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107TH CONGRESS
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H. R. 2460

[Report No. 107–177]

To authorize appropriations for environmental research and development, scientific and energy research, development, and demonstration, and commercial application of energy technology programs, projects, and activities of the Department of Energy and of the Office of Air and Radiation of the Environmental Protection Agency, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 11, 2001

Mr. BOEHLERT introduced the following bill; which was referred to the Committee on Science

JULY 31, 2001

Additional sponsors: Mr. SMITH of Michigan, Mr. MATHESON, Mr. EHLERS, Ms. HART, Mrs. BIGGERT, Mr. COSTELLO, Mr. BACA, Ms. WOOLSEY, and Mr. UDALL of Colorado

JULY 31, 2001

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed

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

[For text of introduced bill, see copy of bill as introduced on July 11, 2001]

A BILL

To authorize appropriations for environmental research and development, scientific and energy research, development, and demonstration, and commercial application of energy

technology programs, projects, and activities of the Department of Energy and of the Office of Air and Radiation of the Environmental Protection Agency, and for other purposes.

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

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Comprehensive Energy Research and Technology Act of 2001".

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

SEC. 2. FINDINGS.

The Congress finds that—

(1) the Nation's prosperity and way of life are sustained by energy use;

(2) the growing imbalance between domestic energy production and consumption means that the Nation is becoming increasingly reliant on imported energy, which has the potential to undermine the Nation's economy, standard of living, and national security;

(3) energy conservation and energy efficiency help maximize the use of available energy resources, reduce energy shortages, lower the Nation's reliance on energy imports, mitigate the impacts of high energy prices, and help protect the environment and public health;

(4) development of a balanced portfolio of domestic energy supplies will ensure that future generations of Americans will have access to the energy they need;

(5) energy efficiency technologies, renewable and alternative energy technologies, and advanced energy systems technologies will help diversify the Nation's

energy portfolio with few adverse environmental impacts and are vital to delivering clean energy to fuel the Nation's economic growth;

(6) development of reliable, affordable, and environmentally sound energy efficiency technologies, renewable and alternative energy technologies, and advanced energy systems technologies will require maintenance of a vibrant fundamental scientific knowledge base and continued scientific and technological innovations that can be accelerated by Federal funding, whereas commercial deployment of such systems and technologies are the responsibility of the private sector;

(7) Federal funding should focus on those programs, projects, and activities that are long-term, high-risk, noncommercial, and well-managed, and that provide the potential for scientific and technological advances; and

(8) public-private partnerships should be encouraged to leverage scarce taxpayer dollars.

SEC. 3. PURPOSES.

The purposes of this Act are to—

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

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

(3) reduce the air, water, and other environmental impacts (including emissions of greenhouse gases) of energy production, distribution, transportation, and use through the development of environmentally sustainable energy systems;

(4) consider the comparative environmental impacts of the energy saved or produced by specific programs, projects, or activities;

(5) maintain the technological competitiveness of the United States and stimulate economic growth through the development of advanced energy systems and technologies;

(6) foster international cooperation by developing international markets for domestically produced sustainable energy technologies, and by transferring environmentally sound, advanced energy systems and technologies to developing countries to promote sustainable development;

(7) provide sufficient funding of programs, projects, and activities that are performance-based

and modeled as public-private partnerships, as appropriate; and

(8) enhance the contribution of a given program, project, or activity to fundamental scientific knowledge.

SEC. 4. GOALS.

(a) IN GENERAL.—Subject to subsection (b), in order to achieve the purposes of this Act under section 3, the Secretary should conduct a balanced energy research, development, demonstration, and commercial application portfolio of programs guided by the following goals to meet the purposes of this Act under section 3.

(1) ENERGY CONSERVATION AND ENERGY EFFICIENCY.—

(A) For the Building Technology, State and Community Sector, the program should develop technologies, housing components, designs, and production methods that will, by 2010—

(i) reduce the monthly energy cost of new housing by 20 percent, compared to the cost as of the date of the enactment of this Act;

(ii) cut the environmental impact and energy use of new housing by 50 percent,

compared to the impact and use as of the date of the enactment of this Act; and

(iii) improve durability and reduce maintenance costs by 50 percent compared to the durability and costs as of the date of the enactment of this Act.

(B) For the Industry Sector, the program should, in cooperation with the affected industries, improve the energy intensity of the major energy-consuming industries by at least 25 percent by 2010, compared to the energy intensity as of the date of the enactment of this Act.

(C) For Power Technologies, the program should, in cooperation with the affected industries—

(i) develop a microturbine (40 to 300 kilowatt) that is more than 40 percent more efficient by 2006, and more than 50 percent more efficient by 2010, compared to the efficiency as of the date of the enactment of this Act; and

(ii) develop advanced materials for combustion systems that reduce emissions of nitrogen oxides by 30 to 50 percent while increasing efficiency 5 to 10 percent by

2007, compared to such emissions as of the date of the enactment of this Act.

(D) For the Transportation Sector, the program should, in cooperation with affected industries—

(i) develop a production prototype passenger automobile that has fuel economy equivalent to 80 miles per gallon of gasoline by 2004;

(ii) develop class 7 and 8 heavy duty trucks and buses with ultra low emissions and the ability to use an alternative fuel that has an average fuel economy equivalent to—

(I) 10 miles per gallon of gasoline by 2007; and

(II) 13 miles per gallon of gasoline by 2010;

(iii) develop a production prototype of a passenger automobile with zero equivalent emissions that has an average fuel economy of 100 miles per gallon of gasoline by 2010; and

(iv) improve, by 2010, the average fuel economy of trucks—

(I) in classes 1 and 2 by 300 percent; and

(II) in classes 3 through 6 by 200 percent,

compared to the fuel economy as of the date of the enactment of this Act.

(2) RENEWABLE ENERGY.—

(A) For Hydrogen Research, to carry out the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990, as amended by subtitle A of title II of this Act.

(B) For bioenergy:

(i) The program should reduce the cost of bioenergy relative to other energy sources to enable the United States to triple bioenergy use by 2010.

(ii) For biopower systems, the program should reduce the cost of such systems to enable commercialization of integrated power-generating technologies that employ gas turbines and fuel cells integrated with bioenergy gasifiers within five years after the date of the enactment of this Act.

(iii) For biofuels, the program should accelerate research, development, and dem-

onstration on advanced enzymatic hydrolysis technology for making ethanol from cellulosic feedstock, with the goal that between 2010 and 2015 ethanol produced from energy crops would be fully competitive in terms of price with gasoline as a neat fuel, in either internal combustion engines or fuel cell vehicles.

(C) For Geothermal Technology Development, the program should focus on advanced concepts for the long term. The first priority should be high-grade enhanced geothermal systems; the second priority should be lower grade, hot dry rock, and geopressured systems; and the third priority should be support of field demonstrations of enhanced geothermal systems technology, including sites in lower grade areas to demonstrate the benefits of reservoir concepts to different conditions.

(D) For Hydropower, the program should provide a new generation of turbine technologies that will increase generating capacity and will be less damaging to fish and aquatic ecosystems.

(E) For Concentrating Solar Power, the program should strengthen ongoing research, de-

velopment, and demonstration combining high-efficiency and high-temperature receivers with advanced thermal storage and power cycles, with the goal of making solar-only power (including baseload solar power) widely competitive with fossil fuel power by 2015. The program should limit or halt its research and development on power-tower and power-trough technologies because further refinements to these concepts will not further their deployment, and should assess the market prospects for solar dish/engine technologies to determine whether continued research and development is warranted.

(F) For Photovoltaic Energy Systems, the program should pursue research, development, and demonstration that will, by 2005, increase the efficiency of thin film modules from the current 7 percent to 11 percent in multi-million watt production; reduce the direct manufacturing cost of photovoltaic modules by 30 percent from the current $2.50 per watt to $1.75 per watt by 2005; and establish greater than a 20-year lifetime of photovoltaic systems by improving the reliability and lifetime of balance-of-system components and reducing recurring cost by

40 percent. The program's top priority should be the development of sound manufacturing technologies for thin-film modules, and the program should make a concerted effort to integrate fundamental research and basic engineering research.

(G) For Solar Building Technology Research, the program should complete research and development on new polymers and manufacturing processes to reduce the cost of solar water heating by 50 percent by 2004, compared to the cost as of the date of enactment of this Act.

(H) For Wind Energy Systems, the program should reduce the cost of wind energy to three cents per kilowatt-hour at Class 6 (15 miles-per-hour annual average) wind sites by 2004, and 4 cents per kilowatt-hour in Class 4 (13 miles-per-hour annual average) wind sites by 2015, and further if required so that wind power can be widely competitive with fossil-fuel-based electricity in a restructured electric industry. Program research on advanced wind turbine technology should focus on turbulent flow studies, durable materials to extend turbine life, blade ef-

ficiency, and higher efficiency operation in low quality wind regimes.

(I) For Electric Energy Systems and Storage, including High Temperature Superconducting Research and Development, Energy Storage Systems, and Transmission Reliability, the program should develop high capacity superconducting transmission lines and generators, highly reliable energy storage systems, and distributed generating systems to accommodate multiple types of energy sources under common interconnect standards.

(J) For the International Renewable Energy and Renewable Energy Production Incentive programs, and Renewable Program Support, the program should encourage the commercial application of renewable energy technologies by developed and developing countries, State and local governmental entities and nonprofit electric cooperatives, and by the competitive domestic market.

(3) NUCLEAR ENERGY.—

(A) For university nuclear science and engineering, the program should carry out the provisions of subtitle A of title III of this Act.

(B) For fuel cycle research, development, and demonstration, the program should carry out the provisions of subtitle B of title III of this Act.

(C) For the Nuclear Energy Research Initiative, the program should accomplish the objectives of section 341(b) of this Act.

(D) For the Nuclear Energy Plant Optimization Program, the program should accomplish the objectives of section 342(b) of this Act.

(E) For Nuclear Energy Technologies, the program should carry out the provisions of section 343 of this Act.

(F) For Advanced Radioisotope Power Systems, the program should ensure that the United States has adequate capability to power future satellite and space missions.

(4) FOSSIL ENERGY.—

(A) For core fossil energy research and development, the program should achieve the goals outlined by the Department's Vision 21 Program. This research should address fuel-flexible gasification and turbines, fuel cells, advanced-combustion systems, advanced fuels and chemicals, advanced modeling and systems analysis,

materials and heat exchangers, environmental control technologies, gas-stream purification, gas-separation technology, and sequestration research and development focused on cost-effective novel concepts for capturing, reusing or storing, or otherwise mitigating carbon and other greenhouse gas emissions.

(B) For offshore oil and natural gas resources, the program should investigate and develop technologies to—

(i) extract methane hydrates in coastal waters of the United States, in accordance with the provisions of the Methane Hydrate Research and Development Act of 2000; and

(ii) develop natural gas and oil reserves in the ultra-deepwater of the Central and Western Gulf of Mexico. Research and development on ultra-deepwater resource recovery shall focus on improving the safety and efficiency of such recovery and of subsea production technology used for such recovery, while lowering costs.

(C) For transportation fuels, the program should support a comprehensive transportation fuels strategy to increase the price elasticity of

oil supply and demand by focusing research on reducing the cost of producing transportation fuels from natural gas and indirect liquefaction of coal.

(5) SCIENCE.—The Secretary, through the Office of Science, should—

(A) develop and maintain a robust portfolio of fundamental scientific and energy research, including High Energy and Nuclear Physics, Biological and Environmental Research, Basic Energy Sciences (including Materials Sciences, Chemical Sciences, Engineering and Geosciences, and Energy Biosciences), Advanced Scientific Computing, Energy Research and Analysis, Multiprogram Energy Laboratories-Facilities Support, Fusion Energy Sciences, and Facilities and Infrastructure;

(B) maintain, upgrade, and expand, as appropriate, and in accordance with the provisions of this Act, the scientific user facilities maintained by the Office of Science, and ensure that they are an integral part of the Department's mission for exploring the frontiers of fundamental energy sciences; and

(C) ensure that its fundamental energy sciences programs, where appropriate, help inform the applied research and development programs of the Department.

(b) REVIEW AND ASSESSMENT.—The Secretary shall perform an assessment that establishes measurable cost and performance-based goals, or that modifies the goals under subsection (a), as appropriate, for 2005, 2010, 2015, and 2020 for each of the programs authorized by this Act that would enable each such program to meet the purposes of this Act under section 3. Such assessment shall be based on the latest scientific and technical knowledge, and shall also take into consideration, as appropriate, the comparative environmental impacts (including emissions of greenhouse gases) of the energy saved or produced by specific programs.

(c) CONSULTATION.—In establishing the measurable cost and performance-based goals under subsection (b), the Secretary shall consult with the private sector, institutions of higher learning, national laboratories, environmental organizations, professional and technical societies, and any other persons as the Secretary considers appropriate.

(d) SCHEDULE.—The Secretary shall—

(1) issue and publish in the Federal Register a set of draft measurable cost and performance-based

goals for the programs authorized by this Act for public comment—

(A) in the case of a program established before the date of the enactment of this Act, not later than 120 days after the date of the enactment of this Act; and

(B) in the case of a program not established before the date of the enactment of this Act, not later than 120 days after the date of establishment of the program;

(2) not later than 60 days after the date of publication under paragraph (1), after taking into consideration any public comments received, transmit to the Congress and publish in the Federal Register the final measurable cost and performance-based goals; and

(3) update all such cost and performance-based goals on a biennial basis.

