(D) advanced research; and

(E) advanced separation technologies.

(2) No funds may be used to carry out the activities authorized by paragraph (1) after September 30, 2003, unless one month has elapsed since the Secretary has transmitted to the Congress a report providing—

(A) a detailed description of how proposals will be solicited and evaluated;

(B) a list of activities and technical milestones; and

(C) a description of how these activities will complement and not duplicate the Clean Coal Power Initiative authorized under title V.

(b) OIL AND GAS RESEARCH.—The Secretary shall conduct a program of research, development, demonstration, and commercial application on oil and gas, including—

(1) exploration and production;

(2) gas hydrates;

(3) reservoir life and extension;

(4) transportation and distribution infrastructure;

(5) ultraclean fuels;

(6) heavy oil and oil shale; and

(7) environmental research.

(c) FUEL CELLS.—(1) The Secretary shall conduct a program of research, development, demonstration, and commercial application on fuel cells for low-cost, high-efficiency, fuel-flexible, modular power systems.

(2) The demonstrations shall include fuel cell proton exchange membrane technology for commercial, residential, and transportation applications, and distributed gen-

eration systems, utilizing improved manufacturing production and processes.

(d) NATURAL GAS AND OIL DEPOSITS REPORT.—Not later than 2 years after the date of the enactment of this Act, and at 2-year intervals thereafter, the Secretary of the Interior, in consultation with other appropriate Federal agencies, shall transmit a report to the Congress of the latest estimates of natural gas and oil reserves, reserves growth, and undiscovered resources in Federal and State waters off the coast of Louisiana and Texas.

SEC. 143. RESEARCH AND DEVELOPMENT FOR COAL MINING TECHNOLOGIES.

(a) ESTABLISHMENT.—The Secretary shall carry out a program of research and development on coal mining technologies. The Secretary shall cooperate with appropriate Federal agencies, coal producers, trade associations, equipment manufacturers, institutions of higher education with mining engineering departments, and other relevant entities.

(b) PROGRAM.—The research and development activities carried out under this section shall—

(1) be based on the mining research and development priorities identified by the Mining Industry of the Future Program and in the recommendations

from relevant reports of the National Academy of Sciences on mining technologies; and

(2) expand mining research capabilities at institutions of higher education.

PART 3—ULTRA-DEEPWATER AND UNCONVENTIONAL NATURAL GAS AND OTHER PETROLEUM RESOURCES

SEC. 144. PROGRAM AUTHORITY.

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

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

(1) Ultra-deepwater technology.

(2) Ultra-deepwater architecture.

(3) Unconventional natural gas and other petroleum resource exploration and production technology.

(c) LIMITATION ON LOCATION OF FIELD ACTIVITIES.—Field activities under the program under this part 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.

(d) RESEARCH AT NATIONAL ENERGY TECHNOLOGY LABORATORY.—The Secretary, through the National Energy Technology Laboratory, shall carry out research complementary to research under section 144(b)(1) through (3).

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

SEC. 145. ULTRA-DEEPWATER PROGRAM.

(a) IN GENERAL.—The Secretary shall carry out the activities under paragraphs (1) and (2) of section 144(b), to maximize the value of the ultra-deepwater natural gas and other petroleum resources of the United States by increasing the supply of such resources and by 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 shall 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 ac-

cordance 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) The Secretary shall establish procedures—

(i) to ensure that each board member, officer, or employee of the program consortium who is in a decisionmaking 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) 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, 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 90 days after the date of enactment of this Act, the Secretary shall solicit proposals for the creation of the program consortium, which must be submitted not less than 180 days after the date of enactment of this Act. The Secretary shall select the program consor-

tium not later than 240 days 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 may 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) 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) The Secretary shall submit the recommendations of the program consortium under subparagraph (A) to the Ultra-Deepwater Advisory Committee established under section 148(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) The Secretary shall consult regularly with the program consortium throughout the preparation of the annual plan.

(3) PUBLICATION.—The Secretary shall transmit to the Congress and publish in the Federal Reg-

ister the annual plan, along with any written comments received under paragraph (2)(A) and (B). The annual plan shall be transmitted and published not later than 60 days after the date of enactment of an Act making appropriations for a fiscal year for the program under this section.

(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).

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

(g) FEE.—

(1) IN GENERAL.—To compensate the program consortium for carrying out its activities under this section, the Secretary shall provide to the program consortium a fee in an amount not to exceed 7.5 percent of the amounts awarded under subsection (f) for each fiscal year.

(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 part. 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. 146. UNCONVENTIONAL NATURAL GAS AND OTHER PETROLEUM RESOURCES PROGRAM.

(a) IN GENERAL.—The Secretary shall carry out activities under section 144(b)(3), to maximize the value of the onshore unconventional natural gas and other petroleum resources of the United States by increasing the supply of such resources and by 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 made through an open, competitive process.

(2) CONSORTIA.—In carrying out paragraph (1), the Secretary shall give preference to making awards to consortia.

(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 part. 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.—Awards under this section may focus on areas including advanced coal-bed methane, deep drilling, natural gas production from tight sands, natural gas production from gas shales, innovative exploration and production techniques, enhanced recovery techniques, and environmental mitigation of unconventional natural gas and other petroleum resources exploration and production.

(e) 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. 147. ADDITIONAL REQUIREMENTS FOR AWARDS.

(a) DEMONSTRATION PROJECTS.—An application for an award under this part 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 144(c), a demonstration project under this part 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 part 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.—Each recipient of an award under this part shall conduct technology transfer activities, as appropriate, and outreach activities pursuant to section 190.

(e) COST-SHARING REDUCTION FOR INDEPENDENT PRODUCERS.—In applying the cost-sharing requirements under section 182 to an award under this part made solely to an independent producer of oil or gas, the Secretary may reduce the applicable non-Federal requirement in such section to a level not less than 10 percent of the cost of the project.

SEC. 148. ADVISORY COMMITTEES.

(a) ULTRA-DEEPWATER ADVISORY COMMITTEE.—

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

(2) MEMBERSHIP.—The advisory committee under this subsection shall be composed of members appointed by the Secretary and 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 part related to ultra-deepwater natural gas and other petroleum resources; and

(B) carry out section 145(e)(2)(B).

(4) COMPENSATION.—A member of the advisory committee under this subsection shall serve without compensation but shall receive travel expenses, including per diem in lieu of subsistence, in accordance with applicable provisions under sub-

chapter 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 section, 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 and including—

(A) individuals with extensive research experience or operational knowledge of unconventional natural gas and other petroleum resource exploration and production, including independent oil and gas producers;

(B) 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

(C) 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 part 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, including per diem in lieu of subsistence, 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 consortia or for specific projects.

SEC. 149. LIMITS ON PARTICIPATION.

(a) IN GENERAL.—An entity shall be eligible to receive an award under this part only if the Secretary finds—

(1) that the entity's participation in the program under this part 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 which 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 part;

(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.

(b) SENSE OF CONGRESS AND REPORT.—It is the Sense of the Congress that ultra-deepwater technology developed under this part is to be developed primarily for production of ultra-deepwater natural gas and other petroleum resources of the United States, and that this priority is to be reflected in the terms of grants, contracts, and cooperative agreements entered under this part. As part

of the annual Departmental budget submission, the Secretary shall report on all steps taken to implement the policy described in this subsection.

SEC. 150. 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''.

SEC. 151. SUNSET.

The authority provided by this part shall terminate on September 30, 2010.

SEC. 152. DEFINITIONS.

In this section:

(1) DEEPWATER.—The term ''deepwater'' means a water depth that is greater than 200 but less than 1,500 meters.

(2) PROGRAM CONSORTIUM.—The term ''program consortium'' means the consortium selected under section 145(d).

(3) 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.

(4) ULTRA-DEEPWATER.—The term ''ultra-deepwater'' means a water depth that is equal to or greater than 1,500 meters.

(5) 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.

