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107TH CONGRESS
1ST SESSION

H. R. 2324

To establish a balanced energy program for the United States that unlocks the potential of renewable energy and energy efficiency, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 26, 2001

Ms. WOOLSEY (for herself, Mr. HALL of Texas, Ms. JACKSON-LEE of Texas, Mr. LAMPSON, Mr. MATHESON, Mr. WU, Mr. BACA, Mr. BAIRD, Mr. BARCIA, Mr. ETHERIDGE, Mr. GORDON, Mr. HOEFFEL, Mr. HONDA, Mr. ISRAEL, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. LARSON of Connecticut, Ms. LOFGREN, Mr. MOORE, Ms. RIVERS, Mr. UDALL of Colorado, and Mr. WEINER) introduced the following bill; which was referred to the Committee on Science

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A BILL

To establish a balanced energy program for the United States that unlocks the potential of renewable energy and energy efficiency, 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 ''Renewable Energy and Energy Efficiency Act of 2001''.

(b) TABLE OF CONTENTS.—

Sec. 1. Short title; table of contents.

Sec. 2. Findings.
Sec. 3. National research and development policy.
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TITLE I—RESEARCH, DEVELOPMENT, AND DEMONSTRATION

Sec. 101. Enhanced energy efficiency research, development, and demonstration.
Sec. 102. Enhanced renewable energy research, development, and demonstration.
Sec. 103. Biomass energy and related chemical research, development, and demonstration.
Sec. 104. Assessment of renewable energy resources.
Sec. 105. Enhanced aeronautical system energy efficiency research, development, and demonstration.
Sec. 106. Progress report.

TITLE II—COMMERCIAL APPLICATIONS

Sec. 201. Study of financing for prototype technologies.
Sec. 202. Regulatory reviews for new technologies and processes.
Sec. 203. Commercialization assistance.
Sec. 204. Education and outreach.

SEC. 2. FINDINGS.

The Congress finds that—

(1) there is a need for a robust renewable energy and energy efficiency research and development program that provides a basis for the development, demonstration, and deployment of new energy technologies in partnership with industry;

(2) Federal budget authority for renewable energy and energy efficiency research and development has declined significantly since 1980; and

(3) the President's budget request for fiscal year 2002 makes even greater reductions in these programs, imperiling promising technologies that have the potential to reduce energy consumption and increase energy efficiency.

SEC. 3. NATIONAL RESEARCH AND DEVELOPMENT POLICY.

It shall be the policy of the United States that its research, development, demonstration, and commercial applications programs be designed to enable 20 percent of the energy generated in the United States from stationary sources to be generated from nonhydropower renewable energy sources by the year 2020.

SEC. 4. DEFINITIONS.

For purposes of this Act, except as otherwise provided—

(1) the term ''biomass'' means 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, animal wastes, and municipal wastes; and

(2) the term ''renewable energy source'' means—

(A) wind;

(B) biomass;

(C) a geothermal source;

(D) a solar source;

(E) a photovoltaic source; or

(F) additional hydroelectric generation capacity achieved from increased efficiency at an existing hydroelectric dam.

TITLE I—RESEARCH, DEVELOPMENT, AND DEMONSTRATION

SEC. 101. ENHANCED ENERGY EFFICIENCY RESEARCH, DEVELOPMENT, AND DEMONSTRATION.

(a) GOALS.—In order to achieve the goal stated in section 3, the United States shall have a balanced energy research, development, and demonstration program to enhance energy efficiency with the following goals:

(1) For energy efficiency in housing, the program should develop technologies, housing components, designs, and production methods that will, by 2010—

(A) reduce the time needed to move technologies to market by 50 percent, compared to the time needed as of the date of the enactment of this Act;

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

(C) 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;

(D) ensure that at least 15,000,000 homes existing as of the date of the enactment of this

Act reduce their energy use by 30 percent, compared to the use as of the date of the enactment of this Act; and

(E) 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.

(2) For industrial energy efficiency, the program should, in cooperation with the affected industries—

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

(B) develop a microturbine that is more than 50 percent efficient by 2010, compared to the efficiency as of the date of the enactment of this Act;

(C) 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; and

(D) 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.

(3) For transportation energy efficiency, the program should, in cooperation with affected industries—

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

(B) 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;

(C) 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

(D) 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.

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

(1) the term ''alternative fuel'' has the meaning given that term in section 301(2) of the Energy Policy Act of 1992; and

(2) the term ''major energy-consuming industries'' means—

(A) the forest product industry;

(B) the steel industry;

(C) the aluminum industry;

(D) the metal casting industry;

(E) the chemical industry;

(F) the petroleum refining industry; and

(G) the glass-making industry.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Energy for carrying out activities to achieve the goals de-

scribed in subsection (a), including State and local grants and the Federal Energy Management Program—

(1) $900,000,000 for fiscal year 2002;

(2) $950,000,000 for fiscal year 2003;

(3) $1,025,000,000 for fiscal year 2004;

(4) $1,110,000,000 for fiscal year 2005; and

(5) $1,200,000,000 for fiscal year 2006.