SEC. 5. DEFINITIONS.

For purposes of this Act, except as otherwise provided—

(1) the term "Administrator" means the Administrator of the Environmental Protection Agency;

(2) the term "appropriate congressional committees" means—

(A) the Committee on Science and the Committee on Appropriations of the House of Representatives; and

(B) the Committee on Energy and Natural Resources and the Committee on Appropriations of the Senate;

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

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

SEC. 6. AUTHORIZATIONS.

Authorizations of appropriations under this Act are for environmental research and development, scientific and energy research, development, and demonstration, and commercial application of energy technology programs, projects, and activities.

SEC. 7. BALANCE OF FUNDING PRIORITIES.

(a) SENSE OF CONGRESS.—It is the sense of the Congress that the funding of the various programs authorized by titles I through IV of this Act should remain in the same proportion to each other as provided in this Act, regardless of the total amount of funding made available for those programs.

(b) REPORT TO CONGRESS.—If for fiscal year 2002, 2003, or 2004 the amounts appropriated in general appro-

priations Acts for the programs authorized in titles I through IV of this Act are not in the same proportion to one another as are the authorizations for such programs in this Act, the Secretary and the Administrator shall, within 60 days after the date of the enactment of the last general appropriations Act appropriating amounts for such programs, transmit to the appropriate congressional committees a report describing the programs, projects, and activities that would have been funded if the proportions provided for in this Act had been maintained in the appropriations. The amount appropriated for the program receiving the highest percentage of its authorized funding for a fiscal year shall be used as the baseline for calculating the proportional deficiencies of appropriations for other programs in that fiscal year.

TITLE I—ENERGY CONSERVATION AND ENERGY EFFICIENCY

Subtitle A—Alternative Fuel Vehicles

SEC. 101. SHORT TITLE.

This subtitle may be cited as the "Alternative Fuel Vehicle Acceleration Act of 2001".

SEC. 102. DEFINITIONS.

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

(1) ALTERNATIVE FUEL VEHICLE.—

(A) IN GENERAL.—Except as provided in subparagraph (B), the term "alternative fuel vehicle" means a motor vehicle that is powered—

(i) in whole or in part by electricity, including electricity supplied by a fuel cell;

(ii) by liquefied natural gas;

(iii) by compressed natural gas;

(iv) by liquefied petroleum gas;

(v) by hydrogen;

(vi) by methanol or ethanol at no less than 85 percent by volume; or

(vii) by propane.

(B) EXCLUSIONS.—The term "alternative fuel vehicle" does not include—

(i) any vehicle designed to operate solely on gasoline or diesel derived from fossil fuels, regardless of whether it can also be operated on an alternative fuel; or

(ii) any vehicle that the Secretary determines, by rule, does not yield substantial environmental benefits over a vehicle oper-

ating solely on gasoline or diesel derived from fossil fuels.

(2) PILOT PROGRAM.—The term "pilot program" means the competitive grant program established under section 103.

(3) ULTRA-LOW SULFUR DIESEL VEHICLE.—The term "ultra-low sulfur diesel vehicle" means a vehicle 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 years 2001 through 2003, 3.0 grams per brake horsepower-hour of nonmethane hydrocarbons and 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 type that are commercially available.

SEC. 103. PILOT PROGRAM.

(a) ESTABLISHMENT.—The Secretary shall establish a competitive grant pilot program to provide not more than 15 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 fuel vehicles, including—

(A) passenger vehicles;

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

(C) delivery vehicles for goods or services;

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

(E) motorized two-wheel bicycles, scooters, or other vehicles for use by law enforcement per-

sonnel or other State or local government or metropolitan transportation authority employees.

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

(3) Infrastructure necessary to directly support an alternative fuel vehicle project funded by the grant, including fueling and other support equipment.

(4) 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 shall include—

(A) at least one project to enable passengers or goods to be transferred directly from one alternative fuel vehicle or ultra-low sulfur diesel vehicle to another in a linked transportation system;

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

(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 subtitle; and

(H) 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 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 subtitle 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 achieve nationwide deployment of alternative fuel vehicles through the pilot program, and shall 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 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. 104. REPORTS TO CONGRESS.

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

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

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

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

(b) EVALUATION.—Not later than 3 years after the date of enactment of this Act, and annually thereafter until the pilot program ends, the Secretary shall transmit to the appropriate congressional committees 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 fuel vehicles and ultra-low sulfur diesel vehicles.

SEC. 105. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary $200,000,000 to carry out this subtitle, to remain available until expended.

Subtitle B—Distributed Power Hybrid Energy Systems

SEC. 121. FINDINGS.

The Congress makes the following findings:

(1) Our ability to take advantage of our renewable, indigenous resources in a cost-effective manner can be greatly advanced through systems that compensate for the intermittent nature of these resources through distributed power hybrid systems.

(2) Distributed power hybrid systems can—

(A) shelter consumers from temporary energy price volatility created by supply and demand mismatches;

(B) increase the reliability of energy supply; and

(C) address significant local differences in power and economic development needs and resource availability that exist throughout the United States.

(3) Realizing these benefits will require a concerted and integrated effort to remove market barriers to adopting distributed power hybrid systems by—

(A) developing the technological foundation that enables designing, testing, certifying, and operating distributed power hybrid systems; and

(B) providing the policy framework that reduces such barriers.

(4) While many of the individual distributed power hybrid systems components are either available or under development in existing private and public sector programs, the capabilities to integrate these components into workable distributed power hybrid systems that maximize benefits to consumers in a safe manner often are not coherently being addressed.

SEC. 122. DEFINITIONS.

For purposes of this subtitle—

(1) the term "distributed power hybrid system" means a system using 2 or more distributed power sources, operated together with associated supporting equipment, including storage equipment, and software necessary to provide electric power onsite and to an electric distribution system; and

(2) the term "distributed power source" means an independent electric energy source of usually 10 megawatts or less located close to a residential, commercial, or industrial load center, including—

(A) reciprocating engines;

(B) turbines;

(C) microturbines;

(D) fuel cells;

(E) solar electric systems;

(F) wind energy systems;

(G) biopower systems;

(H) geothermal power systems; or

(I) combined heat and power systems.

SEC. 123. STRATEGY.

(a) REQUIREMENT.—Not later than 1 year after the date of the enactment of this Act, the Secretary shall develop and transmit to the Congress a distributed power hybrid systems strategy showing—

(1) needs best met with distributed power hybrid systems configurations, especially systems including one or more solar or renewable power sources; and

(2) technology gaps and barriers (including barriers to efficient connection with the power grid) that hamper the use of distributed power hybrid systems.

(b) ELEMENTS.—The strategy shall provide for development of—

(1) system integration tools (including databases, computer models, software, sensors, and controls) needed to plan, design, build, and operate distributed power hybrid systems for maximum benefits;

(2) tests of distributed power hybrid systems, power parks, and microgrids, including field tests and cost-shared demonstrations with industry;

(3) design tools to characterize the benefits of distributed power hybrid systems for consumers, to reduce testing needs, to speed commercialization, and to generate data characterizing grid operations, including interconnection requirements;

(4) precise resource assessment tools to map local resources for distributed power hybrid systems; and

(5) a comprehensive research, development, demonstration, and commercial application program to ensure the reliability, efficiency, and environmental

integrity of distributed energy resources, focused on filling gaps in distributed power hybrid systems technologies identified under subsection (a)(2), which may include—

(A) integration of a wide variety of advanced technologies into distributed power hybrid systems;

(B) energy storage devices;

(C) environmental control technologies;

(D) interconnection standards, protocols, and equipment; and

(E) ancillary equipment for dispatch and control.

(c) IMPLEMENTATION AND INTEGRATION.—The Secretary shall implement the strategy transmitted under subsection (a) and the research program under subsection (b)(5). Activities pursuant to the strategy shall be integrated with other activities of the Department's Office of Power Technologies.

SEC. 124. HIGH POWER DENSITY INDUSTRY PROGRAM.

(a) IN GENERAL.—The Secretary shall develop and implement a comprehensive research, development, demonstration, and commercial application program to improve energy efficiency, reliability, and environmental responsibility in high power density industries, such as data

centers, server farms, telecommunications facilities, and heavy industry.

(b) AREAS.—In carrying out this section, the Secretary shall consider technologies that provide—

(1) significant improvement in efficiency of high power density facilities, and in data and telecommunications centers, using advanced thermal control technologies;

(2) significant improvements in air-conditioning efficiency in facilities such as data centers and telecommunications facilities;

(3) significant advances in peak load reduction; and

(4) advanced real time metering and load management and control devices.

(c) IMPLEMENTATION AND INTEGRATION.—Activities pursuant to this program shall be integrated with other activities of the Department's Office of Power Technologies.

SEC. 125. MICRO-COGENERATION ENERGY TECHNOLOGY.

The Secretary shall make competitive, merit-based grants to consortia of private sector entities for the development of micro-cogeneration energy technology. The consortia shall explore the creation of small-scale combined heat and power through the use of residential heating appliances. There are authorized to be appropriated to the Sec-

retary $20,000,000 to carry out this section, to remain available until expended.

SEC. 126. PROGRAM PLAN.

Within 4 months after the date of enactment of this Act, the Secretary, in consultation with other appropriate Federal agencies, shall prepare and transmit to the Congress a 5-year program plan to guide activities under this subtitle. In preparing the program plan, the Secretary shall consult with appropriate representatives of the distributed energy resources, power transmission, and high power density industries to prioritize appropriate program areas. The Secretary shall also seek the advice of utilities, energy services providers, manufacturers, institutions of higher learning, other appropriate State and local agencies, environmental organizations, professional and technical societies, and any other persons the Secretary considers appropriate.

SEC. 127. REPORT.

Two years after date of enactment of this Act and at two year intervals thereafter, the Secretary, jointly with other appropriate Federal agencies, shall transmit a report to Congress describing the progress made to achieve the purposes of this subtitle.

SEC. 128. VOLUNTARY CONSENSUS STANDARDS.

Not later than 2 years after the date of enactment of this Act, the Secretary, in consultation with the National

Institute of Standards and Technology, shall work with the Institute of Electrical and Electronic Engineers and other standards development organizations toward the development of voluntary consensus standards for distributed energy systems for use in manufacturing and using equipment and systems for connection with electric distribution systems, for obtaining electricity from, or providing electricity to, such systems.

Subtitle C—Secondary Electric Vehicle Battery Use

SEC. 131. DEFINITIONS.

For purposes of this subtitle, 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 at the location where the batteries will be used that is necessary to enable the use of the energy stored in the batteries.

SEC. 132. ESTABLISHMENT OF SECONDARY ELECTRIC VEHICLE BATTERY USE PROGRAM.

(a) PROGRAM.—The Secretary shall establish and conduct a research, development, and demonstration program for the secondary use of batteries where the original use of

such batteries was in transportation applications. 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 longevity of useful service life and costs, of such batteries in field operations, and evaluate the necessary supporting infrastructure, including disposal and reuse of batteries; and

(3) coordinated with ongoing secondary battery use programs underway 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 to be demonstrated and the type of 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 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 battery, including the expected additional useful life and the battery's 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 during the period of the demonstration project; and

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

SEC. 133. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary, from amounts authorized under section 161(a), for purposes of this subtitle—

(1) $1,000,000 for fiscal year 2002;

(2) $7,000,000 for fiscal year 2003; and

(3) $7,000,000 for fiscal year 2004.

Such appropriations may remain available until expended.

Subtitle D—Green School Buses

SEC. 141. SHORT TITLE.

This subtitle may be cited as the "Clean Green School Bus Act of 2001".

SEC. 142. ESTABLISHMENT OF PILOT PROGRAM.

(a) ESTABLISHMENT.—The Secretary 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 subtitle.

(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 governmental entity responsible for providing school bus service for one or more public school systems; or

(2) jointly to an entity described in paragraph (1) and a contracting entity that provides school bus service to the public school system or systems.

(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, emit not more than—

(A) for buses manufactured in model years 2001 and 2002, 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(B) for buses manufactured in model years 2003 through 2006, 1.8 grams per brake horse-

power-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 years 2001 through 2003, 3.0 grams per brake horsepower-hour of nonmethane hydrocarbons and 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 matter at a rate greater than the best performing technology 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 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) 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. 143. 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 144 may be used for carrying out this section for the period encompassing fiscal years 2002 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 appropriate congressional committees 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. 144. AUTHORIZATION OF APPROPRIATIONS.

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

(1) $40,000,000 for fiscal year 2002;

(2) $50,000,000 for fiscal year 2003;

(3) $60,000,000 for fiscal year 2004;

(4) $70,000,000 for fiscal year 2005; and

(5) $80,000,000 for fiscal year 2006.

Subtitle E—Next Generation Lighting Initiative

SEC. 151. SHORT TITLE.

This subtitle may be cited as "Next Generation Lighting Initiative Act".

SEC. 152. DEFINITION.

In this subtitle, the term "Lighting Initiative" means the "Next Generation Lighting Initiative" established under section 153(a).