(6) ULTRA-DEEPWATER TECHNOLOGY.—The term ''ultra-deepwater technology'' means a discrete technology that is specially suited to address one or more challenges associated with the exploration for, or production of, natural gas or other petroleum resources located at ultra-deepwater depths.

(7) UNCONVENTIONAL NATURAL GAS AND OTHER PETROLEUM RESOURCE.—The term ''unconventional natural gas and other petroleum resource'' means natural gas and other petroleum resource located onshore in an economically inaccessible geological formation.

Subtitle F—Science

PART 1—AUTHORIZATION OF APPROPRIATIONS

SEC. 161. SCIENCE.

(a) IN GENERAL.—The following sums are authorized to be appropriated to the Secretary for research, de-

velopment, demonstration, and commercial application activities of the Office of Science, including activities authorized under this subtitle, including the amounts authorized under the amendment made by section 170(c)(2)(C)(ii), and including basic energy sciences, advanced scientific and computing research, biological and environmental research, fusion energy sciences, high energy physics, nuclear physics, and research analysis and infrastructure support:

(1) For fiscal year 2003, $3,350,000,000.

(2) For fiscal year 2004, $3,785,000,000.

(3) For fiscal year 2005, $4,153,000,000.

(4) For fiscal year 2006, $4,586,000,000.

(5) For fiscal year 2007, $5,000,000,000.

(b) ALLOCATIONS.—From amounts authorized under subsection (a), the following sums are authorized:

(1) FUSION ENERGY SCIENCES.—For activities of the Fusion Energy Sciences Program, including activities under sections 162 and 163—

(A) for fiscal year 2003, $300,000,000;

(B) for fiscal year 2004, $335,000,000;

(C) for fiscal year 2005, $349,000,000;

(D) for fiscal year 2006, $362,000,000; and

(E) for fiscal year 2007, $377,000,000.

(2) SPALLATION NEUTRON SOURCE.—

(A) CONSTRUCTION.—For construction of the Spallation Neutron Source—

(i) for fiscal year 2003, $210,571,000;

(ii) for fiscal year 2004, $124,600,000;

(iii) for fiscal year 2005, $79,800,000; and

(iv) for fiscal year 2006, $41,100,000 for completion of construction.

(B) OTHER PROJECT FUNDING.—For other project costs (including research and development necessary to complete the project, preoperations costs, and capital equipment related to construction) of the Spallation Neutron Source, $103,279,000 for the period encompassing fiscal years 2003 through 2006, to remain available until expended through September 30, 2006.

(3) NANOSCALE SCIENCE AND ENGINEERING RESEARCH.—

(A) TOTAL AUTHORIZATION.—For activities under section 169—

(i) for fiscal year 2003, $135,000,000;

(ii) for fiscal year 2004, $270,000,000;

(iii) for fiscal year 2005, $290,000,000;

(iv) for fiscal year 2006, $310,000,000; and

(v) for fiscal year 2007, $330,000,000.

(B) RESEARCH CENTERS AND MAJOR INSTRUMENTATION.—From the amounts authorized under subparagraph (A), the following sums are authorized to be appropriated to carry out section 169(c):

(i) For fiscal year 2004, $135,000,000.

(ii) For fiscal year 2005, $150,000,000.

(iii) For fiscal year 2006, $120,000,000.

(iv) For fiscal year 2007, $100,000,000.

(c) LIMITS ON USE OF FUNDS.—Of the funds authorized under subsection (b)(1), no funds shall be available for implementation of the plans described in sections 162 and 163.

PART 2—FUSION ENERGY SCIENCES

SEC. 162. PLAN FOR FUSION EXPERIMENT.

(a) PLAN FOR UNITED STATES FUSION EXPERIMENT.—The Secretary, after consultation with the Fusion Energy Sciences Advisory Committee, shall develop a plan for construction in the United States of a magnetic fusion burning plasma experiment for the purpose of accelerating scientific understanding of fusion plasmas. The Secretary shall request a review of the plan by the National Academy of Sciences, and shall transmit the plan and the review to the Congress by July 1, 2004.

(b) REQUIREMENTS OF PLAN.—The plan described in subsection (a) shall—

(1) address key burning plasma physics issues; and

(2) include specific information on the scientific capabilities of the proposed experiment, the relevance of these capabilities to the goal of practical fusion energy, and the overall design of the experiment including its estimated cost and potential construction sites.

(c) UNITED STATES PARTICIPATION IN AN INTERNATIONAL EXPERIMENT.—In addition to the plan described in subsection (a), the Secretary, after consultation with the Fusion Energy Sciences Advisory Committee, may also develop a plan for United States participation

in an international burning plasma experiment for the same purpose, whose construction is found by the Secretary to be highly likely and where United States participation is cost effective relative to the cost and scientific benefits of a domestic experiment described in subsection (a). If the Secretary elects to develop a plan under this subsection, it shall include the information described in subsection (b), and an estimate of the cost of United States participation in such an international experiment. The Secretary shall request a review by the National Academy of Sciences of a plan developed under this subsection, and shall transmit the plan and the review to the Congress not later than July 1, 2004.

(d) AUTHORIZATION OF RESEARCH AND DEVELOPMENT.—The Secretary, through the Office of Science, may conduct any research and development necessary to fully develop the plans described in this section.

SEC. 163. PLAN FOR FUSION ENERGY SCIENCES PROGRAM.

Not later than 6 months after the date of the enactment of this Act, the Secretary, after consultation with the Fusion Energy Sciences Advisory Committee, shall develop and transmit to the Congress a plan for the purpose of ensuring a strong scientific base for the Fusion Energy Sciences Program and to enable the experiments described in section 162. Such plan shall include as its objectives—

(1) to ensure that existing fusion research facilities and equipment are more fully utilized with appropriate measurements and control tools;

(2) to ensure a strengthened fusion science theory and computational base;

(3) to ensure that the selection of and funding for new magnetic and inertial fusion research facilities are based on scientific innovation and cost effectiveness;

(4) to improve the communication of scientific results and methods between the fusion science community and the wider scientific community;

(5) to ensure that adequate support is provided to optimize the design of the magnetic fusion burning plasma experiments referred to in section 162;

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

(7) to develop a fusion-based energy source.

PART 3—SPALLATION NEUTRON SOURCE

SEC. 164. DEFINITION.

For the purposes of this part, the term ''Spallation Neutron Source'' means Department Project 99–E–334, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

SEC. 165. REPORT.

The Secretary shall report on the Spallation Neutron Source as part of the Department's annual budget submission, including a description of the achievement of milestones, a comparison of actual costs to estimated costs, and any changes in estimated project costs or schedule.

SEC. 166. LIMITATIONS.

The total amount obligated by the Department, including prior year appropriations, for the Spallation Neutron Source may not exceed—

(1) $1,192,700,000 for costs of construction;

(2) $219,000,000 for other project costs; and

(3) $1,411,700,000 for total project cost.

PART 4—MISCELLANEOUS

SEC. 167. FACILITY AND INFRASTRUCTURE SUPPORT FOR NONMILITARY ENERGY LABORATORIES.

(a) FACILITY POLICY.—The Secretary shall develop and implement a strategy for the nonmilitary energy laboratories and facilities of the Office of Science. Such strategy shall provide a 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) TRANSMITTAL.—The Secretary shall prepare and transmit, along with the President's budget request to the Congress for fiscal year 2005, a report containing the strategy developed under subsection (a).

(2) CONTENTS.—For each nonmilitary energy laboratory and facility, such report shall contain—

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

(B) a current ten-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 facilities and infrastructure project compared to the original baseline cost, schedule, and scope.

SEC. 168. RESEARCH REGARDING PRECIOUS METAL CATALYSIS.

From the amounts authorized to be appropriated to the Secretary under section 161, such sums as may be necessary for each of the fiscal years 2003, 2004, and

2005 may be used to carry out research in the use of precious metals (excluding platinum, palladium, and rhodium) in catalysis.

