

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.

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## 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.

1       *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4       (a) SHORT TITLE.—This Act may be cited as the  
5 “Renewable Energy and Energy Efficiency Act of 2001”.

6       (b) TABLE OF CONTENTS.—

Sec. 1. Short title; table of contents.

- Sec. 2. Findings.  
 Sec. 3. National research and development policy.  
 Sec. 4. Definitions.

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.

1 **SEC. 2. FINDINGS.**

2 The Congress finds that—

3 (1) there is a need for a robust renewable en-  
 4 ergy and energy efficiency research and development  
 5 program that provides a basis for the development,  
 6 demonstration, and deployment of new energy tech-  
 7 nologies in partnership with industry;

8 (2) Federal budget authority for renewable en-  
 9 ergy and energy efficiency research and development  
 10 has declined significantly since 1980; and

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

1 **SEC. 3. NATIONAL RESEARCH AND DEVELOPMENT POLICY.**

2 It shall be the policy of the United States that its  
3 research, development, demonstration, and commercial ap-  
4 plications programs be designed to enable 20 percent of  
5 the energy generated in the United States from stationary  
6 sources to be generated from nonhydropower renewable  
7 energy sources by the year 2020.

8 **SEC. 4. DEFINITIONS.**

9 For purposes of this Act, except as otherwise  
10 provided—

11 (1) the term “biomass” means any organic  
12 matter that is available on a renewable or recurring  
13 basis, including agricultural crops and trees, wood  
14 and wood wastes and residues, plants (including  
15 aquatic plants), grasses, residues, fibers, animal  
16 wastes, and municipal wastes; and

17 (2) the term “renewable energy source”  
18 means—

19 (A) wind;

20 (B) biomass;

21 (C) a geothermal source;

22 (D) a solar source;

23 (E) a photovoltaic source; or

24 (F) additional hydroelectric generation ca-  
25 pacity achieved from increased efficiency at an  
26 existing hydroelectric dam.

1 **TITLE I—RESEARCH, DEVELOP-**  
2 **MENT, AND DEMONSTRATION**

3 **SEC. 101. ENHANCED ENERGY EFFICIENCY RESEARCH, DE-**  
4 **VELOPMENT, AND DEMONSTRATION.**

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

9 (1) For energy efficiency in housing, the pro-  
10 gram should develop technologies, housing compo-  
11 nents, designs, and production methods that will, by  
12 2010—

13 (A) reduce the time needed to move tech-  
14 nologies to market by 50 percent, compared to  
15 the time needed as of the date of the enactment  
16 of this Act;

17 (B) reduce the monthly cost of new hous-  
18 ing by 20 percent, compared to the cost as of  
19 the date of the enactment of this Act;

20 (C) cut the environmental impact and en-  
21 ergy use of new housing by 50 percent, com-  
22 pared to the impact and use as of the date of  
23 the enactment of this Act;

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

1 Act reduce their energy use by 30 percent, com-  
2 pared to the use as of the date of the enact-  
3 ment of this Act; and

4 (E) improve durability and reduce mainte-  
5 nance costs by 50 percent compared to the du-  
6 rability and costs as of the date of the enact-  
7 ment of this Act.

8 (2) For industrial energy efficiency, the pro-  
9 gram should, in cooperation with the affected  
10 industries—

11 (A) develop a microturbine (40 to 300 kilo-  
12 watt) that is more than 40 percent efficient by  
13 2006, compared to the efficiency as of the date  
14 of the enactment of this Act;

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

19 (C) develop advanced materials for com-  
20 bustion systems that reduce emissions of nitro-  
21 gen oxides by 30 to 50 percent while increasing  
22 efficiency 5 to 10 percent by 2007, compared  
23 to such emissions as of the date of the enact-  
24 ment of this Act; and

1           (D) improve the energy intensity of the  
2           major energy-consuming industries by at least  
3           25 percent by 2010, compared to the energy in-  
4           tensity as of the date of the enactment of this  
5           Act.