SEC. 153. NEXT GENERATION LIGHTING INITIATIVE.

(a) ESTABLISHMENT.—The Secretary is authorized to establish a lighting initiative to be known as the "Next Generation Lighting Initiative" to research, develop, and conduct demonstration activities on advanced lighting technologies, including white light emitting diodes.

(b) RESEARCH OBJECTIVES.—The research objectives of the Lighting Initiative shall be to develop, by 2011, ad-

vanced lighting technologies that, compared to incandescent and fluorescent lighting technologies as of the date of the enactment of this Act, are—

(1) longer lasting;

(2) more energy-efficient; and

(3) cost-competitive.

SEC. 154. STUDY.

(a) IN GENERAL.—Not later than 6 months after the date of enactment of this Act, the Secretary, in consultation with other Federal agencies, as appropriate, shall complete a study on strategies for the development and commercial application of advanced lighting technologies. The Secretary shall request a review by the National Academies of Sciences and Engineering of the study under this subsection, and shall transmit the results of the study to the appropriate congressional committees.

(b) REQUIREMENTS.—The study shall—

(1) develop a comprehensive strategy to implement the Lighting Initiative; and

(2) identify the research and development, manufacturing, deployment, and marketing barriers that must be overcome to achieve a goal of a 25 percent market penetration by advanced lighting technologies into the incandescent and fluorescent lighting market by the year 2012.

(c) IMPLEMENTATION.—As soon as practicable after the review of the study under subsection (a) is transmitted to the Secretary by the National Academies of Sciences and Engineering, the Secretary shall adapt the implementation of the Lighting Initiative taking into consideration the recommendations of the National Academies of Sciences and Engineering.

SEC. 155. GRANT PROGRAM.

(a) IN GENERAL.—Subject to section 603 of this Act, the Secretary may make merit-based competitive grants to firms and research organizations that conduct research, development, and demonstration projects related to advanced lighting technologies.

(b) ANNUAL REVIEW.—

(1) IN GENERAL.—An annual independent review of the grant-related activities of firms and research organizations receiving a grant under this section shall be conducted by a committee appointed by the Secretary under the Federal Advisory Committee Act (5 U.S.C. App.), or, at the request of the Secretary, a committee appointed by the National Academies of Sciences and Engineering.

(2) REQUIREMENTS.—Using clearly defined standards established by the Secretary, the review shall assess technology advances and progress toward

commercialization of the grant-related activities of firms or research organizations during each fiscal year of the grant program.

(c) TECHNICAL AND FINANCIAL ASSISTANCE.—The national laboratories and other Federal agencies, as appropriate, shall cooperate with and provide technical and financial assistance to firms and research organizations conducting research, development, and demonstration projects carried out under this subtitle.

Subtitle F—Department of Energy Authorization of Appropriations

SEC. 161. AUTHORIZATION OF APPROPRIATIONS.

(a) OPERATION AND MAINTENANCE.—In addition to amounts authorized to be appropriated under section 105, section 125, and section 144, there are authorized to be appropriated to the Secretary for subtitle B, subtitle C, subtitle E, and for Energy Conservation operation and maintenance (including Building Technology, State and Community Sector (Nongrants), Industry Sector, Transportation Sector, Power Technologies, and Policy and Management) $625,000,000 for fiscal year 2002, $700,000,000 for fiscal year 2003, and $800,000,000 for fiscal year 2004, to remain available until expended.

(b) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated in subsection (a) may be used for—

(1) Building Technology, State and Community Sector—

(A) Residential Building Energy Codes;

(B) Commercial Building Energy Codes;

(C) Lighting and Appliance Standards;

(D) Weatherization Assistance Program; or

(E) State Energy Program; or

(2) Federal Energy Management Program.

Subtitle G—Environmental Protection Agency Office of Air and Radiation Authorization of Appropriations

SEC. 171. SHORT TITLE.

This subtitle may be cited as the "Environmental Protection Agency Office of Air and Radiation Authorization Act of 2001".

SEC. 172. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Administrator for the Office of Air and Radiation $156,700,000 for fiscal year 2002, $163,000,000 for fiscal year 2003, and $169,400,000 for fiscal year 2004 to remain available until expended, of which—

(1) $28,300,000 for fiscal year 2002, $29,400,000 for fiscal year 2003, and $30,600,000 for fiscal year 2004 shall be for Science; and

(2) $128,400,000 for fiscal year 2002, $133,600,000 for fiscal year 2003, and $138,800,000 for fiscal year 2004 shall be for Climate Change Protection Programs, of which—

(A) $52,700,000 for fiscal year 2002, $54,800,000 for fiscal year 2003, and $57,000,000 for fiscal year 2004 shall be for Buildings;

(B) $32,400,000 for fiscal year 2002, $33,700,000 for fiscal year 2003, and $35,000,000 for fiscal year 2004 shall be for Transportation;

(C) $32,000,000 for fiscal year 2002, $33,300,000 for fiscal year 2003, and $34,600,000 for fiscal year 2004 shall be for Industry;

(D) $1,700,000 for fiscal year 2002, $1,750,000 for fiscal year 2003, and $1,800,000 for fiscal year 2004 shall be for Carbon Removal;

(E) $2,500,000 for fiscal year 2002, $2,600,000 for fiscal year 2003, and $2,700,000

for fiscal year 2004 shall be for State and Local Climate;

(F) $6,300,000 for fiscal year 2002, $6,600,000 for fiscal year 2003, and $6,800,000 for fiscal year 2004 shall be for International Capacity Building; and

(G) $800,000 for fiscal year 2002, $850,000 for fiscal year 2003, and $900,000 for fiscal year 2004 shall be for Technical Cooperation with Industrial and Developing Countries.

SEC. 173. LIMITS ON USE OF FUNDS.

(a) PRODUCTION OR PROVISION OF ARTICLES OR SERVICES.—None of the funds authorized to be appropriated by this subtitle may be used to produce or provide articles or services for the purpose of selling the articles or services to a person outside the Federal Government, unless the Administrator determines that comparable articles or services are not available from a commercial source in the United States.

(b) REQUESTS FOR PROPOSALS.—None of the funds authorized to be appropriated by this subtitle may be used by the Environmental Protection Agency to prepare or initiate Requests for Proposals for a program if the program has not been authorized by Congress.

SEC. 174. COST SHARING.

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

(b) DEMONSTRATION AND COMMERCIAL APPLICATION.—Except as otherwise provided in this subtitle, the Administrator shall require at least 50 percent of the costs directly and specifically related to any demonstration or commercial application project under this subtitle to be provided from non-Federal sources. The Administrator may reduce the non-Federal requirement under this subsection if the Administrator 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 subtitle.

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

SEC. 175. LIMITATION ON DEMONSTRATION AND COMMERCIAL APPLICATIONS OF ENERGY TECHNOLOGY.

The Administrator shall provide funding for scientific or energy demonstration or commercial application of energy technology programs, projects, or activities of the Office of Air and Radiation only for technologies or processes that can be reasonably expected to yield new, measurable benefits to the cost, efficiency, or performance of the technology or process.

SEC. 176. REPROGRAMMING.

(a) AUTHORITY.—The Administrator may use amounts appropriated under this subtitle for a program, project, or activity other than the program, project, or activity for which such amounts were appropriated only if—

(1) the Administrator has transmitted to the appropriate congressional committees a report described in subsection (b) and a period of 30 days has elapsed after such committees receive the report;

(2) amounts used for the program, project, or activity do not exceed—

(A) 105 percent of the amount authorized for the program, project, or activity; or

(B) $250,000 more than the amount authorized for the program, project, or activity,

whichever is less; and

(3) the program, project, or activity has been presented to, or requested of, the Congress by the Administrator.

(b) REPORT.—(1) The report referred to in subsection (a) is a report containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of the proposed action.

(2) In the computation of the 30-day period under subsection (a), 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) LIMITATIONS.—(1) In no event may the total amount of funds obligated pursuant to this subtitle exceed the total amount authorized to be appropriated by this subtitle.

(2) Funds appropriated pursuant to this subtitle may not be used for an item for which Congress has declined to authorize funds.

SEC. 177. BUDGET REQUEST FORMAT.

The Administrator shall provide to the appropriate congressional committees, to be transmitted at the same time as the Environmental Protection Agency's annual budget request submission, a detailed justification for budget authorization for the programs, projects, and activities for which funds are authorized by this subtitle. Each such

document shall include, for the fiscal year for which funding is being requested and for the 2 previous fiscal years—

(1) a description of, and funding requested or allocated for, each such program, project, or activity;

(2) an identification of all recipients of funds to conduct such programs, projects, and activities; and

(3) an estimate of the amounts to be expended by each recipient of funds identified under paragraph (2).

SEC. 178. OTHER PROVISIONS.

(a) ANNUAL OPERATING PLAN AND REPORTS.—The Administrator shall provide simultaneously to the Committee on Science of the House of Representatives—

(1) any annual operating plan or other operational funding document, including any additions or amendments thereto; and

(2) any report relating to the environmental research or development, scientific or energy research, development, or demonstration, or commercial application of energy technology programs, projects, or activities of the Environmental Protection Agency,

provided to any committee of Congress.

(b) NOTICE OF REORGANIZATION.—The Administrator shall provide notice to the appropriate congressional committees not later than 15 days before any reorganization

of any environmental research or development, scientific or energy research, development, or demonstration, or commercial application of energy technology program, project, or activity of the Office of Air and Radiation.

Subtitle H—National Building Performance Initiative

SEC. 181. NATIONAL BUILDING PERFORMANCE INITIATIVE.

(a) INTERAGENCY GROUP.—Not later than 3 months after the date of the enactment of this Act, the Director of the Office of Science and Technology Policy shall establish an Interagency Group responsible for the development and implementation of a National Building Performance Initiative to address energy conservation and research and development and related issues. The National Institute of Standards and Technology shall provide necessary administrative support for the Interagency Group.

(b) PLAN.—Not later than 9 months after the date of the enactment of this Act, the Interagency Group shall transmit to the Congress a multiyear implementation plan describing the Federal role in reducing the costs, including energy costs, of using, owning, and operating commercial, institutional, residential, and industrial buildings by 30 percent by 2020. The plan shall include—

(1) research, development, and demonstration of systems and materials for new construction and retrofit, on the building envelope and components; and

(2) the collection and dissemination in a usable form of research results and other pertinent information to the design and construction industry, government officials, and the general public.

(c) NATIONAL BUILDING PERFORMANCE ADVISORY COMMITTEE.—A National Building Performance Advisory Committee shall be established to advise on creation of the plan, review progress made under the plan, advise on any improvements that should be made to the plan, and report to the Congress on actions that have been taken to advance the Nation's capability in furtherance of the plan. The members shall include representatives of a broad cross-section of interests such as the research, technology transfer, architectural, engineering, and financial communities; materials and systems suppliers; State, county, and local governments; the residential, multifamily, and commercial sectors of the construction industry; and the insurance industry.

(d) REPORT.—The Interagency Group shall, within 90 days after the end of each fiscal year, transmit a report to the Congress describing progress achieved during the preceding fiscal year by government at all levels and by the

private sector, toward implementing the plan developed under subsection (b), and including any amendments to the plan.

TITLE II—RENEWABLE ENERGY

Subtitle A—Hydrogen

SEC. 201. SHORT TITLE.

This subtitle may be cited as the "Robert S. Walker and George E. Brown, Jr. Hydrogen Energy Act of 2001".

SEC. 202. PURPOSES.

Section 102(b) of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

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

"(1) to direct the Secretary to conduct research, development, and demonstration activities leading to the production, storage, transportation, and use of hydrogen for industrial, commercial, residential, transportation, and utility applications;

"(2) to direct the Secretary to develop a program of technology assessment, information dissemination, and education in which Federal, State, and local agencies, members of the energy, transportation, and other industries, and other entities may participate; and

"(3) to develop methods of hydrogen production that minimize adverse environmental impacts, with emphasis on efficient and cost-effective production from renewable energy resources.".

SEC. 203. DEFINITIONS.

Section 102(c) of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended—

(1) by redesignating paragraphs (1) through (3) as paragraphs (2) through (4), respectively; and

(2) by inserting before paragraph (2), as so redesignated by paragraph (1) of this section, the following new paragraph:

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

SEC. 204. REPORTS TO CONGRESS.

Section 103 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

"SEC. 103. REPORTS TO CONGRESS.

"(a) REQUIREMENT.—Not later than 1 year after the date of the enactment of the Robert S. Walker and George E. Brown, Jr. Hydrogen Energy Act of 2001, and biennially thereafter, the Secretary shall transmit to Congress a

detailed report on the status and progress of the programs and activities authorized under this Act.

"(b) CONTENTS.—A report under subsection (a) shall include, in addition to any views and recommendations of the Secretary—

"(1) an assessment of the extent to which the program is meeting the purposes specified in section 102(b);

"(2) a determination of the effectiveness of the technology assessment, information dissemination, and education program established under section 106;

"(3) 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; and

"(4) recommendations of the advisory committee for any improvements needed in the programs and activities authorized by this Act.".

SEC. 205. HYDROGEN RESEARCH AND DEVELOPMENT.

Section 104 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

"SEC. 104. HYDROGEN RESEARCH AND DEVELOPMENT.