SEC. 169. NANOSCALE SCIENCE AND ENGINEERING RESEARCH.

(a) ESTABLISHMENT.—The Secretary, acting through the Office of Science, shall support a program of research, development, demonstration, and commercial application in nanoscience and nanoengineering. The program shall include efforts to further the understanding of the chemistry, physics, materials science, and engineering of phenomena on the scale of 1 to 100 nanometers.

(b) DUTIES OF THE OFFICE OF SCIENCE.—In carrying out the program under this section, the Office of Science shall—

(1) support both individual investigators and teams of investigators, including multidisciplinary teams;

(2) carry out activities under subsection (c);

(3) support technology transfer activities to benefit industry and other users of nanoscience and nanoengineering; and

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

(c) NANOSCIENCE AND NANOENGINEERING RESEARCH CENTERS AND MAJOR INSTRUMENTATION.—

(1) IN GENERAL.—The Secretary shall carry out projects to develop, plan, construct, acquire, operate, or support special equipment, instrumentation, or facilities for investigators conducting research and development in nanoscience and nanoengineering.

(2) PROJECTS.—Projects under paragraph (1) may include the measurement of properties at the scale of 1 to 100 nanometers, manipulation at such scales, and the integration of technologies based on nanoscience or nanoengineering into bulk materials or other technologies.

(3) FACILITIES.—Facilities under paragraph (1) may include electron microcharacterization facilities, microlithography facilities, scanning probe facilities, and related instrumentation.

(4) COLLABORATION.—The Secretary shall encourage collaborations among institutions of higher education, laboratories, and industry at facilities under this subsection.

SEC. 170. ADVANCED SCIENTIFIC COMPUTING FOR ENERGY MISSIONS.

(a) IN GENERAL.—The Secretary, acting through the Office of Science, shall support a program to advance the Nation's computing capability across a diverse set of grand challenge computationally based science problems related to departmental missions.

(b) DUTIES OF THE OFFICE OF SCIENCE.—In carrying out the program under this section, the Office of Science shall—

(1) advance basic science through computation by developing software to solve grand challenge science problems on new generations of computing platforms;

(2) enhance the foundations for scientific computing by developing the basic mathematical and computing systems software needed to take full advantage of the computing capabilities of computers with peak speeds of 100 teraflops or more, some of which may be unique to the scientific problem of interest;

(3) enhance national collaboratory and networking capabilities by developing software to integrate geographically separated researchers into effective research teams and to facilitate access to and movement and analysis of large (petabyte) data sets;

(4) maintain a robust scientific computing hardware infrastructure to ensure that the computing resources needed to address departmental missions are available; and

(5) explore new computing approaches and technologies that promise to advance scientific computing.

(c) HIGH-PERFORMANCE COMPUTING ACT OF 1991 AMENDMENTS.—The High-Performance Computing Act of 1991 is amended—

(1) in section 4 (15 U.S.C. 5503)—

(A) in paragraph (3)—

(i) by striking ''means'' and inserting ''and 'networking and information technology' mean''; and

(ii) by striking ''(including vector supercomputers and large scale parallel systems)''; and

(B) in paragraph (4), by striking ''packet switched''; and

(2) in section 203 (15 U.S.C. 5523)—

(A) in subsection (a), by striking all after ''As part of the'' and inserting ''Networking and Information Technology Research and Development Program, the Secretary of Energy

shall conduct basic and applied research in networking and information technology, with emphasis on—

''(1) supporting fundamental research in the physical sciences and engineering, and energy applications;

''(2) providing supercomputer access and advanced communication capabilities and facilities to scientific researchers; and

''(3) developing tools for distributed scientific collaboration.'';

(B) in subsection (b), by striking ''Program'' and inserting ''Networking and Information Technology Research and Development Program''; and

(C) in subsection (e)—

(i) by striking ''(1)'';

(ii) by striking ''the Program'' and all that follows through ''fiscal year 1996'' and inserting ''carrying out this section $285,000,000 for fiscal year 2003, $300,000,000 for fiscal year 2004, $310,000,000 for fiscal year 2005, and $320,000,000 for fiscal year 2006''; and

(iii) by striking paragraph (2).

(d) COORDINATION.—The Secretary shall ensure that the program under this section is integrated and consistent with—

(1) the Accelerated Strategic Computing Initiative of the National Nuclear Security Administration; and

(2) other national efforts related to advanced scientific computing for science and engineering.

(e) REPORT.—(1) Before undertaking any new initiative to develop new advanced architecture for high-speed computing, the Secretary, through the Director of the Office of Science, shall transmit a report to the Congress describing—

(A) the expected duration and cost of the initiative;

(B) the technical milestones the initiative is designed to achieve;

(C) how institutions of higher education and private firms will participate in the initiative; and

(D) why the goals of the initiative could not be achieved through existing programs.

(2) No funds may be expended on any initiative described in paragraph (1) until 30 days after the report required by that paragraph is transmitted to the Congress.

Subtitle G—Energy and Environment

SEC. 171. AUTHORIZATION OF APPROPRIATIONS.

(a) UNITED STATES-MEXICO ENERGY TECHNOLOGY COOPERATION.—The following sums are authorized to be appropriated to the Secretary to carry out activities under section 172:

(1) For fiscal year 2003, $5,000,000.

(2) For fiscal year 2004, $5,000,000.

(3) For fiscal year 2005, $6,000,000.

(4) For fiscal year 2006, $6,000,000.

(5) For fiscal year 2007, $6,000,000.

(b) WASTE REDUCTION AND USE OF ALTERNATIVES.—There are authorized to be appropriated to the Secretary to carry out activities under section 173, $500,000 for fiscal year 2003.

SEC. 172. UNITED STATES-MEXICO ENERGY TECHNOLOGY COOPERATION.

(a) PROGRAM.—The Secretary shall establish a research, development, demonstration, and commercial application program to be carried out in collaboration with entities in Mexico and the United States to promote energy efficient, environmentally sound economic development along the United States-Mexico border.

(b) PROGRAM MANAGEMENT.—The program under subsection (a) shall be managed by the Department of Energy Carlsbad Environmental Management Field Office.

(c) TECHNOLOGY TRANSFER.—In carrying out projects and activities under this section, the Secretary shall assess the applicability of technology developed under the Environmental Management Science Program of the Department.

(d) INTELLECTUAL PROPERTY.—In carrying out this section, the Secretary shall comply with the requirements of any agreement entered into between the United States and Mexico regarding intellectual property protection.

SEC. 173. WASTE REDUCTION AND USE OF ALTERNATIVES.

(a) GRANT AUTHORITY.—The Secretary is authorized to make a single grant to a qualified institution to examine and develop the feasibility of burning post-consumer carpet in cement kilns as an alternative energy source. The purposes of the grant shall include determining—

(1) how post-consumer carpet can be burned without disrupting kiln operations;

(2) the extent to which overall kiln emissions may be reduced;

(3) the emissions of air pollutants and other relevant environmental impacts; and

(4) how this process provides benefits to both cement kiln operations and carpet suppliers.

(b) QUALIFIED INSTITUTION.—For the purposes of subsection (a), a qualified institution is a research-intensive institution of higher education with demonstrated expertise in the fields of fiber recycling and logistical modeling of carpet waste collection and preparation.

SEC. 174. COAL GASIFICATION.

The Secretary is authorized to provide loan guarantees for a project to produce energy from a plant using integrated gasification combined cycle technology of at least 400 megawatts in capacity that produces power at competitive rates in deregulated energy generation markets and that does not receive any subsidy (direct or indirect) from ratepayers.

SEC. 175. PETROLEUM COKE GASIFICATION.

The Secretary is authorized to provide loan guarantees for at least one petroleum coke gasification polygeneration project.

SEC. 176. OTHER BIOPOWER AND BIOENERGY.