SEC. 102. ENHANCED RENEWABLE ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION.

(a) GOALS.—In order to achieve the goal stated in section 3, the United States shall have a balanced energy research, development, and demonstration program to enhance renewable energy with the following goals:

(1) For wind power, the program should reduce the cost of wind electricity by 50 percent by 2006, compared to the cost as of the date of the enactment of this Act, so that wind power can be widely competitive with fossil-fuel-based electricity in a restructured electric industry, with concentration within the program on a variety of advanced wind turbine concepts and manufacturing technologies.

(2) For photovoltaics, the programs should pursue research, development, and demonstration that would lead to photovoltaic systems prices of $3,000 per kilowatt by January 1, 2003, and $1,500 per

kilowatt by January 1, 2006. Program activities should include assisting industry in developing manufacturing technologies, giving greater attention to balance of system issues, and expanding fundamental research on relevant advanced materials.

(3) For solar thermal electric systems the program should strengthen ongoing research, development, 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.

(4) For geothermal energy, the program should continue work on hydrothermal systems, and reactivate research, development, and demonstration on advanced concepts, giving top priority to high-grade hot dry-rock geothermal energy.

(5) For hydrogen-based energy systems, the program should support research, development, and demonstration on hydrogen-using and hydrogen-producing technologies. The program should also coordinate hydrogen-using technology development with proton exchange membrane fuel cell vehicle development activities under the enhanced energy efficiency program described in section 101.

(6) 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.

(7) For electric energy and storage, the program should develop high capacity superconducting transmission lines and generators, and develop distributed generating systems to accommodate multiple types of energy sources under a common interconnect standard.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Energy for carrying out activities to achieve the goals described in subsection (a)—

(1) $420,000,000 for fiscal year 2002;

(2) $470,000,000 for fiscal year 2003;

(3) $525,000,000 for fiscal year 2004;

(4) $585,000,000 for fiscal year 2005; and

(5) $655,000,000 for fiscal year 2006.

SEC. 103. BIOMASS ENERGY AND RELATED CHEMICAL RESEARCH, DEVELOPMENT, AND DEMONSTRATION.

(a) GOALS.—In order to achieve the goal stated in section 3, the United States shall have a balanced energy research, development, and demonstration program to en-

hance biomass energy and related chemical research, development, and demonstration with the following goals:

(1) The program should enable the United States to triple bioenergy use by 2010.

(2) For biomass-based power systems, the program should enable commercialization, within five years after the date of the enactment of this Act, of integrated power-generating technologies that employ gas turbines and fuel cells integrated with biomass gasifiers.

(3) For biofuels, the program should accelerate research, development, and demonstration 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.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Energy for carrying out research, development, and demonstration activities on biomass-related technologies, including transportation, power, and related chemical production technologies, under the Biomass Research and Development Act of 2000—

(1) for biomass transportation—

(A) $54,000,000 for fiscal year 2002;

(B) $65,000,000 for fiscal year 2003;

(C) $78,000,000 for fiscal year 2004;

(D) $94,000,000 for fiscal year 2005; and

(E) $113,000,000 for fiscal year 2006;

(2) for biomass power—

(A) $48,000,000 for fiscal year 2002;

(B) $58,000,000 for fiscal year 2003;

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

(D) $84,000,000 for fiscal year 2005; and

(E) $101,000,000 for fiscal year 2006; and

(3) for biomass energy-related industrial applications—

(A) $53,000,000 for fiscal year 2002;

(B) $58,000,000 for fiscal year 2003;

(C) $63,000,000 for fiscal year 2004;

(D) $68,000,000 for fiscal year 2005; and

(E) $73,000,000 for fiscal year 2006.

SEC. 104. ASSESSMENT OF RENEWABLE ENERGY RESOURCES.

(a) IN GENERAL.—Not later than one year after the date of the enactment of this Act, the Secretary of Energy shall submit to the Congress an assessment of all renew-

able energy resources available for commercial applications within the United States.

(b) RESOURCE ASSESSMENT.—Such assessment shall include a detailed inventory describing the available amount and characteristics of renewable energy sources, and an estimate of the research, development, demonstration, and commercial applications efforts necessary to develop each resource. The assessment shall also include such other information as the Secretary of Energy believes would be useful in achieving wider commercial applications of emerging and state-of-the-art renewable energy generation facilities or devices.

(c) AVAILABILITY.—The technology development information and cost estimates in the assessment shall be updated annually and made available to the public, along with the data used to create the assessment.

(d) AUTHORIZATION OF APPROPRIATIONS.—For the purposes of carrying out this section, there are authorized to be appropriated to the Secretary of Energy $10,000,000 for fiscal year 2002, and such sums as may be necessary for the fiscal years 2003 through 2020.

SEC. 105. ENHANCED AERONAUTICAL SYSTEM ENERGY EFFICIENCY RESEARCH, DEVELOPMENT, AND DEMONSTRATION.