"(a) ESTABLISHMENT OF PROGRAM.—The Secretary shall conduct a hydrogen research and development program relating to production, storage, transportation, and use of hydrogen, 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) give particular attention to developing an understanding and resolution of critical technical issues preventing the introduction of hydrogen as an energy carrier into the marketplace;

"(2) initiate or accelerate existing research and development in critical technical issues that will contribute to the development of more economical hydrogen production, storage, transportation, and use, including critical technical issues with respect to production (giving priority to those production techniques that use renewable energy resources as their primary source of energy for hydrogen production), liquefaction, transmission, distribution, storage, and use (including use of hydrogen in surface transportation); and

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

"(A) duplicate any available research and development results; or

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

"(c) EVALUATION OF TECHNOLOGIES.—The Secretary shall evaluate, for the purpose of determining whether to undertake or fund research and development activities under this section, any reasonable new or improved technology that could lead or contribute to the development of economical hydrogen production, storage, transportation, and use.

"(d) 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 of this Act.

"(e) COMPETITIVE PEER REVIEW.—The Secretary shall carry out or fund research and development activities

under this section only on a competitive basis using peer review.

"(f) COST SHARING.—For research and development programs carried out under this section, 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.".

SEC. 206. DEMONSTRATIONS.

Section 105 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended—

(1) in subsection (a), by striking ", preferably in self-contained locations,";

(2) in subsection (b), by striking "at self-contained sites" and inserting ", which shall include a fuel cell bus demonstration program to address hydrogen production, storage, and use in transit bus applications"; and

(3) in subsection (c), by inserting "NON-FEDERAL FUNDING REQUIREMENT.—" after "(c)".

SEC. 207. TECHNOLOGY TRANSFER.

Section 106 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

"SEC. 106. TECHNOLOGY ASSESSMENT, INFORMATION DISSEMINATION, AND EDUCATION PROGRAM.

"(a) PROGRAM.—The Secretary shall, in consultation with the advisory committee, conduct a program designed to accelerate wider application of hydrogen production, storage, transportation, and use technologies, including application in foreign countries to increase the global market for the technologies and foster global economic development without harmful environmental effects.

"(b) INFORMATION.—The Secretary, in carrying out the program authorized by subsection (a), shall—

"(1) undertake an update of the inventory and assessment, required under section 106(b)(1) of this Act as in effect before the date of the enactment of the Robert S. Walker and George E. Brown, Jr. Hydrogen Energy Act of 2001, of hydrogen technologies and their commercial capability to economically produce, store, transport, or use hydrogen in industrial, commercial, residential, transportation, and utility sector; and

"(2) develop, with other Federal agencies as appropriate and industry, an information exchange

program to improve technology transfer for hydrogen production, storage, transportation, and use, which may consist of workshops, publications, conferences, and a database for the use by the public and private sectors.''.

SEC. 208. COORDINATION AND CONSULTATION.

Section 107 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended—

(1) by amending paragraph (1) of subsection (a) to read as follows:

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

(2) by amending subsection (c) to read as follows:

''(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. 209. ADVISORY COMMITTEE.

Section 108 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

"SEC. 108. ADVISORY COMMITTEE.

"(a) ESTABLISHMENT.—The Secretary shall enter into appropriate arrangements with the National Academies of Sciences and Engineering to establish an advisory committee consisting of experts drawn from domestic industry, academia, Governmental laboratories, and financial, environmental, and other organizations, as appropriate, to review and advise on the progress made through the programs and activities authorized under this Act.

"(b) COOPERATION.—The heads of Federal agencies shall cooperate with the advisory committee in carrying out this section and shall furnish to the advisory committee such information as the advisory committee reasonably deems necessary to carry out this section.

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

"(1) the implementation and conduct of programs and activities authorized under this Act; and

"(2) the economic, technological, and environmental consequences of the deployment of hydrogen production, storage, transportation, and use systems.

"(d) RESPONSIBILITIES OF THE SECRETARY.—The Secretary shall consider, but need not adopt, any recommendations of the advisory committee under subsection (c). The Secretary shall provide an explanation of the rea-

sons that any such recommendations will not be implemented and include such explanation in the report to Congress under section 103(a) of this Act.".

SEC. 210. AUTHORIZATION OF APPROPRIATIONS.

Section 109 of the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 is amended to read as follows:

"SEC. 109. AUTHORIZATION OF APPROPRIATIONS.

"(a) RESEARCH AND DEVELOPMENT; ADVISORY COMMITTEE.—There are authorized to be appropriated to the Secretary to carry out sections 104 and 108—

"(1) $40,000,000 for fiscal year 2002;

"(2) $45,000,000 for fiscal year 2003;

"(3) $50,000,000 for fiscal year 2004;

"(4) $55,000,000 for fiscal year 2005; and

"(5) $60,000,000 for fiscal year 2006.

"(b) DEMONSTRATION.—There are authorized to be appropriated to the Secretary to carry out section 105—

"(1) $20,000,000 for fiscal year 2002;

"(2) $25,000,000 for fiscal year 2003;

"(3) $30,000,000 for fiscal year 2004;

"(4) $35,000,000 for fiscal year 2005; and

"(5) $40,000,000 for fiscal year 2006.".

SEC. 211. REPEAL.

(a) REPEAL.—Title II of the Hydrogen Future Act of 1996 is repealed.

(b) CONFORMING AMENDMENT.—Section 2 of the Hydrogen Future Act of 1996 is amended by striking "titles II and III" and inserting "title III".

Subtitle B—Bioenergy

SEC. 221. SHORT TITLE.

This subtitle may be cited as the "Bioenergy Act of 2001".

SEC. 222. FINDINGS.

Congress finds that bioenergy has potential to help—

(1) meet the Nation's energy needs;

(2) reduce reliance on imported fuels;

(3) promote rural economic development;

(4) provide for productive utilization of agricultural residues and waste materials, and forestry residues and byproducts; and

(5) protect the environment.

SEC. 223. DEFINITIONS.

For purposes of this subtitle—

(1) the term "bioenergy" means energy derived from any organic matter that is available on a renewable or recurring basis, including agricultural crops and trees, wood and wood wastes and residues,

plants (including aquatic plants), grasses, residues, fibers, and animal and other organic wastes;

(2) the term "biofuels" includes liquid or gaseous fuels, industrial chemicals, or both;

(3) the term "biopower" includes the generation of electricity or process steam or both; and

(4) the term "integrated bioenergy research and development" includes biopower and biofuels applications.

SEC. 224. AUTHORIZATION.

The Secretary is authorized to conduct environmental research and development, scientific and energy research, development, and demonstration, and commercial application of energy technology programs, projects, and activities related to bioenergy, including biopower energy systems, biofuels energy systems, and integrated bioenergy research and development.

SEC. 225. AUTHORIZATION OF APPROPRIATIONS.

(a) BIOPOWER ENERGY SYSTEMS.—There are authorized to be appropriated to the Secretary for Biopower Energy Systems programs, projects, and activities—

(1) $45,700,000 for fiscal year 2002;

(2) $52,500,000 for fiscal year 2003;

(3) $60,300,000 for fiscal year 2004;

(4) $69,300,000 for fiscal year 2005; and

(5) $79,600,000 for fiscal year 2006.

(b) BIOFUELS ENERGY SYSTEMS.—There are authorized to be appropriated to the Secretary for biofuels energy systems programs, projects, and activities—

(1) $53,500,000 for fiscal year 2002;

(2) $61,400,000 for fiscal year 2003;

(3) $70,600,000 for fiscal year 2004;

(4) $81,100,000 for fiscal year 2005; and

(5) $93,200,000 for fiscal year 2006.

(c) INTEGRATED BIOENERGY RESEARCH AND DEVELOPMENT.—There are authorized to be appropriated to the Secretary for integrated bioenergy research and development programs, projects, and activities, $49,000,000 for each of the fiscal years 2002 through 2006. Activities funded under this subsection shall be coordinated with ongoing related programs of other Federal agencies, including the Plant Genome Program of the National Science Foundation.

(d) INTEGRATED APPLICATIONS.—Amounts authorized to be appropriated under this subtitle may be used to assist in the planning, design, and implementation of projects to convert rice straw and barley grain into biopower or biofuels.

Subtitle C—Transmission Infrastructure Systems

SEC. 241. TRANSMISSION INFRASTRUCTURE SYSTEMS RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION.

(a) IN GENERAL.—The Secretary shall develop and implement a comprehensive research, development, demonstration, and commercial application program to ensure the reliability, efficiency, and environmental integrity of electrical transmission systems. Such program shall include advanced energy technologies and systems, high capacity superconducting transmission lines and generators, advanced grid reliability and efficiency technologies development, technologies contributing to significant load reductions, advanced metering, load management and control technologies, and technology transfer and education.

(b) TECHNOLOGY.—In carrying out this subtitle, the Secretary may include research, development, and demonstration on and commercial application of improved transmission technologies including the integration of the following technologies into improved transmission systems:

(1) High temperature superconductivity.

(2) Advanced transmission materials.

(3) Self-adjusting equipment, processes, or software for survivability, security, and failure containment.

(4) Enhancements of energy transfer over existing lines.

(5) Any other infrastructure technologies, as appropriate.

SEC. 242. PROGRAM PLAN.

Within 4 months 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 subtitle. In preparing the program plan, the Secretary shall consult with appropriate representatives of the transmission infrastructure systems industry to select and prioritize appropriate program areas. The Secretary shall also seek the advice of utilities, energy services providers, manufacturers, institutions of higher learning, other appropriate State and local agencies, environmental organizations, professional and technical societies, and any other persons as the Secretary considers appropriate.

SEC. 243. REPORT.

Two years after the date of the enactment of this Act, and at two year intervals thereafter, the Secretary, in consultation with other appropriate Federal agencies, shall

transmit a report to Congress describing the progress made to achieve the purposes of this subtitle and identifying any additional resources needed to continue the development and commercial application of transmission infrastructure technologies.

Subtitle D—Department of Energy Authorization of Appropriations

SEC. 261. AUTHORIZATION OF APPROPRIATIONS.

(a) OPERATION AND MAINTENANCE.—There are authorized to be appropriated to the Secretary for Renewable Energy operation and maintenance, including activities under subtitle C, Geothermal Technology Development, Hydropower, Concentrating Solar Power, Photovoltaic Energy Systems, Solar Building Technology Research, Wind Energy Systems, High Temperature Superconducting Research and Development, Energy Storage Systems, Transmission Reliability, International Renewable Energy Program, Renewable Energy Production Incentive Program, Renewable Program Support, National Renewable Energy Laboratory, and Program Direction, and including amounts authorized under the amendment made by section 210 and amounts authorized under section 225, $535,000,000 for fiscal year 2002, $639,000,000 for fiscal year 2003, and $683,000,000 for fiscal year 2004, to remain available until expended.

(b) WAVE POWERED ELECTRIC GENERATION.—Within the amounts authorized to be appropriated to the Secretary under subsection (a), the Secretary shall carry out a research program, in conjunction with other appropriate Federal agencies, on wave powered electric generation.

(c) ASSESSMENT OF RENEWABLE ENERGY RESOURCES.—

(1) IN GENERAL.—Using funds authorized in subsection (a), of this section, the Secretary shall transmit to the Congress, within one year after the date of the enactment of this Act, an assessment of all renewable energy resources available within the United States.

(2) RESOURCE ASSESSMENT.—Such report shall include a detailed inventory describing the available amount and characteristics of solar, wind, biomass, geothermal, hydroelectric, and other renewable energy sources, and an estimate of the costs needed to develop each resource. The report shall also include such other information as the Secretary believes would be useful in siting renewable energy generation, such as appropriate terrain, population and load centers, nearby energy infrastructure, and location of energy resources.

(3) AVAILABILITY.—The information and cost estimates in this report shall be updated annually and made available to the public, along with the data used to create the report.

(4) SUNSET.—This subsection shall expire at the end of fiscal year 2004.

(d) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated in subsection (a) may be used for—

(1) Departmental Energy Management Program; or

(2) Renewable Indian Energy Resources.

TITLE III—NUCLEAR ENERGY

Subtitle A—University Nuclear Science and Engineering

SEC. 301. SHORT TITLE.

This subtitle may be cited as "Department of Energy University Nuclear Science and Engineering Act".

SEC. 302. FINDINGS.

The Congress finds the following:

(1) United States university nuclear science and engineering programs are in a state of serious decline, with nuclear engineering enrollment at a 35-year low. Since 1980, the number of nuclear engineering university programs has declined nearly 40 percent, and

over two-thirds of the faculty in these programs are 45 years of age or older. Also, since 1980, the number of university research and training reactors in the United States has declined by over 50 percent. Most of these reactors were built in the late 1950s and 1960s with 30-year to 40-year operating licenses, and many will require relicensing in the next several years.

(2) A decline in a competent nuclear workforce, and the lack of adequately trained nuclear scientists and engineers, will affect the ability of the United States to solve future nuclear waste storage issues, operate existing and design future fission reactors in the United States, respond to future nuclear events worldwide, help stem the proliferation of nuclear weapons, and design and operate naval nuclear reactors.