The Secretary shall conduct a program to assist in the planning, design, and implementation of projects to convert rice straw, rice hulls, sugarcane bagasse, forest thinnings, and barley grain into biopower and biofuels.

SEC. 177. TECHNOLOGY TRANSFER.

There are authorized to be appropriated to the Secretary $1,000,000 for a competitively awarded contract, to an entity with offshore oil and gas management experience, for the transfer of technologies relating to ultra-deepwater research and development developed at the Naval Surface Warfare Center, Carderock Division.

SEC. 178. COAL TECHNOLOGY LOAN.

There are authorized to be appropriated to the Secretary $125,000,000 to provide a loan to the owner of the experimental plant constructed under United States Department of Energy cooperative agreement number DE–FC22–91PC99544 on such terms and conditions as the Secretary determines, including interest rates and upfront payments.

Subtitle H—Management

SEC. 181. AVAILABILITY OF FUNDS.

Funds authorized to be appropriated to the Department under this title shall remain available until expended.

SEC. 182. COST SHARING.

(a) RESEARCH AND DEVELOPMENT.—Except as otherwise provided in this title, for research and development programs carried out under this title, 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 title, the Secretary shall require at least 50 percent of the costs directly and specifically related to any demonstration or commercial application project under this title 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 title.

(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.

SEC. 183. MERIT REVIEW OF PROPOSALS.

Awards of funds authorized under this title shall be made 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.

SEC. 184. EXTERNAL TECHNICAL REVIEW OF DEPARTMENTAL PROGRAMS.

(a) NATIONAL ENERGY RESEARCH AND DEVELOPMENT ADVISORY BOARDS.—(1) The Secretary shall establish one or more advisory boards to review Department research, development, demonstration, and commercial application programs in the following areas:

(A) Energy efficiency.

(B) Renewable energy.

(C) Nuclear energy.

(D) Fossil energy.

(2) The Secretary may designate an existing advisory board within the Department to fulfill the responsibilities of an advisory board under this subsection, and may enter into appropriate arrangements with the National Academy of Sciences to establish such an advisory board.

(b) UTILIZATION OF EXISTING COMMITTEES.—The Secretary shall continue to use the scientific program advisory committees chartered under the Federal Advisory Committee Act by the Office of Science to oversee research and development programs under that Office.

(c) MEMBERSHIP.—Each advisory board under this section shall consist of persons with appropriate expertise representing a diverse range of interests.

(d) MEETINGS AND PURPOSES.—Each advisory board under this section shall meet at least semi-annually

to review and advise on the progress made by the respective research, development, demonstration, and commercial application program or programs. The advisory board shall also review the measurable cost and performance-based goals for such programs as established under section 102, and the progress on meeting such goals.

(e) PERIODIC REVIEWS AND ASSESSMENTS.—The Secretary shall enter into appropriate arrangements with the National Academy of Sciences to conduct periodic reviews and assessments of the programs authorized by this title, the measurable cost and performance-based goals for such programs as established under section 102, if any, and the progress on meeting such goals. Such reviews and assessments shall be conducted every 5 years, or more often as the Secretary considers necessary, and the Secretary shall transmit to the Congress reports containing the results of all such reviews and assessments.

SEC. 185. IMPROVED COORDINATION OF TECHNOLOGY TRANSFER ACTIVITIES.

(a) TECHNOLOGY TRANSFER COORDINATOR.—The Secretary shall designate a Technology Transfer Coordinator to perform oversight of and policy development for technology transfer activities at the Department. The Technology Transfer Coordinator shall coordinate the activities of the Technology Transfer Working Group, and

shall oversee the expenditure of funds allocated to the Technology Transfer Working Group, and shall coordinate with each technology partnership ombudsman appointed under section 11 of the Technology Transfer Commercialization Act of 2000 (42 U.S.C. 7261c).

(b) TECHNOLOGY TRANSFER WORKING GROUP.—The Secretary shall establish a Technology Transfer Working Group, which shall consist of representatives of the National Laboratories and single-purpose research facilities, to—

(1) coordinate technology transfer activities occurring at National Laboratories and single-purpose research facilities;

(2) exchange information about technology transfer practices, including alternative approaches to resolution of disputes involving intellectual property rights and other technology transfer matters; and

(3) develop and disseminate to the public and prospective technology partners information about opportunities and procedures for technology transfer with the Department, including those related to alternative approaches to resolution of disputes involving intellectual property rights and other technology transfer matters.

(c) TECHNOLOGY TRANSFER RESPONSIBILITY.—Nothing in this section shall affect the technology transfer responsibilities of Federal employees under the Stevenson-Wydler Technology Innovation Act of 1980.

SEC. 186. TECHNOLOGY INFRASTRUCTURE PROGRAM.

(a) ESTABLISHMENT.—The Secretary shall establish a Technology Infrastructure Program in accordance with this section.

(b) PURPOSE.—The purpose of the Technology Infrastructure Program shall be to improve the ability of National Laboratories and single-purpose research facilities to support departmental missions by—

(1) stimulating the development of technology clusters that can support departmental missions at the National Laboratories or single-purpose research facilities;

(2) improving the ability of National Laboratories and single-purpose research facilities to leverage and benefit from commercial research, technology, products, processes, and services; and

(3) encouraging the exchange of scientific and technological expertise between National Laboratories or single-purpose research facilities and—

(A) institutions of higher education;

(B) technology-related business concerns;

(C) nonprofit institutions; and

(D) agencies of State, tribal, or local governments,

that can support departmental missions at the National Laboratories or single-purpose research facilities.

(c) PROJECTS.—The Secretary shall authorize the Director of each National Laboratory or single-purpose research facility to implement the Technology Infrastructure Program at such National Laboratory or facility through projects that meet the requirements of subsections (d) and (e).

(d) PROGRAM REQUIREMENTS.—Each project funded under this section shall meet the following requirements:

(1) MINIMUM PARTICIPANTS.—Each project shall at a minimum include one of the following entities:

(A) A business.

(B) An institution of higher education.

(C) A nonprofit institution.

(D) An agency of a State, local, or tribal government.

(2) COST SHARING.—

(A) MINIMUM AMOUNT.—Not less than 50 percent of the costs of each project funded

under this section shall be provided from non-Federal sources.

(B) QUALIFIED FUNDING AND RESOURCES.—(i) The calculation of costs paid by the non-Federal sources to a project shall include cash, personnel, services, equipment, and other resources expended on the project.

(ii) Independent research and development expenses of Government contractors that qualify for reimbursement under section 31–205–18(e) of the Federal Acquisition Regulations issued pursuant to section 25(c)(1) of the Office of Federal Procurement Policy Act (41 U.S.C. 421(c)(1)) may be credited towards costs paid by non-Federal sources to a project, if the expenses meet the other requirements of this section.

(iii) No funds or other resources expended either before the start of a project under this section or outside the project's scope of work shall be credited toward the costs paid by the non-Federal sources to the project.

(3) COMPETITIVE SELECTION.—All projects under this section shall be competitively selected using procedures determined by the Secretary.

(4) ACCOUNTING STANDARDS.—Any participant that receives funds under this section may use generally accepted accounting principles for maintaining accounts, books, and records relating to the project.

(5) LIMITATIONS.—No Federal funds shall be made available under this section for—

(A) construction; or

(B) any project for more than 5 years.

(e) SELECTION CRITERIA.—

(1) THRESHOLD FUNDING CRITERIA.—The Secretary shall allocate funds under this section only if the Director of the National Laboratory or single-purpose research facility managing the project determines that the project is likely to improve the ability of the National Laboratory or single-purpose research facility to achieve technical success in meeting departmental missions.

(2) ADDITIONAL CRITERIA.—The Secretary shall consider the following criteria in selecting a project to receive Federal funds:

(A) The potential of the project to succeed, based on its technical merit, team members, management approach, resources, and project plan.