(a) GOALS.—For aeronautical system energy efficiency, the National Aeronautics and Space Administration shall seek to—

(1) develop technologies that will enable a 50 percent increase in aircraft engine energy efficiencies by 2010 as compared to the most energy efficient engine in the United States commercial aircraft fleet as of the date of the enactment of this Act; and

(2) develop air transportation management operational concepts and procedures that will enable a 25 percent increase in the energy efficiency of the overall air transport system on a per flight basis by 2010 as compared to the efficiency as of the date of the enactment of this Act.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator of the National Aeronautics and Space Administration for carrying out activities to achieve the goals described in subsection (a)—

(1) $50,000,000 for fiscal year 2002;

(2) $55,000,000 for fiscal year 2003;

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

(4) $65,000,000 for fiscal year 2005; and

(5) $70,000,000 for fiscal year 2006.

SEC. 106. PROGRESS REPORT.

The Secretary of Energy shall transmit to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate an annual report assessing the progress made pursuant to this title in achieving the goal set forth in section 3. The first such report shall be transmitted along with the first annual budget request from the President occurring at least 6 months after the date of the enactment of this Act.

TITLE II—COMMERCIAL APPLICATIONS

SEC. 201. STUDY OF FINANCING FOR PROTOTYPE TECHNOLOGIES.

(a) INDEPENDENT ASSESSMENT.—The Secretary of Energy shall commission an independent assessment of innovative financing techniques to facilitate construction of new renewable energy and energy efficiency facilities that might not otherwise be built in a competitive market.

(b) CONDUCT OF THE ASSESSMENT.—The Secretary of Energy shall retain an independent contractor with proven expertise in financing large capital projects or in financial services consulting to conduct the assessment under this section.

(c) CONTENT OF THE ASSESSMENT.—The assessment shall include a comprehensive examination of all available techniques to safeguard private investors against risks (including both market-based and government-imposed risks) that are beyond the control of the investors. Such techniques may include Federal loan guarantees, Federal price guarantees, special tax considerations, and direct Federal investment.

(d) REPORT.—The Secretary of Energy shall submit the results of the independent assessment to the Congress not later than 9 months after the date of enactment of this section.

SEC. 202. REGULATORY REVIEWS FOR NEW TECHNOLOGIES AND PROCESSES.

(a) REGULATORY REVIEWS.—Not later than one year after the date of the enactment of this Act, and every five years thereafter, the Director of the Office of Science and Technology Policy shall oversee a review of each Federal agency's regulations and policies to identify—

(1) existing regulations and policies that act as barriers to the development and commercialization of emerging renewable energy and energy efficiency technologies and processes (including fuel cells, combined heat and power, distributed generation, and small-scale renewable energy); and

(2) actions the agency is taking or could take to—

(A) remove barriers to market entry for emerging renewable energy and energy efficiency technologies;

(B) increase energy efficiency; or

(C) encourage the use of new processes to meet energy and environmental goals.

(b) REPORTS TO CONGRESS.—Not later than 18 months after the date of the enactment of this Act, and every five years thereafter, the Director of the Office of Science and Technology Policy shall report to the Congress on the results of the agency reviews conducted under subsection (a).

(c) CONTENTS OF THE REPORTS.—The reports required under subsection (b) shall—

(1) identify all regulatory and policy barriers to the development and commercialization of emerging renewable energy and energy efficiency technologies and processes;

(2) actions taken, or proposed to be taken, that are identified under subsection (a)(2); and

(3) recommendations for changes in laws or regulations that may be needed to—

(A) expedite the siting and development of energy production and distribution facilities; and

(B) encourage the adoption of energy efficiency and process improvements.

SEC. 203. COMMERCIALIZATION ASSISTANCE.

(a) AUTHORITY.—The Secretary of Energy shall provide, through a competitive review process, assistance to private sector entities for the commercial application of renewable energy and energy efficiency technologies.

(b) APPLICATIONS.—The Secretary of Energy shall establish requirements for applications for assistance under this section. Such applications shall contain a commercial application plan, including a description of the financial, business, and technical support (including support from universities and national laboratories) the applicant anticipates in its commercial application effort.

(c) SELECTION.—The Secretary of Energy shall select applicants to receive assistance under this section on the basis of which applications are the most likely to result in commercial application of renewable energy and energy efficiency technologies. The Secretary shall ensure that at least 50 percent of the funds provided under this section are provided to small businesses or startup companies.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Energy for carrying out this section $200,000,000 for each of the fiscal years 2002 through 2006, and such sums as may be necessary for each of the fiscal years 2007 through 2020.

SEC. 204. EDUCATION AND OUTREACH.

(a) PROGRAM.—The Secretary of Energy shall establish a program education and outreach, including innovative education and outreach techniques, on renewable energy and energy efficiency technologies to manufacturers, consumers, engineers, architects, builders, energy service companies, universities, facility planners and managers, State and local governments, and other appropriate entities.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Energy for carrying out this section $100,000,000 for each of the fiscal years 2002 through 2006, and such sums as may be necessary for each of the fiscal years 2007 through 2020.

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