(3) The Department of Energy's Office of Nuclear Energy, Science and Technology, a principal Federal agency for civilian research in nuclear science and engineering, is well suited to help maintain tomorrow's human resource and training investment in the nuclear sciences and engineering.

SEC. 303. DEPARTMENT OF ENERGY PROGRAM.

(a) ESTABLISHMENT.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall sup-

port a program to maintain the Nation's human resource investment and infrastructure in the nuclear sciences and engineering consistent with the Department's statutory authorities related to civilian nuclear research, development, and demonstration and commercial application of energy technology.

(b) DUTIES OF THE OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY.—In carrying out the program under this subtitle, the Director of the Office of Nuclear Energy, Science and Technology shall—

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

(2) assist universities in recruiting and retaining new faculty in the nuclear sciences and engineering through a Junior Faculty Research Initiation Grant Program;

(3) maintain a robust investment in the fundamental nuclear sciences and engineering through the Nuclear Engineering Education Research Program;

(4) encourage collaborative nuclear research among industry, national laboratories, and universities through the Nuclear Energy Research Initiative;

(5) assist universities in maintaining reactor infrastructure; and

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

(c) MAINTAINING UNIVERSITY RESEARCH AND TRAINING REACTORS AND ASSOCIATED INFRASTRUCTURE.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall provide for the following university research and training reactor infrastructure maintenance and research activities:

(1) Refueling of university research reactors with low enriched fuels, upgrade of operational instrumentation, and sharing of reactors among universities.

(2) In collaboration with the United States nuclear industry, assistance, where necessary, in relicensing and upgrading university training reactors as part of a student training program.

(3) A university reactor research and training award program that provides for reactor improvements as part of a focused effort that emphasizes research, training, and education.

(d) UNIVERSITY-DOE LABORATORY INTERACTIONS.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall develop—

(1) a sabbatical fellowship program for university faculty to spend extended periods of time at De-

partment of Energy laboratories in the areas of nuclear science and technology; and

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

The Secretary may under subsection (b)(1) provide for fellowships for students to spend time at Department of Energy laboratories in the areas of nuclear science and technology under the mentorship of laboratory staff.

(e) OPERATIONS AND MAINTENANCE.—To the extent that the use of a university research reactor is funded under this subtitle, funds authorized under this subtitle may be used to supplement operation of the research reactor during the investigator's proposed effort. The host institution shall provide at least 50 percent of the cost of the reactor's operation.

(f) MERIT REVIEW REQUIRED.—All grants, contracts, cooperative agreements, or other financial assistance awards under this subtitle shall be made only after independent merit review.

(g) REPORT.—Not later than 6 months after the date of the enactment of this Act, the Secretary shall prepare and transmit to the appropriate congressional committees a 5-year plan on how the programs authorized in this subtitle will be implemented. The plan shall include a review

of the projected personnel needs in the fields of nuclear science and engineering and of the scope of nuclear science and engineering education programs at the Department and other Federal agencies.

SEC. 304. AUTHORIZATION OF APPROPRIATIONS.

(a) TOTAL AUTHORIZATION.—The following sums are authorized to be appropriated to the Secretary, to remain available until expended, for the purposes of carrying out this subtitle:

(1) $30,200,000 for fiscal year 2002.

(2) $41,000,000 for fiscal year 2003.

(3) $47,900,000 for fiscal year 2004.

(4) $55,600,000 for fiscal year 2005.

(5) $64,100,000 for fiscal year 2006.

(b) GRADUATE AND UNDERGRADUATE FELLOWSHIPS.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(b)(1):

(1) $3,000,000 for fiscal year 2002.

(2) $3,100,000 for fiscal year 2003.

(3) $3,200,000 for fiscal year 2004.

(4) $3,200,000 for fiscal year 2005.

(5) $3,200,000 for fiscal year 2006.

(c) JUNIOR FACULTY RESEARCH INITIATION GRANT PROGRAM.—Of the funds authorized by subsection (a), the

following sums are authorized to be appropriated to carry out section 303(b)(2):

(1) $5,000,000 for fiscal year 2002.

(2) $7,000,000 for fiscal year 2003.

(3) $8,000,000 for fiscal year 2004.

(4) $9,000,000 for fiscal year 2005.

(5) $10,000,000 for fiscal year 2006.

(d) NUCLEAR ENGINEERING EDUCATION RESEARCH PROGRAM.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(b)(3):

(1) $8,000,000 for fiscal year 2002.

(2) $12,000,000 for fiscal year 2003.

(3) $13,000,000 for fiscal year 2004.

(4) $15,000,000 for fiscal year 2005.

(5) $20,000,000 for fiscal year 2006.

(e) COMMUNICATION AND OUTREACH RELATED TO NUCLEAR SCIENCE AND ENGINEERING.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(b)(5):

(1) $200,000 for fiscal year 2002.

(2) $200,000 for fiscal year 2003.

(3) $300,000 for fiscal year 2004.

(4) $300,000 for fiscal year 2005.

(5) $300,000 for fiscal year 2006.

(f) REFUELING OF UNIVERSITY RESEARCH REACTORS AND INSTRUMENTATION UPGRADES.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(c)(1):

(1) $6,000,000 for fiscal year 2002.

(2) $6,500,000 for fiscal year 2003.

(3) $7,000,000 for fiscal year 2004.

(4) $7,500,000 for fiscal year 2005.

(5) $8,000,000 for fiscal year 2006.

(g) RELICENSING ASSISTANCE.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(c)(2):

(1) $1,000,000 for fiscal year 2002.

(2) $1,100,000 for fiscal year 2003.

(3) $1,200,000 for fiscal year 2004.

(4) $1,300,000 for fiscal year 2005.

(5) $1,300,000 for fiscal year 2006.

(h) REACTOR RESEARCH AND TRAINING AWARD PROGRAM.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(c)(3):

(1) $6,000,000 for fiscal year 2002.

(2) $10,000,000 for fiscal year 2003.

(3) $14,000,000 for fiscal year 2004.

(4) $18,000,000 for fiscal year 2005.

(5) $20,000,000 for fiscal year 2006.

(i) UNIVERSITY-DOE LABORATORY INTERACTIONS.—Of the funds authorized by subsection (a), the following sums are authorized to be appropriated to carry out section 303(d):

(1) $1,000,000 for fiscal year 2002.

(2) $1,100,000 for fiscal year 2003.

(3) $1,200,000 for fiscal year 2004.

(4) $1,300,000 for fiscal year 2005.

(5) $1,300,000 for fiscal year 2006.

Subtitle B—Advanced Fuel Recycling Technology Research and Development Program

SEC. 321. PROGRAM.

(a) IN GENERAL.—The Secretary, through the Director of the Office of Nuclear Energy, Science and Technology, shall conduct an advanced fuel recycling technology research and development program to further the availability of proliferation-resistant fuel recycling technologies as an alternative to aqueous reprocessing 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.

(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.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

(1) $10,000,000 for fiscal year 2002; and

(2) such sums as are necessary for fiscal year 2003 and fiscal year 2004.

Subtitle C—Department of Energy Authorization of Appropriations

SEC. 341. NUCLEAR ENERGY RESEARCH INITIATIVE.

(a) PROGRAM.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall conduct a Nuclear Energy Research Initiative for grants to be competitively awarded and subject to peer review for research relating to nuclear energy.

(b) OBJECTIVES.—The program shall be directed toward accomplishing the objectives of—

(1) developing advanced concepts and scientific breakthroughs in nuclear fission and reactor technology to address and overcome the principal technical and scientific obstacles to the expanded use of nuclear energy in the United States;

(2) advancing the state of nuclear technology to maintain a competitive position in foreign markets and a future domestic market;

(3) promoting and maintaining a United States nuclear science and engineering infrastructure to meet future technical challenges;

(4) providing an effective means to collaborate on a cost-shared basis with international agencies and research organizations to address and influence nuclear technology development worldwide; and

(5) promoting United States leadership and partnerships in bilateral and multilateral nuclear energy research.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

(1) $60,000,000 for fiscal year 2002; and

(2) such sums as are necessary for fiscal year 2003 and fiscal year 2004.

SEC. 342. NUCLEAR ENERGY PLANT OPTIMIZATION PROGRAM.

(a) PROGRAM.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall conduct a Nuclear Energy Plant Optimization research and development program jointly with industry and cost-shared by in-

dustry by least 50 percent and subject to annual review by the Secretary's Nuclear Energy Research Advisory Committee or other independent entity, as appropriate.

(b) OBJECTIVES.—The program shall be directed toward accomplishing the objectives of—

(1) managing long-term effects of component aging; and

(2) improving the efficiency and productivity of existing nuclear power stations.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section—

(1) $15,000,000 for fiscal year 2002; and

(2) such sums as are necessary for fiscal years 2003 and 2004.

SEC. 343. NUCLEAR ENERGY TECHNOLOGIES.

(a) IN GENERAL.—The Secretary, through the Office of Nuclear Energy, Science and Technology, shall conduct a study of Generation IV nuclear energy systems, including development of a technology roadmap and performance of research and development necessary to make an informed technical decision regarding the most promising candidates for commercial application.

(b) REACTOR CHARACTERISTICS.—To the extent practicable, in conducting the study under subsection (a), the

Secretary shall study nuclear energy systems that offer the highest probability of achieving the goals for Generation IV nuclear energy systems, including—

(1) economics competitive with any other generators;

(2) enhanced safety features, including passive safety features;

(3) substantially reduced production of high-level waste, as compared with the quantity of waste produced by reactors in operation on the date of enactment of this Act;

(4) highly proliferation-resistant fuel and waste;

(5) sustainable energy generation including optimized fuel utilization; and

(6) substantially improved thermal efficiency, as compared with the thermal efficiency of reactors in operation on the date of enactment of this Act.

(c) CONSULTATION.—In conducting the study under subsection (a), the Secretary shall consult with appropriate representatives of industry, institutions of higher education, Federal agencies, and international, professional, and technical organizations.

(d) REPORT.—

(1) IN GENERAL.—Not later than December 31, 2002, the Secretary shall transmit to the appropriate

congressional committees a report describing the activities of the Secretary under this section, and plans for research and development leading to a public/private cooperative demonstration of one or more Generation IV nuclear energy systems.

(2) CONTENTS.—The report shall contain—

(A) an assessment of all available technologies;

(B) a summary of actions needed for the most promising candidates to be considered as viable commercial options within the five to ten years after the date of the report, with consideration of regulatory, economic, and technical issues;

(C) a recommendation of not more than three promising Generation IV nuclear energy system concepts for further development;

(D) an evaluation of opportunities for public/private partnerships;

(E) a recommendation for structure of a public/private partnership to share in development and construction costs;

(F) a plan leading to the selection and conceptual design, by September 30, 2004, of at least one Generation IV nuclear energy system

concept recommended under subparagraph (C) for demonstration through a public/private partnership;

(G) an evaluation of opportunities for siting demonstration facilities on Department of Energy land; and

(H) a recommendation for appropriate involvement of other Federal agencies.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out this section and to carry out the recommendations in the report transmitted under subsection (d)—

(1) $20,000,000 for fiscal year 2002; and

(2) such sums as are necessary for fiscal year 2003 and fiscal year 2004.

SEC. 344. AUTHORIZATION OF APPROPRIATIONS.

(a) OPERATION AND MAINTENANCE.—There are authorized to be appropriated to the Secretary to carry out activities authorized under this title for nuclear energy operation and maintenance, including amounts authorized under sections 304(a), 321(c), 341(c), 342(c), and 343(e), and including Advanced Radioisotope Power Systems, Test Reactor Landlord, and Program Direction, $191,200,000 for fiscal year 2002, $199,000,000 for fiscal year 2003, and

$207,000,000 for fiscal year 2004, to remain available until expended.

(b) CONSTRUCTION.—There are authorized to be appropriated to the Secretary—

(1) $950,000 for fiscal year 2002, $2,200,000 for fiscal year 2003, $1,246,000 for fiscal year 2004, and $1,699,000 for fiscal year 2005 for completion of construction of Project 99–E–200, Test Reactor Area Electric Utility Upgrade, Idaho National Engineering and Environmental Laboratory; and

(2) $500,000 for fiscal year 2002, $500,000 for fiscal year 2003, $500,000 for fiscal year 2004, and $500,000 for fiscal year 2005, for completion of construction of Project 95–E–201, Test Reactor Area Fire and Life Safety Improvements, Idaho National Engineering and Environmental Laboratory.

(c) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated in subsection (a) may be used for—

(1) Nuclear Energy Isotope Support and Production;

(2) Argonne National Laboratory-West Operations;

(3) Fast Flux Test Facility; or

(4) Nuclear Facilities Management.

TITLE IV—FOSSIL ENERGY

Subtitle A—Clean Coal

SEC. 401. SHORT TITLE.

This subtitle may be cited as the "National Electricity and Environmental Technology Research and Development Act".

SEC. 402. FINDINGS.