(B) The potential of the project to promote the development of a commercially sustainable technology cluster, which will derive most of the demand for its products or services from the private sector, and which will support departmental missions at the participating National Laboratory or single-purpose research facility.

(C) The potential of the project to promote the use of commercial research, technology, products, processes, and services by the participating National Laboratory or single-purpose research facility to achieve its departmental mission or the commercial development of technological innovations made at the participating National Laboratory or single-purpose research facility.

(D) The commitment shown by non-Federal organizations to the project, based primarily on the nature and amount of the financial and other resources they will risk on the project.

(E) The extent to which the project involves a wide variety and number of institutions of higher education, nonprofit institutions, and technology-related business concerns that can

support the missions of the participating National Laboratory or single-purpose research facility and that will make substantive contributions to achieving the goals of the project.

(F) The extent of participation in the project by agencies of State, tribal, or local governments that will make substantive contributions to achieving the goals of the project.

(G) The extent to which the project focuses on promoting the development of technology-related business concerns that are small businesses or involves such small businesses substantively in the project.

(H) Such other criteria as the Secretary determines to be appropriate.

(f) ALLOCATION.—In allocating funds for projects approved under this section, the Secretary shall provide—

(1) the Federal share of the project costs; and

(2) additional funds to the National Laboratory or single-purpose research facility managing the project to permit the National Laboratory or single-purpose research facility to carry out activities relating to the project, and to coordinate such activities with the project.

(g) REPORT TO CONGRESS.—Not later than January 1, 2005, the Secretary shall report to Congress on whether the Technology Infrastructure Program should be continued and, if so, how the program should be managed.

(h) DEFINITIONS.—In this section:

(1) TECHNOLOGY CLUSTER.—The term ''technology cluster'' means a group of—

(A) technology-related business concerns;

(B) institutions of higher education; or

(C) other nonprofit institutions,

that reinforce each other's performance in the areas of technology development through formal or informal relationships.

(2) TECHNOLOGY-RELATED BUSINESS CONCERN.—The term ''technology-related business concern'' means a for-profit corporation, company, association, firm, partnership, or small business concern that—

(A) conducts scientific or engineering research;

(B) develops new technologies;

(C) manufactures products based on new technologies; or

(D) performs technological services.

(i) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary for activities under this section $10,000,000 for each of fiscal years 2003 and 2004.

SEC. 187. SMALL BUSINESS ADVOCACY AND ASSISTANCE.

(a) SMALL BUSINESS ADVOCATE.—The Secretary shall require the Director of each National Laboratory, and may require the Director of a single-purpose research facility, to designate a small business advocate to—

(1) increase the participation of small business concerns, including socially and economically disadvantaged small business concerns, in procurement, collaborative research, technology licensing, and technology transfer activities conducted by the National Laboratory or single-purpose research facility;

(2) report to the Director of the National Laboratory or single-purpose research facility on the actual participation of small business concerns in procurement and collaborative research along with recommendations, if appropriate, on how to improve participation;

(3) make available to small business concerns training, mentoring, and clear, up-to-date information on how to participate in the procurement and collaborative research, including how to submit effec-

tive proposals, and information related to alternative approaches to resolution of disputes involving intellectual property rights and other technology transfer matters;

(4) increase the awareness inside the National Laboratory or single-purpose research facility of the capabilities and opportunities presented by small business concerns; and

(5) establish guidelines for the program under subsection (b) and report on the effectiveness of such program to the Director of the National Laboratory or single-purpose research facility.

(b) ESTABLISHMENT OF SMALL BUSINESS ASSISTANCE PROGRAM.—The Secretary shall require the Director of each National Laboratory, and may require the Director of a single-purpose research facility, to establish a program to provide small business concerns—

(1) assistance directed at making them more effective and efficient subcontractors or suppliers to the National Laboratory or single-purpose research facility; or

(2) general technical assistance, the cost of which shall not exceed $10,000 per instance of assistance, to improve the small business concern's products or services.

(c) USE OF FUNDS.—None of the funds expended under subsection (b) may be used for direct grants to the small business concerns.

(d) DEFINITIONS.—In this section:

(1) SMALL BUSINESS CONCERN.—The term ''small business concern'' has the meaning given such term in section 3 of the Small Business Act (15 U.S.C. 632).

(2) SOCIALLY AND ECONOMICALLY DISADVANTAGED SMALL BUSINESS CONCERNS.—The term ''socially and economically disadvantaged small business concerns'' has the meaning given such term in section 8(a)(4) of the Small Business Act (15 U.S.C. 637(a)(4)).

SEC. 188. MOBILITY OF SCIENTIFIC AND TECHNICAL PERSONNEL.

Not later than 2 years after the date of enactment of this section, the Secretary shall transmit a report to the Congress identifying any policies or procedures of a contractor operating a National Laboratory or single-purpose research facility that create disincentives to the temporary transfer of scientific and technical personnel among the contractor-operated National Laboratories or contractor-operated single-purpose research facilities.

SEC. 189. NATIONAL ACADEMY OF SCIENCES REPORT.

Within 90 days after the date of enactment of this Act, the Secretary shall enter into an arrangement with the National Academy of Sciences for the Academy to—

(1) conduct a study on—

(A) the obstacles to accelerating the research, development, demonstration, and commercial application cycle for energy technology; and

(B) the adequacy of Department policies and procedures for, and oversight of, technology transfer-related disputes between contractors of the Department and the private sector; and

(2) report to the Congress on recommendations developed as a result of the study.

SEC. 190. OUTREACH.

The Secretary shall ensure that each program authorized by this title includes an outreach component to provide information, as appropriate, to manufacturers, consumers, engineers, architects, builders, energy service companies, institutions of higher education, facility planners and managers, State and local governments, and other entities.

SEC. 191. LIMITS ON USE OF FUNDS.

(a) COMPETITIVE PROCEDURE REQUIREMENT.—None of the funds authorized to be appropriated to the

Secretary by this title may be used to award a management and operating contract for a nonmilitary energy laboratory of the Department unless such contract is competitively awarded or the Secretary grants, on a case-by-case basis, a waiver to allow for such a deviation. The Secretary may not delegate the authority to grant such a waiver.

(b) CONGRESSIONAL NOTICE.—At least 2 months before a contract award for which the Secretary intends to grant such a waiver, the Secretary shall submit to the Congress a report notifying the Congress of the waiver and setting forth the reasons for the waiver.

SEC. 192. REPROGRAMMING.

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

(b) PROHIBITION.—(1) No amount identified under subsection (a) shall be reprogrammed if such reprogramming would result in an obligation which changes an individual distribution required to be reported under subsection (a) by more than 5 percent unless the Secretary

has transmitted to the appropriate authorizing committees of the Congress a report described in subsection (c) and a period of 30 days has elapsed after such committees receive the report.

(2) In the computation of the 30-day period described in paragraph (1), there shall be excluded 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.

(c) REPROGRAMMING REPORT.—A report referred to in subsection (b)(1) shall contain a full and complete statement of the action proposed to be taken and the facts and circumstances relied on in support of the proposed action.

SEC. 193. CONSTRUCTION WITH OTHER LAWS.

Except as otherwise provided in this title, the Secretary shall carry out the research, development, demonstration, and commercial application programs, projects, and activities authorized by this title in accordance with the applicable provisions of the Atomic Energy Act of 1954 (42 U.S.C. et seq.), the Federal Nonnuclear Research and Development Act of 1974 (42 U.S.C. 5901 et seq.), the Energy Policy Act of 1992 (42 U.S.C. 13201 et seq.), the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.), chapter 18 of title 35, United States Code (commonly referred to as the Bayh-

Dole Act), and any other Act under which the Secretary is authorized to carry out such activities.

TITLE II—DEPARTMENT OF ENERGY MANAGEMENT

SEC. 201. IMPROVED COORDINATION AND MANAGEMENT OF CIVILIAN SCIENCE AND TECHNOLOGY PROGRAMS.

(a) RECONFIGURATION OF POSITION OF DIRECTOR OF THE OFFICE OF SCIENCE.—Section 209 of the Department of Energy Organization Act (41 U.S.C. 7139) is amended to read as follows:

''OFFICE OF SCIENCE

''SEC. 209. (a) There shall be within the Department an Office of Science, to be headed by an Assistant Secretary of Science, who shall be appointed by the President, by and with the advice and consent of the Senate, and who shall be compensated at the rate provided for level IV of the Executive Schedule under section 5315 of title 5, United States Code.

''(b) The Assistant Secretary of Science shall be in addition to the Assistant Secretaries provided for under section 203 of this Act.

''(c) It shall be the duty and responsibility of the Assistant Secretary of Science to carry out the fundamental

science and engineering research functions of the Department, including the responsibility for policy and management of such research, as well as other functions vested in the Secretary which he may assign to the Assistant Secretary.''.

(b) ADDITIONAL ASSISTANT SECRETARY POSITION TO ENABLE IMPROVED MANAGEMENT OF NUCLEAR ENERGY ISSUES.—(1) Section 203(a) of the Department of Energy Organization Act (42 U.S.C. 7133(a)) is amended by striking ''There shall be in the Department six Assistant Secretaries'' and inserting ''Except as provided in section 209, there shall be in the Department seven Assistant Secretaries''.

(2) It is the sense of the Congress that the leadership for departmental missions in nuclear energy should be at the Assistant Secretary level.

(c) TECHNICAL AND CONFORMING AMENDMENTS.—(1) Section 5315 of title 5, United States Code, is amended by—

(A) striking ''Director, Office of Science, Department of Energy.''; and

(B) striking ''Assistant Secretaries of Energy (6)'' and inserting ''Assistant Secretaries of Energy (8)''.

(2) The table of contents for the Department of Energy Organization Act (42 U.S.C. 7101 note) is amended—

(A) by striking ''Section 209'' and inserting ''Sec. 209'';

(B) by striking ''213.'' and inserting ''Sec. 213.'';

(C) by striking ''214.'' and inserting ''Sec. 214.'';

(D) by striking ''215.'' and inserting ''Sec. 215.''; and

(E) by striking ''216.'' and inserting ''Sec. 216.''.

TITLE III—CLEAN SCHOOL BUSES

SEC. 301. ESTABLISHMENT OF PILOT PROGRAM.

(a) ESTABLISHMENT.—The Secretary of Energy, in consultation with the Administrator of the Environmental Protection Agency, shall establish a pilot program for awarding grants on a competitive basis to eligible entities for the demonstration and commercial application of alternative fuel school buses and ultra-low sulfur diesel school buses.

(b) REQUIREMENTS.—Not later than 3 months after the date of the enactment of this Act, the Secretary shall

establish and publish in the Federal register grant requirements on eligibility for assistance, and on implementation of the program established under subsection (a), including certification requirements to ensure compliance with this title.

(c) SOLICITATION.—Not later than 6 months after the date of the enactment of this Act, the Secretary shall solicit proposals for grants under this section.

(d) ELIGIBLE RECIPIENTS.—A grant shall be awarded under this section only—

(1) to a local or State governmental entity responsible for providing school bus service to one or more public school systems or responsible for the purchase of school buses; or

(2) to a contracting entity that provides school bus service to one or more public school systems, if the grant application is submitted jointly with the school system or systems which the buses will serve.

(e) TYPES OF GRANTS.—

(1) IN GENERAL.—Grants under this section shall be for the demonstration and commercial application of technologies to facilitate the use of alternative fuel school buses and ultra-low sulfur diesel school buses in lieu of buses manufactured before

model year 1977 and diesel-powered buses manufactured before model year 1991.

(2) NO ECONOMIC BENEFIT.—Other than the receipt of the grant, a recipient of a grant under this section may not receive any economic benefit in connection with the receipt of the grant.

(3) PRIORITY OF GRANT APPLICATIONS.—The Secretary shall give priority to awarding grants to applicants who can demonstrate the use of alternative fuel buses and ultra-low sulfur diesel school buses in lieu of buses manufactured before model year 1977.

(f) CONDITIONS OF GRANT.—A grant provided under this section shall include the following conditions:

(1) All buses acquired with funds provided under the grant shall be operated as part of the school bus fleet for which the grant was made for a minimum of 5 years.

(2) Funds provided under the grant may only be used—

(A) to pay the cost, except as provided in paragraph (3), of new alternative fuel school buses or ultra-low sulfur diesel school buses, including State taxes and contract fees; and

(B) to provide—

(i) up to 10 percent of the price of the alternative fuel buses acquired, for necessary alternative fuel infrastructure if the infrastructure will only be available to the grant recipient; and

(ii) up to 15 percent of the price of the alternative fuel buses acquired, for necessary alternative fuel infrastructure if the infrastructure will be available to the grant recipient and to other bus fleets.

(3) The grant recipient shall be required to provide at least the lesser of 15 percent of the total cost of each bus received or $15,000 per bus.

(4) In the case of a grant recipient receiving a grant to demonstrate ultra-low sulfur diesel school buses, the grant recipient shall be required to provide documentation to the satisfaction of the Secretary that diesel fuel containing sulfur at not more than 15 parts per million is available for carrying out the purposes of the grant, and a commitment by the applicant to use such fuel in carrying out the purposes of the grant.

(g) BUSES.—Funding under a grant made under this section may be used to demonstrate the use only of new

alternative fuel school buses or ultra-low sulfur diesel school buses—

(1) with a gross vehicle weight of greater than 14,000 pounds;

(2) that are powered by a heavy duty engine;

(3) that, in the case of alternative fuel school buses manufactured in model years 2003 through 2006, emit not more than 1.8 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(4) that, in the case of ultra-low sulfur diesel school buses, emit not more than—

(A) for buses manufactured in model year 2003, 3.0 grams per brake horsepower-hour of oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(B) for buses manufactured in model years 2004 through 2006, 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter,

except that under no circumstances shall buses be acquired under this section that emit nonmethane hydrocarbons, oxides of nitrogen, or particulate mat-

ter at a rate greater than the best performing technology of the same class of ultra-low sulfur diesel school buses commercially available at the time the grant is made.

(h) DEPLOYMENT AND DISTRIBUTION.—The Secretary shall seek to the maximum extent practicable to achieve nationwide deployment of alternative fuel school buses and ultra-low sulfur diesel school buses through the program under this section, and shall ensure a broad geographic distribution of grant awards, with a goal of no State receiving more than 10 percent of the grant funding made available under this section for a fiscal year.

(i) LIMIT ON FUNDING.—The Secretary shall provide not less than 20 percent and not more than 25 percent of the grant funding made available under this section for any fiscal year for the acquisition of ultra-low sulfur diesel school buses.

(j) ANNUAL REPORT.—Not later than January 31 of each year, the Secretary of Energy shall provide a report evaluating implementation of the program under this title to the Congress. Such report shall include the total number of grant applications received, the number and types of alternative fuel buses and ultra-low sulfur diesel school buses requested in grant applications, a list of grants awarded and the criteria used to select the grant recipi-

ents, certified engine emission levels of all buses purchased under the program, and any other information the Secretary considers appropriate.

(k) DEFINITIONS.—For purposes of this section—

(1) the term ''alternative fuel school bus'' means a bus powered substantially by electricity (including electricity supplied by a fuel cell), or by liquefied natural gas, compressed natural gas, liquefied petroleum gas, hydrogen, propane, or methanol or ethanol at no less than 85 percent by volume; and

(2) the term ''ultra-low sulfur diesel school bus'' means a school bus powered by diesel fuel which contains sulfur at not more than 15 parts per million.

SEC. 302. FUEL CELL BUS DEVELOPMENT AND DEMONSTRATION PROGRAM.