Congress finds that—

(1) reliable, affordable, increasingly clean electricity will continue to power the growing United States economy;

(2) an increasing use of electrotechnologies, the desire for continuous environmental improvement, a more competitive electricity market, and concerns about rising energy prices add importance to the need for reliable, affordable, increasingly clean electricity;

(3) coal, which, as of the date of enactment of this Act, accounts for more than ½ of all electricity generated in the United States, is the most abundant fossil energy resource of the United States;

(4) coal comprises more than 85 percent of all fossil resources in the United States and exists in quantities sufficient to supply the United States for 250 years at current usage rates;

(5) investments in electricity generating facility emissions control technology over the past 30 years have reduced the aggregate emissions of pollutants from coal-based generating facilities by 21 percent, even as coal use for electricity generation has nearly tripled; and

(6) continued environmental improvement in coal-based generation through continued research, development, and demonstration toward an ultimate goal of near-zero emissions is important and desirable.

SEC. 403. DEFINITION.

In this subtitle, the term "cost and performance-based goals" means the cost and performance-based goals established under section 4.

SEC. 404. CLEAN COAL POWER INITIATIVE.

(a) IN GENERAL.—The Secretary shall carry out a program of research on and development, demonstration, and commercial application of clean coal technologies under—

(1) this subtitle;

(2) the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901 et seq.);

(3) the Energy Reorganization Act of 1974 (42 U.S.C. 5801 et seq.); and

(4) title XIII of the Energy Policy Act of 1992 (42 U.S.C. 13331 et seq.).

(b) CONDITIONS.—The research, development, demonstration, and commercial application program described in subsection (a) shall be designed to achieve the cost and performance-based goals.

SEC. 405. AUTHORIZATION OF APPROPRIATIONS.

(a) CLEAN COAL POWER INITIATIVE.—Except as provided in section 406, there are authorized to be appropriated to the Secretary to carry out the Clean Coal Power Initiative under section 404 $200,000,000 for each of the fiscal years 2002 through 2011, to remain available until expended.

(b) OTHER COAL AND RELATED TECHNOLOGIES PROGRAMS.—Except as provided in section 406, there are authorized to be appropriated to the Secretary $172,000,000 for fiscal year 2002, $179,000,000 for fiscal year 2003, and $186,000,000 for fiscal year 2004, to remain available until expended, for other coal and related technologies research and development programs, which shall include—

(1) Innovations for Existing Plants;

(2) Integrated Gasification Combined Cycle;

(3) advanced combustion systems;

(4) Turbines;

(5) Sequestration Research and Development;

(6) innovative technologies for demonstration;

(7) Transportation Fuels and Chemicals;

(8) Solid Fuels and Feedstocks;

(9) Advanced Fuels Research; and

(10) Advanced Research.

(c) LIMIT ON USE OF FUNDS.—Notwithstanding subsections (a) and (b), no funds may be used to carry out the activities authorized by this subtitle after September 30, 2002, unless the Secretary has transmitted to the appropriate congressional committees the report required by this subsection and 1 month have elapsed since that transmission. The report shall include—

(1) with respect to subsection (a), a 10-year plan containing—

(A) a detailed assessment of whether the aggregate funding levels provided under subsection (a) are the appropriate funding levels for that program;

(B) a detailed description of how proposals will be solicited and evaluated, including a list of all demonstration activities expected to be undertaken;

(C) a detailed list of technical milestones for each coal and related technology that will be pursued;

(D) recommendations for a mechanism for recoupment of Federal funding for successful commercial projects; and

(E) 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;

(2) with respect to subsection (b), a plan containing—

(A) a detailed description of how proposals will be solicited and evaluated, including a list of all demonstration activities expected to be undertaken; and

(B) a detailed list of technical milestones for each coal and related technology that will be pursued; and

(3) a description of how the programs will be carried out under subsection (a) and subsection (b) so as to complement each other and not duplicate activities.

(d) APPLICABILITY.—Subsection (c) shall not apply to any program, project, or activity begun before September 30, 2001.

SEC. 406. PROJECT CRITERIA.

(a) IN GENERAL.—The Secretary shall not provide funding for any research, development, demonstration, or commercial application of coal and related technologies that do 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) SEQUESTRATION AND GASIFICATION.—(A) In allocating the funds authorized under section 405(a), the Secretary shall ensure that at least 80 percent of the funds are used only for projects on carbon sequestration, or 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 remove 95 percent of mercury; and

(iv) to achieve a thermal efficiency of 60 percent (higher heating value).

(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 remove 90 percent of mercury; and

(D) to achieve a thermal efficiency of 45 percent (higher heating value).

(c) FINANCIAL CRITERIA.—The Secretary shall not provide a funding award for any research, development, demonstration, or commercial application of coal and related technologies unless the recipient of the award 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) FEDERAL SHARE.—The Federal share of the cost of a coal or related technology project funded by the Secretary shall not exceed 50 percent.

SEC. 407. CLEAN COAL CENTERS OF EXCELLENCE.

As part of the program authorized in section 405(a), the Secretary shall award competitive, merit-based grants to universities for the establishment of Centers of Excellence for Energy Systems of the Future. Such Centers shall be located at universities with a proven record of conducting research on, developing, or demonstrating clean coal technologies. The Secretary shall provide grants to universities that can show the greatest potential for demonstrating new clean coal technologies.

Subtitle B—Oil and Gas

SEC. 421. PETROLEUM-OIL TECHNOLOGY.

The Secretary shall conduct a program of research, development, demonstration, and commercial application on petroleum-oil technology. The program shall address—

(1) Exploration and Production Supporting Research;

(2) Oil Technology Reservoir Management/Extension; and

(3) Effective Environmental Protection.

SEC. 422. GAS.

The Secretary shall conduct a program of research, development, demonstration, and commercial application on natural gas technologies. The program shall address—

(1) Exploration and Production;

(2) Infrastructure; and

(3) Effective Environmental Protection.

Subtitle C—Ultra-Deepwater and Unconventional Drilling

SEC. 441. SHORT TITLE.

This subtitle may be cited as the "Natural Gas and Other Petroleum Research, Development, and Demonstration Act of 2001".

SEC. 442. DEFINITIONS.

For purposes of this subtitle—

(1) the term "deepwater" means water depths greater than 200 meters but less than 1,500 meters;

(2) the term "Fund" means the Ultra-Deepwater and Unconventional Gas Research Fund established under section 450;

(3) the term "institution of higher education" has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001);

(4) the term "Research Organization" means the Research Organization created pursuant to section 446(a);

(5) the term "ultra-deepwater" means water depths greater than 1,500 meters; and

(6) the term "unconventional" means located in heretofore inaccessible or uneconomic formations on land.

SEC. 443. ULTRA-DEEPWATER PROGRAM.

The Secretary shall establish a program of research, development, and demonstration of ultra-deepwater natural gas and other petroleum exploration and production technologies, in areas currently available for Outer Continental Shelf leasing. The program shall be carried out by the Research Organization as provided in this subtitle.

SEC. 444. NATIONAL ENERGY TECHNOLOGY LABORATORY.

The National Energy Technology Laboratory and the United States Geological Survey, when appropriate, shall carry out programs of long-term research into new natural gas and other petroleum exploration and production technologies and environmental mitigation technologies for production from unconventional and ultra-deepwater resources, including methane hydrates. Such Laboratory shall also conduct a program of research, development, and demonstration of new technologies for the reduction of greenhouse gas emissions from unconventional and ultra-deepwater natural gas or other petroleum exploration and production activities, including sub-sea floor carbon sequestration technologies.

SEC. 445. ADVISORY COMMITTEE.

(a) ESTABLISHMENT.—The Secretary shall, within 3 months after the date of the enactment of this Act, establish an Advisory Committee consisting of 7 members, each having extensive operational knowledge of and experience in the natural gas and other petroleum exploration and production industry who are not Federal Government employees or contractors. A minimum of 4 members shall have extensive knowledge of ultra-deepwater natural gas or other petroleum exploration and production technologies, a minimum of 2 members shall have extensive knowledge of unconventional natural gas or other petroleum exploration

and production technologies, and at least 1 member shall have extensive knowledge of greenhouse gas emission reduction technologies, including carbon sequestration.

(b) FUNCTION.—The Advisory Committee shall advise the Secretary on the selection of an organization to create the Research Organization and on the implementation of this subtitle.

(c) COMPENSATION.—Members of the Advisory Committee 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.

(d) ADMINISTRATIVE COSTS.—The costs of activities carried out by the Secretary and the Advisory Committee under this subtitle shall be paid or reimbursed from the Fund.

(e) DURATION OF ADVISORY COMMITTEE.—Section 14 of the Federal Advisory Committee Act shall not apply to the Advisory Committee.

SEC. 446. RESEARCH ORGANIZATION.

(a) SELECTION OF RESEARCH ORGANIZATION.—The Secretary, within 6 months after the date of the enactment of this Act, shall solicit proposals from eligible entities for the creation of the Research Organization, and within 3

months after such solicitation, shall select an entity to create the Research Organization.

(b) ELIGIBLE ENTITIES.—Entities eligible to create the Research Organization shall—

(1) have been in existence as of the date of the enactment of this Act;

(2) be entities exempt from tax under section 501(c)(3) of the Internal Revenue Code of 1986; and

(3) be experienced in planning and managing programs in natural gas or other petroleum exploration and production research, development, and demonstration.

(c) PROPOSALS.—A proposal from an entity seeking to create the Research Organization shall include a detailed description of the proposed membership and structure of the Research Organization.

(d) FUNCTIONS.—The Research Organization shall—

(1) award grants on a competitive basis to qualified—

(A) research institutions;

(B) institutions of higher education;

(C) companies; and

(D) consortia formed among institutions and companies described in subparagraphs (A) through (C) for the purpose of conducting re-

search, development, and demonstration of unconventional and ultra-deepwater natural gas or other petroleum exploration and production technologies; and

(2) review activities under those grants to ensure that they comply with the requirements of this subtitle and serve the purposes for which the grant was made.

SEC. 447. GRANTS.

(a) TYPES OF GRANTS.—

(1) UNCONVENTIONAL.—The Research Organization shall award grants for research, development, and demonstration of technologies to maximize the value of the Government's natural gas and other petroleum resources in unconventional reservoirs, and to develop technologies to increase the supply of natural gas and other petroleum resources by lowering the cost and improving the efficiency of exploration and production of unconventional reservoirs, while improving safety and minimizing environmental impacts.

(2) ULTRA-DEEPWATER.—The Research Organization shall award grants for research, development, and demonstration of natural gas or other petroleum exploration and production technologies to—

(A) maximize the value of the Federal Government's natural gas and other petroleum resources in the ultra-deepwater areas;

(B) increase the supply of natural gas and other petroleum resources by lowering the cost and improving the efficiency of exploration and production of ultra-deepwater reservoirs; and

(C) improve safety and minimize the environmental impacts of ultra-deepwater developments.

(3) ULTRA-DEEPWATER ARCHITECTURE.—The Research Organization shall award a grant to one or more consortia described in section 446(d)(1)(D) for the purpose of developing and demonstrating the next generation architecture for ultra-deepwater production of natural gas and other petroleum in furtherance of the purposes stated in paragraph (2)(A) through (C).

(b) CONDITIONS FOR GRANTS.—Grants provided under this section shall contain the following conditions:

(1) If the grant recipient consists of more than one entity, the recipient shall provide a signed contract agreed to by all participating members clearly defining all rights to intellectual property for existing technology and for future inventions conceived and

developed using funds provided under the grant, in a manner that is consistent with applicable laws.

(2) There shall be a repayment schedule for Federal dollars provided for demonstration projects under the grant in the event of a successful commercialization of the demonstrated technology. Such repayment schedule shall provide that the payments are made to the Secretary with the express intent that these payments not impede the adoption of the demonstrated technology in the marketplace. In the event that such impedance occurs due to market forces or other factors, the Research Organization shall renegotiate the grant agreement so that the acceptance of the technology in the marketplace is enabled.

(3) Applications for grants for demonstration projects shall clearly state the intended commercial applications of the technology demonstrated.

(4) The total amount of funds made available under a grant provided under subsection (a)(3) shall not exceed 50 percent of the total cost of the activities for which the grant is provided.

(5) The total amount of funds made available under a grant provided under subsection (a)(1) or (2) shall not exceed 50 percent of the total cost of the activities covered by the grant, except that the Research

Organization may elect to provide grants covering a higher percentage, not to exceed 90 percent, of total project costs in the case of grants made solely to independent producers.

(6) An appropriate amount of funds provided under a grant shall be used for the broad dissemination of technologies developed under the grant to interested institutions of higher education, industry, and appropriate Federal and State technology entities to ensure the greatest possible benefits for the public and use of government resources.

(7) Demonstrations of ultra-deepwater technologies for which funds are provided under a grant may be conducted in ultra-deepwater or deepwater locations.

(c) ALLOCATION OF FUNDS.—Funds available for grants under this subtitle shall be allocated as follows:

(1) 15 percent shall be for grants under subsection (a)(1).

(2) 15 percent shall be for grants under subsection (a)(2).

(3) 60 percent shall be for grants under subsection (a)(3).

(4) 10 percent shall be for carrying out section 444.

SEC. 448. PLAN AND FUNDING.

(a) TRANSMITTAL TO SECRETARY.—The Research Organization shall transmit to the Secretary an annual plan proposing projects and funding of activities under each paragraph of section 447(a).

(b) REVIEW.—The Secretary shall have 1 month to review the annual plan, and shall approve the plan, if it is consistent with this subtitle. If the Secretary approves the plan, the Secretary shall provide funding as proposed in the plan.