(a) ESTABLISHMENT OF PROGRAM.—The Secretary shall establish a program for entering into cooperative agreements with private sector fuel cell bus developers for the development of fuel cell-powered school buses, and subsequently with not less than 2 units of local government using natural gas-powered school buses and such private sector fuel cell bus developers to demonstrate the use of fuel cell-powered school buses.

(b) COST SHARING.—The non-Federal contribution for activities funded under this section shall be not less than—

(1) 20 percent for fuel infrastructure development activities; and

(2) 50 percent for demonstration activities and for development activities not described in paragraph (1).

(c) FUNDING.—No more than $25,000,000 of the amounts authorized under section 303 may be used for carrying out this section for the period encompassing fiscal years 2004 through 2006.

(d) REPORTS TO CONGRESS.—Not later than 3 years after the date of the enactment of this Act, and not later than October 1, 2006, the Secretary shall transmit to the Congress a report that—

(1) evaluates the process of converting natural gas infrastructure to accommodate fuel cell-powered school buses; and

(2) assesses the results of the development and demonstration program under this section.

SEC. 303. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary for carrying out this title, to remain available until expended—

(1) $60,000,000 for fiscal year 2003;

(2) $70,000,000 for fiscal year 2004;

(3) $80,000,000 for fiscal year 2005; and

(4) $90,000,000 for fiscal year 2006.

TITLE IV—ALTERNATIVE FUELED AND ADVANCED VEHICLES

SEC. 401. DEFINITIONS.

For the purposes of this title, the following definitions apply:

(1) ALTERNATIVE FUELED VEHICLE.—The term ''alternative fueled vehicle'' means a vehicle propelled solely on an alternative fuel as defined in section 301 of the Energy Policy Act (42 U.S.C. 13211), except the term does not include any vehicle that the Secretary determines, by rule, does not yield substantial environmental benefits over a vehicle operating solely on gasoline or diesel derived from fossil fuels.

(2) FUEL CELL VEHICLE.—The term ''fuel cell vehicle'' means a vehicle propelled by one or more cells that convert chemical energy directly into electricity by combining oxygen with hydrogen fuel which is stored on board the vehicle in any form and may or may not require reformation prior to use.

(3) HYBRID VEHICLE.—The term ''hybrid vehicle'' means a medium or heavy duty vehicle propelled by an internal combustion engine using any combustible fuel and an onboard rechargeable battery storage system.

(4) NEIGHBORHOOD ELECTRIC VEHICLE.—The term ''neighborhood electric vehicle'' means a motor vehicle that qualifies as both—

(A) a low-speed vehicle, as such term is defined in section 571.3(b) of title 49, Code of Federal Regulations; and

(B) a zero-emission vehicle, as such term is defined in section 86.1702–99 of title 40, Code of Federal Regulations.

(5) PILOT PROGRAM.—The term ''pilot program'' means the competitive grant program established under section 402.

(6) ULTRA-LOW SULFUR DIESEL VEHICLE.—The term ''ultra-low sulfur diesel vehicle'' means a vehicle manufactured in model years 2004 through 2006 powered by a heavy-duty diesel engine that—

(A) is fueled by diesel fuel which contains sulfur at not more than 15 parts per million; and

(B) emits not more than the lesser of—

(i) for vehicles manufactured in—

(I) model year 2003, 3.0 grams per brake horsepower-hour of oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(II) model years 2004 through 2006, 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; or

(ii) the emissions of nonmethane hydrocarbons, oxides of nitrogen, and particulate matter of the best performing technology of ultra-low sulfur diesel vehicles of the same class and application that are commercially available.

SEC. 402. PILOT PROGRAM.

(a) ESTABLISHMENT.—The Secretary shall establish a competitive grant pilot program, to be administered through the Clean Cities Program of the Department of Energy, to provide not more than 15 geographically dispersed project grants to State governments, local governments, or metropolitan transportation authorities to carry

out a project or projects for the purposes described in subsection (b).

(b) GRANT PURPOSES.—Grants under this section may be used for the following purposes:

(1) The acquisition of alternative fueled vehicles or fuel cell vehicles, including—

(A) passenger vehicles including neighborhood electric vehicles; and

(B) motorized two-wheel bicycles, scooters, or other vehicles for use by law enforcement personnel or other State or local government or metropolitan transportation authority employees.

(2) The acquisition of alternative fueled vehicles, hybrid vehicles, or fuel cell vehicles, including—

(A) buses used for public transportation or transportation to and from schools;

(B) delivery vehicles for goods or services; and

(C) ground support vehicles at public airports, including vehicles to carry baggage or push airplanes away from terminal gates.

(3) The acquisition of ultra-low sulfur diesel vehicles.

(4) Infrastructure necessary to directly support an alternative fueled vehicle, fuel cell vehicle, or hybrid vehicle project funded by the grant, including fueling and other support equipment.

(5) Operation and maintenance of vehicles, infrastructure, and equipment acquired as part of a project funded by the grant.

(c) APPLICATIONS.—

(1) REQUIREMENTS.—The Secretary shall issue requirements for applying for grants under the pilot program. At a minimum, the Secretary shall require that applications be submitted by the head of a State or local government or a metropolitan transportation authority, or any combination thereof, and a registered participant in the Clean Cities Program of the Department of Energy, and shall include—

(A) at least one project to enable passengers or goods to be transferred directly from vehicles acquired under this section to a local, regional, or national transportation system;

(B) a description of the projects proposed in the application, including how they meet the requirements of this title;

(C) an estimate of the ridership or degree of use of the projects proposed in the application;

(D) an estimate of the air pollution emissions reduced and fossil fuel displaced as a result of the projects proposed in the application, and a plan to collect and disseminate environmental data, related to the projects to be funded under the grant, over the life of the projects;

(E) a description of how the projects proposed in the application will be sustainable without Federal assistance after the completion of the term of the grant;

(F) a complete description of the costs of each project proposed in the application, including acquisition, construction, operation, and maintenance costs over the expected life of the project;

(G) a description of which costs of the projects proposed in the application will be supported by Federal assistance under this title; and

(H) documentation to the satisfaction of the Secretary that diesel fuel containing sulfur at not more than 15 parts per million is avail-

able for carrying out the projects, and a commitment by the applicant to use such fuel in carrying out the projects.

(2) PARTNERS.—An applicant under paragraph (1) may carry out projects under the pilot program in partnership with public and private entities.

(d) SELECTION CRITERIA.—In evaluating applications under the pilot program, the Secretary shall consider each applicant's previous experience with similar projects and shall give priority consideration to applications that—

(1) are most likely to maximize protection of the environment;

(2) demonstrate the greatest commitment on the part of the applicant to ensure funding for the proposed projects and the greatest likelihood that each project proposed in the application will be maintained or expanded after Federal assistance under this title is completed; and

(3) exceed the minimum requirements of subsection (c)(1)(A).

(e) PILOT PROJECT REQUIREMENTS.—

(1) MAXIMUM AMOUNT.—The Secretary shall not provide more than $20,000,000 in Federal assistance under the pilot program to any applicant.

(2) COST SHARING.—The Secretary shall not provide more than 50 percent of the cost, incurred during the period of the grant, of any project under the pilot program.

(3) MAXIMUM PERIOD OF GRANTS.—The Secretary shall not fund any applicant under the pilot program for more than 5 years.

(4) DEPLOYMENT AND DISTRIBUTION.—The Secretary shall seek to the maximum extent practicable to ensure a broad geographic distribution of project sites.

(5) TRANSFER OF INFORMATION AND KNOWLEDGE.—The Secretary shall establish mechanisms to ensure that the information and knowledge gained by participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(f) SCHEDULE.—

(1) PUBLICATION.—Not later than 3 months after the date of the enactment of this Act, the Secretary shall publish in the Federal Register, Commerce Business Daily, and elsewhere as appropriate, a request for applications to undertake projects

under the pilot program. Applications shall be due within 6 months of the publication of the notice.