(c) DISAPPROVAL.—If the Secretary does not approve the plan, the Secretary shall notify the Research Organization of the reasons for disapproval and shall withhold funding until a new plan is submitted which the Secretary approves. Within 1 month after notifying the Research Organization of a disapproval, the Secretary shall notify the appropriate congressional committees of the disapproval.

SEC. 449. AUDIT.

The Secretary shall retain an independent, commercial auditor to determine the extent to which the funds authorized by this subtitle have been expended in a manner consistent with the purposes of this subtitle. The auditor shall transmit a report annually to the Secretary, who shall transmit the report to the appropriate congressional committees, along with a plan to remedy any deficiencies cited in the report.

SEC. 450. FUND.

(a) ESTABLISHMENT.—There is established in the Treasury of the United States a fund to be known as the "Ultra-Deepwater and Unconventional Gas Research Fund" which shall be available for obligation to the extent provided in advance in appropriations Acts for allocation under section 447(c).

(b) FUNDING SOURCES.—

(1) LOANS FROM TREASURY.—There are authorized to be appropriated to the Secretary $900,000,000 for the period encompassing fiscal years 2002 through 2009. Such amounts shall be deposited by the Secretary in the Fund, and shall be considered loans from the Treasury. Income received by the United States in connection with any ultra-deepwater oil and gas leases shall be deposited in the Treasury and considered as repayment for the loans under this paragraph.

(2) ADDITIONAL APPROPRIATIONS.—There are authorized to be appropriated to the Secretary such sums as may be necessary for the fiscal years 2002 through 2009, to be deposited in the Fund.

(3) OIL AND GAS LEASE INCOME.—To the extent provided in advance in appropriations Acts, not more than 7.5 percent of the income of the United States

from Federal oil and gas leases may be deposited in the Fund for fiscal years 2002 through 2009.

SEC. 451. SUNSET.

No funds are authorized to be appropriated for carrying out this subtitle after fiscal year 2009. The Research Organization shall be terminated when it has expended all funds made available pursuant to this subtitle.

Subtitle D—Fuel Cells

SEC. 461. FUEL CELLS.

(a) IN GENERAL.—The Secretary shall conduct a program of research, development, demonstration, and commercial application on fuel cells. The program shall address—

(1) Advanced Research;

(2) Systems Development;

(3) Vision 21-Hybrids; and

(4) Innovative Concepts.

(b) MANUFACTURING PRODUCTION AND PROCESSES.—In addition to the program under subsection (a), the Secretary, in consultation other Federal agencies, as appropriate, shall establish a program for the demonstration of fuel cell technologies, including fuel cell proton exchange membrane technology, for commercial, residential, and transportation applications. The program shall specifically focus on promoting the application of and improved manufacturing production and processes for fuel cell technologies.

(c) AUTHORIZATION OF APPROPRIATIONS.—Within the amounts authorized to be appropriated under section 481(a), there are authorized to be appropriated to the Secretary for the purpose of carrying out subsection (b), $28,000,000 for each of fiscal years 2002 through 2004.

Subtitle E—Department of Energy Authorization of Appropriations

SEC. 481. AUTHORIZATION OF APPROPRIATIONS.

(a) OPERATION AND MAINTENANCE.—There are authorized to be appropriated to the Secretary for operation and maintenance for subtitle B and subtitle D, and for Fossil Energy Research and Development Headquarters Program Direction, Field Program Direction, Plant and Capital Equipment, Cooperative Research and Development, Import/Export Authorization, and Advanced Metallurgical Processes $282,000,000 for fiscal year 2002, $293,000,000 for fiscal year 2003, and $305,000,000 for fiscal year 2004, to remain available until expended.

(b) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated in subsection (a) may be used for—

(1) Gas Hydrates.

(2) Fossil Energy Environmental Restoration; or

(3) research, development, demonstration, and commercial application on coal and related technologies, including activities under subtitle A.

TITLE V—SCIENCE

Subtitle A—Fusion Energy Sciences

SEC. 501. SHORT TITLE.

This subtitle may be cited as the "Fusion Energy Sciences Act of 2001".

SEC. 502. FINDINGS.

The Congress finds that—

(1) economic prosperity is closely linked to an affordable and ample energy supply;

(2) environmental quality is closely linked to energy production and use;

(3) population, worldwide economic development, energy consumption, and stress on the environment are all expected to increase substantially in the coming decades;

(4) the few energy options with the potential to meet economic and environmental needs for the long-term future should be pursued as part of a balanced national energy plan;

(5) fusion energy is an attractive long-term energy source because of the virtually inexhaustible sup-

ply of fuel, and the promise of minimal adverse environmental impact and inherent safety;

(6) the National Research Council, the President's Committee of Advisers on Science and Technology, and the Secretary of Energy Advisory Board have each recently reviewed the Fusion Energy Sciences Program and each strongly supports the fundamental science and creative innovation of the program, and has confirmed that progress toward the goal of producing practical fusion energy has been excellent, although much scientific and engineering work remains to be done;

(7) each of these reviews stressed the need for a magnetic fusion burning plasma experiment to address key scientific issues and as a necessary step in the development of fusion energy;

(8) the National Research Council has also called for a broadening of the Fusion Energy Sciences Program research base as a means to more fully integrate the fusion science community into the broader scientific community; and

(9) the Fusion Energy Sciences Program budget is inadequate to support the necessary science and innovation for the present generation of experiments, and cannot accommodate the cost of a burning plas-

ma experiment constructed by the United States, or even the cost of key participation by the United States in an international effort.

SEC. 503. PLAN FOR FUSION EXPERIMENT.

(a) PLAN FOR UNITED STATES FUSION EXPERIMENT.—The Secretary, on the basis of full consultation with the Fusion Energy Sciences Advisory Committee and the Secretary of Energy Advisory Board, as appropriate, shall develop a plan for United States construction 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, on the basis of full consultation with the Fusion Energy Sciences Advisory Committee and the Secretary of Energy Advisory Board, as appropriate, 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, he 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 Academies of Sciences and Engineering 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 Fusion Energy Sciences Program, may conduct any research and development necessary to fully develop the plans described in this section.

SEC. 504. PLAN FOR FUSION ENERGY SCIENCES PROGRAM.

Not later than 6 months after the date of the enactment of this Act, the Secretary, in full consultation with FESAC, 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 503. 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 is 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 503;

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

(7) to develop a roadmap for a fusion-based energy source that shows the important scientific ques-

tions, the evolution of confinement configurations, the relation between these two features, and their relation to the fusion energy goal;

(8) to establish several new centers of excellence, selected through a competitive peer-review process and devoted to exploring the frontiers of fusion science;

(9) to ensure that the National Science Foundation, and other agencies, as appropriate, play a role in extending the reach of fusion science and in sponsoring general plasma science; and

(10) to ensure that there be continuing broad assessments of the outlook for fusion energy and periodic external reviews of fusion energy sciences.

SEC. 505. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary for the development and review, but not for implementation, of the plans described in this subtitle and for activities of the Fusion Energy Sciences Program $320,000,000 for fiscal year 2002 and $335,000,000 for fiscal year 2003, of which up to $15,000,000 for each of fiscal year 2002 and fiscal year 2003 may be used to establish several new centers of excellence, selected through a competitive peer-review process and devoted to exploring the frontiers of fusion science.

Subtitle B—Spallation Neutron Source

SEC. 521. DEFINITION.

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

SEC. 522. AUTHORIZATION OF APPROPRIATIONS.

(a) AUTHORIZATION OF CONSTRUCTION FUNDING.—There are authorized to be appropriated to the Secretary for construction of the Spallation Neutron Source—

(1) $276,300,000 for fiscal year 2002;

(2) $210,571,000 for fiscal year 2003;

(3) $124,600,000 for fiscal year 2004;

(4) $79,800,000 for fiscal year 2005; and

(5) $41,100,000 for fiscal year 2006 for completion of construction.

(b) AUTHORIZATION OF OTHER PROJECT FUNDING.—There are authorized to be appropriated to the Secretary for other project costs (including research and development necessary to complete the project, preoperations costs, and capital equipment not related to construction) of the Spallation Neutron Source $15,353,000 for fiscal year 2002 and $103,279,000 for the period encompassing fiscal years 2003 through 2006, to remain available until expended through September 30, 2006.

SEC. 523. 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. 524. 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.

Subtitle C—Facilities, Infrastructure, and User Facilities

SEC. 541. DEFINITION.

For purposes of this subtitle—

(1) the term "nonmilitary energy laboratory" means—

(A) Ames Laboratory;

(B) Argonne National Laboratory;

(C) Brookhaven National Laboratory;

(D) Fermi National Accelerator 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; or

(K) any other facility of the Department that the Secretary, in consultation with the Director, Office of Science and the appropriate congressional committees, determines to be consistent with the mission of the Office of Science; and

(2) the term ''user facility'' means—

(A) an Office of Science facility at a nonmilitary energy laboratory that provides special scientific and research capabilities, including technical expertise and support as appropriate, to serve the research needs of the Nation's universities, industry, private laboratories, Federal laboratories, and others, including research institutions or individuals from other nations where reciprocal accommodations are provided to United States research institutions and individuals or where the Secretary considers such accommodation to be in the national interest; and

(B) any other Office of Science funded facility designated by the Secretary as a user facility.

SEC. 542. FACILITY AND INFRASTRUCTURE SUPPORT FOR NONMILITARY ENERGY LABORATORIES.

(a) FACILITY POLICY.—The Secretary shall develop and implement a least-cost nonmilitary energy laboratory facility and infrastructure strategy for—

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

(2) closing unneeded facilities;

(3) making facility modifications; and

(4) building new facilities.

(b) PLAN.—The Secretary shall prepare a comprehensive 10-year plan for conducting future facility maintenance, making repairs, modifications, and new additions, and constructing new facilities at each nonmilitary energy laboratory. Such plan shall provide for facilities work in accordance with the following priorities:

(1) Providing for the safety and health of employees, visitors, and the general public with regard to correcting existing structural, mechanical, electrical, and environmental deficiencies.

(2) Providing for the repair and rehabilitation of existing facilities to keep them in use and prevent deterioration, if feasible.

(3) Providing engineering design and construction services for those facilities that require modifica-

tion or additions in order to meet the needs of new or expanded programs.

(c) REPORT.—

(1) TRANSMITTAL.—Within 1 year after the date of the enactment of this Act, the Secretary shall prepare and transmit to the appropriate congressional committees a report containing the plan prepared under subsection (b).

(2) CONTENTS.—For each nonmilitary energy laboratory, 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.

(3) ADDITIONAL ELEMENTS.—The report shall also—

(A) include a plan for new facilities and facility modifications at each nonmilitary energy laboratory that will be required to meet the Department's changing missions of the twenty-first century, including schedules and estimates for implementation, and including a section outlining long-term funding requirements consistent with anticipated budgets and annual authorization of appropriations;

(B) address the coordination of modernization and consolidation of facilities among the nonmilitary energy laboratories in order to meet changing mission requirements; and

(C) provide for annual reports to the appropriate congressional committees on accomplishments, conformance to schedules, commitments, and expenditures.

SEC. 543. USER FACILITIES.

(a) NOTICE REQUIREMENT.—When the Department makes a user facility available to universities and other potential users, or seeks input from universities and other potential users regarding significant characteristics or equipment in a user facility or a proposed user facility, the Department shall ensure broad public notice of such avail-

ability or such need for input to universities and other potential users.

(b) COMPETITION REQUIREMENT.—When the Department considers the participation of a university or other potential user in the establishment or operation of a user facility, the Department shall employ full and open competition in selecting such a participant.

(c) PROHIBITION.—The Department may not redesignate a user facility, as defined by section 541(b) as something other than a user facility to avoid the requirements of subsections (a) and (b).

Subtitle D—Advisory Panel on Office of Science

SEC. 561. ESTABLISHMENT.

The Director of the Office of Science and Technology Policy, in consultation with the Secretary, shall establish an Advisory Panel on the Office of Science comprised of knowledgeable individuals to—

(1) address concerns about the current status and the future of scientific research supported by the Office;

(2) examine alternatives to the current organizational structure of the Office within the Department, taking into consideration existing structures for the

support of scientific research in other Federal agencies and the private sector; and

(3) suggest actions to strengthen the scientific research supported by the Office that might be taken jointly by the Department and Congress.

SEC. 562. REPORT.

Within 6 months after the date of the enactment of this Act, the Advisory Panel shall transmit its findings and recommendations in a report to the Director of the Office of Science and Technology Policy and the Secretary. The Director and the Secretary shall jointly—

(1) consider each of the Panel's findings and recommendations, and comment on each as they consider appropriate; and

(2) transmit the Panel's report and the comments of the Director and the Secretary on the report to the appropriate congressional committees within 9 months after the date of the enactment of this Act.

Subtitle E—Department of Energy Authorization of Appropriations

SEC. 581. AUTHORIZATION OF APPROPRIATIONS.