(2) SELECTION.—Not later than 6 months after the date by which applications for grants are due, the Secretary shall select by competitive, peer review all applications for projects to be awarded a grant under the pilot program.

(g) LIMIT ON FUNDING.—The Secretary shall provide not less than 20 percent and not more than 25 percent of the grant funding made available under this section for the acquisition of ultra-low sulfur diesel vehicles.

SEC. 403. REPORTS TO CONGRESS.

(a) INITIAL REPORT.—Not later than 2 months after the date grants are awarded under this title, the Secretary shall transmit to the Congress a report containing—

(1) an identification of the grant recipients and a description of the projects to be funded;

(2) an identification of other applicants that submitted applications for the pilot program; and

(3) a description of the mechanisms used by the Secretary to ensure that the information and knowledge gained by participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(b) EVALUATION.—Not later than 3 years after the date of the enactment of this Act, and annually thereafter until the pilot program ends, the Secretary shall transmit to the Congress a report containing an evaluation of the effectiveness of the pilot program, including an assessment of the benefits to the environment derived from the projects included in the pilot program as well as an estimate of the potential benefits to the environment to be derived from widespread application of alternative fueled vehicles and ultra-low sulfur diesel vehicles.

SEC. 404. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary $200,000,000 to carry out this title, to remain available until expended.

TITLE V—CLEAN COAL

SEC. 501. AUTHORIZATION OF APPROPRIATIONS.

(a) CLEAN COAL POWER INITIATIVE.—Except as provided in subsection (b), there are authorized to be appropriated to the Secretary to carry out the activities authorized by this title $200,000,000 for each of the fiscal years 2003 through 2011, to remain available until expended.

(b) LIMIT ON USE OF FUNDS.—Notwithstanding subsection (a), no funds may be used to carry out the activities authorized by this title after September 30, 2003,

unless the Secretary has transmitted to the Committee on Energy and Commerce and the Committee on Science of the House of Representatives, and to the Senate, the report required by this subsection and one month has elapsed since that transmission. The report shall include, with respect to subsection (a), a 10-year plan containing—

(1) a detailed assessment of whether the aggregate funding levels provided under subsection (a) are the appropriate funding levels for that program;

(2) a detailed description of how proposals will be solicited and evaluated, including a list of all activities expected to be undertaken;

(3) a detailed list of technical milestones for each coal and related technology that will be pursued; and

(4) a detailed description of how the program will avoid problems enumerated in General Accounting Office reports on the Clean Coal Technology Program, including problems that have resulted in unspent funds and projects that failed either financially or scientifically.

(c) APPLICABILITY.—Subsection (b) shall not apply to any project begun before September 30, 2003.

SEC. 502. PROJECT CRITERIA.

(a) IN GENERAL.—The Secretary shall not provide funding under this title for any project that does not advance efficiency, environmental performance, and cost competitiveness well beyond the level of technologies that are in operation or have been demonstrated as of the date of the enactment of this Act.

(b) TECHNICAL CRITERIA FOR CLEAN COAL POWER INITIATIVE.—

(1) GASIFICATION.—(A) In allocating the funds made available under section 501(a), the Secretary shall ensure that at least 80 percent of the funds are used only for projects on coal-based gasification technologies, including gasification combined cycle, gasification fuel cells, gasification coproduction, and hybrid gasification/combustion.

(B) The Secretary shall set technical milestones specifying emissions levels that coal gasification projects must be designed to and reasonably expected to achieve. The milestones shall get more restrictive through the life of the program. The milestones shall be designed to achieve by 2020 coal gasification projects able—

(i) to remove 99 percent of sulfur dioxide;

(ii) to emit no more than .05 lbs of NOx per million BTU;

(iii) to achieve substantial reductions in mercury emissions; and

(iv) to achieve a thermal efficiency of—

(I) 60 percent for coal of more than 9,000 Btu;

(II) 59 percent for coal of 7,000 to 9,000 Btu; and

(III) 57 percent for coal of less than 7,000 Btu.

(2) OTHER PROJECTS.—For projects not described in paragraph (1), the Secretary shall set technical milestones specifying emissions levels that the projects must be designed to and reasonably expected to achieve. The milestones shall get more restrictive through the life of the program. The milestones shall be designed to achieve by 2010 projects able—

(A) to remove 97 percent of sulfur dioxide;

(B) to emit no more than .08 lbs of NOx per million BTU;

(C) to achieve substantial reductions in mercury emissions; and

(D) to achieve a thermal efficiency of—

(i) 45 percent for coal of more than 9,000 Btu;

(ii) 44 percent for coal of 7,000 to 9,000 Btu; and

(iii) 42 percent for coal of less than 7,000 Btu.

(3) CONSULTATION.—Before setting the technical milestones under paragraphs (1)(B) and (2), the Secretary shall consult with the Administrator of the Environmental Protection Agency and interested entities, including coal producers, industries using coal, organizations to promote coal or advanced coal technologies, environmental organizations, and organizations representing workers.

(4) EXISTING UNITS.—In the case of projects at existing units, in lieu of the thermal efficiency requirements set forth in paragraph (1)(B)(iv) and (2)(D), the projects shall be designed to achieve an overall thermal design efficiency improvement compared to the efficiency of the unit as operated, of not less than—

(A) 7 percent for coal of more than 9,000 Btu;

(B) 6 percent for coal of 7,000 to 9,000 Btu; or

(C) 4 percent for coal of less than 7,000 Btu.

(5) PERMITTED USES.—In allocating funds made available under section 501, the Secretary may fund projects that include, as part of the project, the separation and capture of carbon dioxide.

(c) FINANCIAL CRITERIA.—The Secretary shall not provide a funding award under this title unless the recipient has documented to the satisfaction of the Secretary that—

(1) the award recipient is financially viable without the receipt of additional Federal funding;

(2) the recipient will provide sufficient information to the Secretary for the Secretary to ensure that the award funds are spent efficiently and effectively; and

(3) a market exists for the technology being demonstrated or applied, as evidenced by statements of interest in writing from potential purchasers of the technology.

(d) FINANCIAL ASSISTANCE.—The Secretary shall provide financial assistance to projects that meet the requirements of subsections (a), (b), and (c) and are likely to—

(1) achieve overall cost reductions in the utilization of coal to generate useful forms of energy;

(2) improve the competitiveness of coal among various forms of energy in order to maintain a diversity of fuel choices in the United States to meet electricity generation requirements; and

(3) demonstrate methods and equipment that are applicable to 25 percent of the electricity generating facilities that use coal as the primary feedstock as of the date of the enactment of this Act.

(e) FEDERAL SHARE.—The Federal share of the cost of a coal or related technology project funded by the Secretary shall not exceed 50 percent.

(f) APPLICABILITY.—No technology, or level of emission reduction, shall be treated as adequately demonstrated for purposes of section 111 of the Clean Air Act, achievable for purposes of section 169 of that Act, or achievable in practice for purposes of section 171 of that Act solely by reason of the use of such technology, or the achievement of such emission reduction, by one or more facilities receiving assistance under this title.

SEC. 503. REPORT.

Not later than 1 year after the date of the enactment of this Act, and once every 2 years thereafter through 2011, the Secretary, in consultation with other appropriate Federal agencies, shall transmit to the Committee on Energy and Commerce and the Committee on Science

of the House of Representatives, and to the Senate, a report describing—

(1) the technical milestones set forth in section 502 and how those milestones ensure progress toward meeting the requirements of subsections (b)(1)(B) and (b)(2) of section 502; and

(2) the status of projects funded under this title.

SEC. 504. CLEAN COAL CENTERS OF EXCELLENCE.

As part of the program authorized in section 501, the Secretary shall award competitive, merit-based grants to universities for the establishment of Centers of Excellence for Energy Systems of the Future. The Secretary shall provide grants to universities that can show the greatest potential for advancing new clean coal technologies.

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