(a) OPERATION AND MAINTENANCE.—Including the amounts authorized to be appropriated for fiscal year 2002 under section 505 for Fusion Energy Sciences and under section 522(b) for the Spallation Neutron Source, there are

authorized to be appropriated to the Secretary for the Office of Science (also including subtitle C, High Energy Physics, Nuclear Physics, Biological and Environmental Research, Basic Energy Sciences (except for the Spallation Neutron Source), Advanced Scientific Computing Research, Energy Research Analysis, Multiprogram Energy Laboratories-Facilities Support, Facilities and Infrastructure, Safeguards and Security, and Program Direction) operation and maintenance $3,299,558,000 for fiscal year 2002, to remain available until expended.

(b) RESEARCH REGARDING PRECIOUS METAL CATALYSIS.—Within the amounts authorized to be appropriated to the Secretary under subsection (a), $5,000,000 for fiscal year 2002 may be used to carry out research in the use of precious metals (excluding platinum, palladium, and rhodium) in catalysis, either directly through national laboratories, or through the award of grants, cooperative agreements, or contracts with public or nonprofit entities.

(c) CONSTRUCTION.—In addition to the amounts authorized to be appropriated under section 522(a) for construction of the Spallation Neutron Source, there are authorized to be appropriated to the Secretary for Science—

(1) $11,400,000 for fiscal year 2002 for completion of construction of Project 98–G–304, Neutrinos

at the Main Injector, Fermi National Accelerator Laboratory;

(2) $11,405,000 for fiscal year 2002 for completion of construction of Project 01–E–300, Laboratory for Comparative and Functional Genomics, Oak Ridge National Laboratory;

(3) $4,000,000 for fiscal year 2002, $8,000,000 for fiscal year 2003, and $2,000,000 for fiscal year 2004 for completion of construction of Project 02–SC–002, Project Engineering Design (PED), Various Locations;

(4) $3,183,000 for fiscal year 2002 for completion of construction of Project 02–SC–002, Multiprogram Energy Laboratories Infrastructure Project Engineering Design (PED), Various Locations; and

(5) $18,633,000 for fiscal year 2002 and $13,029,000 for fiscal year 2003 for completion of construction of Project MEL–001, Multiprogram Energy Laboratories, Infrastructure, Various Locations.

(d) LIMITS ON USE OF FUNDS.—None of the funds authorized to be appropriated in subsection (c) may be used for construction at any national security laboratory as defined in section 3281(1) of the National Defense Authorization Act for Fiscal Year 2000 (50 U.S.C. 2471(1)) or at any nuclear weapons production facility as defined in sec-

tion 3281(2) of the National Defense Authorization Act for Fiscal Year 2000 (50 U.S.C. 2471(2)).

TITLE VI—MISCELLANEOUS

Subtitle A—General Provisions for the Department of Energy

SEC. 601. RESEARCH, DEVELOPMENT, DEMONSTRATION, AND COMMERCIAL APPLICATION OF ENERGY TECHNOLOGY PROGRAMS, PROJECTS, AND ACTIVITIES.

(a) AUTHORIZED ACTIVITIES.—Except as otherwise provided in this Act, research, development, demonstration, and commercial application programs, projects, and activities for which appropriations are authorized under this Act may be carried out under the procedures of the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901 et seq.), the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.), or any other Act under which the Secretary is authorized to carry out such programs, projects, and activities, but only to the extent the Secretary is authorized to carry out such activities under each such Act.

(b) AUTHORIZED AGREEMENTS.—Except as otherwise provided in this Act, in carrying out research, development, demonstration, and commercial application programs, projects, and activities for which appropriations are authorized under this Act, the Secretary may use, to the extent

authorized under applicable provisions of law, contracts, cooperative agreements, cooperative research and development agreements under the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.), grants, joint ventures, and any other form of agreement available to the Secretary.

(c) DEFINITION.—For purposes of this section, 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), except that such term may apply under this section to research, development, demonstration, and commercial application of energy technology joint ventures.

(d) PROTECTION OF INFORMATION.—Section 12(c)(7) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3710a(c)(7)), relating to the protection of information, shall apply to research, development, demonstration, and commercial application of energy technology programs, projects, and activities for which appropriations are authorized under this Act.

(e) INVENTIONS.—An invention conceived and developed by any person using funds provided through a grant under this Act shall be considered a subject invention for the purposes of chapter 18 of title 35, United States Code (commonly referred to as the Bayh-Dole Act).

(f) OUTREACH.—The Secretary shall ensure that each program authorized by this Act includes an outreach component to provide information, as appropriate, to manufacturers, consumers, engineers, architects, builders, energy service companies, universities, facility planners and managers, State and local governments, and other entities.

(g) GUIDELINES AND PROCEDURES.—The Secretary shall provide guidelines and procedures for the transition, where appropriate, of energy technologies from research through development and demonstration to commercial application of energy technology. Nothing in this section shall preclude the Secretary from—

(1) entering into a contract, cooperative agreement, cooperative research and development agreement under the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.), grant, joint venture, or any other form of agreement available to the Secretary under this section that relates to research, development, demonstration, and commercial application of energy technology; or

(2) extending a contract, cooperative agreement, cooperative research and development agreement under the Stevenson-Wydler Technology Innovation Act of 1980, grant, joint venture, or any other form of agreement available to the Secretary that relates to

research, development, and demonstration to cover commercial application of energy technology.

(h) APPLICATION OF SECTION.—This section shall not apply to any contract, cooperative agreement, cooperative research and development agreement under the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.), grant, joint venture, or any other form of agreement available to the Secretary that is in effect as of the date of enactment of this Act.

SEC. 602. LIMITS ON USE OF FUNDS.

(a) MANAGEMENT AND OPERATING CONTRACTS.—

(1) COMPETITIVE PROCEDURE REQUIREMENT.—None of the funds authorized to be appropriated to the Secretary by this Act may be used to award a management and operating contract for a federally owned or operated nonmilitary energy laboratory of the Department unless such contract is awarded using competitive procedures 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.

(2) CONGRESSIONAL NOTICE.—At least 2 months before a contract award, amendment, or modification for which the Secretary intends to grant such a waiver, the Secretary shall submit to the appropriate con-

gressional committees a report notifying the committees of the waiver and setting forth the reasons for the waiver.

(b) PRODUCTION OR PROVISION OF ARTICLES OR SERVICES.—None of the funds authorized to be appropriated to the Secretary by this Act may be used to produce or provide articles or services for the purpose of selling the articles or services to a person outside the Federal Government, unless the Secretary determines that comparable articles or services are not available from a commercial source in the United States.

(c) REQUESTS FOR PROPOSALS.—None of the funds authorized to be appropriated to the Secretary by this Act may be used by the Department to prepare or initiate Requests for Proposals for a program if the program has not been authorized by Congress.

SEC. 603. COST SHARING.

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

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

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

SEC. 604. LIMITATION ON DEMONSTRATION AND COMMERCIAL APPLICATION OF ENERGY TECHNOLOGY.

Except as otherwise provided in this Act, the Secretary shall provide funding for scientific or energy demonstration and commercial application of energy technology programs, projects, or activities only for technologies or processes that can be reasonably expected to yield new, measurable benefits to the cost, efficiency, or performance of the technology or process.

SEC. 605. REPROGRAMMING.

(a) AUTHORITY.—The Secretary may use amounts appropriated under this Act for a program, project, or activity other than the program, project, or activity for which such amounts were appropriated only if—

(1) the Secretary has transmitted to the appropriate congressional committees a report described in subsection (b) and a period of 30 days has elapsed after such committees receive the report;

(2) amounts used for the program, project, or activity do not exceed—

(A) 105 percent of the amount authorized for the program, project, or activity; or

(B) $250,000 more than the amount authorized for the program, project, or activity,

whichever is less; and

(3) the program, project, or activity has been presented to, or requested of, the Congress by the Secretary.

(b) REPORT.—(1) The report referred to in subsection (a) is a report containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of the proposed action.

(2) In the computation of the 30-day period under subsection (a), 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) LIMITATIONS.—(1) In no event may the total amount of funds obligated by the Secretary pursuant to this Act exceed the total amount authorized to be appropriated to the Secretary by this Act.

(2) Funds appropriated to the Secretary pursuant to this Act may not be used for an item for which Congress has declined to authorize funds.

Subtitle B—Other Miscellaneous Provisions

SEC. 611. NOTICE OF REORGANIZATION.

The Secretary shall provide notice to the appropriate congressional committees not later than 15 days before any reorganization of any environmental research or development, scientific or energy research, development, or demonstration, or commercial application of energy technology program, project, or activity of the Department.

SEC. 612. LIMITS ON GENERAL PLANT PROJECTS.

If, at any time during the construction of a civilian environmental research and development, scientific or energy research, development, or demonstration, or commercial application of energy technology project of the Department for which no specific funding level is provided by law, the estimated cost (including any revision thereof) of the

project exceeds $5,000,000, the Secretary may not continue such construction unless the Secretary has furnished a complete report to the appropriate congressional committees explaining the project and the reasons for the estimate or revision.

SEC. 613. LIMITS ON CONSTRUCTION PROJECTS.

(a) LIMITATION.—Except as provided in subsection (b), construction on a civilian environmental research and development, scientific or energy research, development, or demonstration, or commercial application of energy technology project of the Department for which funding has been specifically provided by law may not be started, and additional obligations may not be incurred in connection with the project above the authorized funding amount, whenever the current estimated cost of the construction project exceeds by more than 10 percent the higher of—

(1) the amount authorized for the project, if the entire project has been funded by the Congress; or

(2) the amount of the total estimated cost for the project as shown in the most recent budget justification data submitted to Congress.

(b) NOTICE.—An action described in subsection (a) may be taken if—

(1) the Secretary has submitted to the appropriate congressional committees a report on the pro-

posed actions and the circumstances making such actions necessary; and

(2) a period of 30 days has elapsed after the date on which the report is received by the committees.

(c) EXCLUSION.—In the computation of the 30-day period described in subsection (b)(2), 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.

(d) EXCEPTION.—Subsections (a) and (b) shall not apply to any construction project that has a current estimated cost of less than $5,000,000.

SEC. 614. AUTHORITY FOR CONCEPTUAL AND CONSTRUCTION DESIGN.

(a) REQUIREMENT FOR CONCEPTUAL DESIGN.—(1) Subject to paragraph (2) and except as provided in paragraph (3), before submitting to Congress a request for funds for a construction project that is in support of a civilian environmental research and development, scientific or energy research, development, or demonstration, or commercial application of energy technology program, project, or activity of the Department, the Secretary shall complete a conceptual design for that project.

(2) If the estimated cost of completing a conceptual design for a construction project exceeds $750,000, the Sec-

retary shall submit to Congress a request for funds for the conceptual design before submitting a request for funds for the construction project.

(3) The requirement in paragraph (1) does not apply to a request for funds for a construction project, the total estimated cost of which is less than $5,000,000.

(b) AUTHORITY FOR CONSTRUCTION DESIGN.—(1) The Secretary may carry out construction design (including architectural and engineering services) in connection with any proposed construction project that is in support of a civilian environmental research and development, scientific or energy research, development, and demonstration, or commercial application of energy technology program, project, or activity of the Department if the total estimated cost for such design does not exceed $250,000.

(2) If the total estimated cost for construction design in connection with any construction project described in paragraph (1) exceeds $250,000, funds for such design must be specifically authorized by law.

SEC. 615. NATIONAL ENERGY POLICY DEVELOPMENT GROUP MANDATED REPORTS.

(a) THE SECRETARY'S REVIEW OF ENERGY EFFICIENCY RENEWABLE ENERGY, AND ALTERNATIVE ENERGY RESEARCH AND DEVELOPMENT.—Upon completion of the Secretary's review of current funding and historic perform-

ance of the Department's energy efficiency, renewable energy, and alternative energy research and development programs in response to the recommendations of the May 16, 2001, Report of the National Energy Policy Development Group, the Secretary shall transmit a report containing the results of such review to the appropriate congressional committees.

(b) REVIEW AND RECOMMENDATIONS ON USING THE NATION'S ENERGY RESOURCES MORE EFFICIENTLY.—Upon completion of the Office of Science and Technology Policy and the President's Council of Advisors on Science and Technology reviewing and making recommendations on using the Nation's energy resources more efficiently, in response to the recommendation of the May 16, 2001, Report of the National Energy Policy Development Group, the Director of the Office of Science and Technology Policy shall transmit a report containing the results of such review and recommendations to the appropriate congressional committees.

SEC. 616. PERIODIC REVIEWS AND ASSESSMENTS.

The Secretary shall enter into appropriate arrangements with the National Academies of Sciences and Engineering to ensure that there be periodic reviews and assessments of the programs authorized by this Act, as well as the measurable cost and performance-based goals for such

programs as established under section 4, and the progress on meeting such goals. Such reviews and assessments shall be conducted at least every 5 years, or more often as the Secretary considers necessary, and the Secretary shall transmit to the appropriate congressional committees reports containing the results of such reviews and assessments.

Union Calendar No. 106

107TH CONGRESS
1ST SESSION

H. R. 2460

[Report No. 107–177]

A BILL

To authorize appropriations for environmental research and development, scientific and energy research, development, and demonstration, and commercial application of energy technology programs, projects, and activities of the Department of Energy and of the Office of Air and Radiation of the Environmental Protection Agency, and for other purposes.

JULY 31, 2001

Reported with an amendment, committed to the Committee of the Whole House on the State of the Union, and ordered to be printed