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

9                   (A) develop a production prototype pas-  
10                  senger automobile that has fuel economy equiv-  
11                  alent to 80 miles per gallon of gasoline by  
12                  2004;

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

17                           (i) 10 miles per gallon of gasoline by  
18                           2007; and

19                           (ii) 13 miles per gallon of gasoline by  
20                           2010;

21                  (C) develop a production prototype of a  
22                  passenger automobile with zero equivalent emis-  
23                  sions that has an average fuel economy of 100  
24                  miles per gallon of gasoline by 2010; and

1 (D) improve, by 2010, the average fuel  
2 economy of trucks—

3 (i) in classes 1 and 2 by 300 percent;

4 and

5 (ii) in classes 3 through 6 by 200 per-  
6 cent,

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

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

10 (1) the term “alternative fuel” has the meaning  
11 given that term in section 301(2) of the Energy Pol-  
12 icy Act of 1992; and

13 (2) the term “major energy-consuming indus-  
14 tries” means—

15 (A) the forest product industry;

16 (B) the steel industry;

17 (C) the aluminum industry;

18 (D) the metal casting industry;

19 (E) the chemical industry;

20 (F) the petroleum refining industry; and

21 (G) the glass-making industry.

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

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

- 3 (1) \$900,000,000 for fiscal year 2002;
- 4 (2) \$950,000,000 for fiscal year 2003;
- 5 (3) \$1,025,000,000 for fiscal year 2004;
- 6 (4) \$1,110,000,000 for fiscal year 2005; and
- 7 (5) \$1,200,000,000 for fiscal year 2006.

8 **SEC. 102. ENHANCED RENEWABLE ENERGY RESEARCH, DE-**  
9 **VELOPMENT, AND DEMONSTRATION.**

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

14 (1) For wind power, the program should reduce  
15 the cost of wind electricity by 50 percent by 2006,  
16 compared to the cost as of the date of the enactment  
17 of this Act, so that wind power can be widely com-  
18 petitive with fossil-fuel-based electricity in a restruc-  
19 tured electric industry, with concentration within the  
20 program on a variety of advanced wind turbine con-  
21 cepts and manufacturing technologies.

22 (2) For photovoltaics, the programs should pur-  
23 sue research, development, and demonstration that  
24 would lead to photovoltaic systems prices of \$3,000  
25 per kilowatt by January 1, 2003, and \$1,500 per

1 kilowatt by January 1, 2006. Program activities  
2 should include assisting industry in developing man-  
3 ufacturing technologies, giving greater attention to  
4 balance of system issues, and expanding funda-  
5 mental research on relevant advanced materials.

6 (3) For solar thermal electric systems the pro-  
7 gram should strengthen ongoing research, develop-  
8 ment, and demonstration combining high-efficiency  
9 and high-temperature receivers with advanced ther-  
10 mal storage and power cycles, with the goal of mak-  
11 ing solar-only power (including baseload solar power)  
12 widely competitive with fossil fuel power by 2015.

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

18 (5) For hydrogen-based energy systems, the  
19 program should support research, development, and  
20 demonstration on hydrogen-using and hydrogen-pro-  
21 ducing technologies. The program should also co-  
22 ordinate hydrogen-using technology development  
23 with proton exchange membrane fuel cell vehicle de-  
24 velopment activities under the enhanced energy effi-  
25 ciency program described in section 101.

1           (6) For hydropower, the program should pro-  
2           vide a new generation of turbine technologies that  
3           will increase generating capacity and will be less  
4           damaging to fish and aquatic ecosystems.

5           (7) For electric energy and storage, the pro-  
6           gram should develop high capacity superconducting  
7           transmission lines and generators, and develop dis-  
8           tributed generating systems to accommodate mul-  
9           tiple types of energy sources under a common inter-  
10          connect standard.

11          (b) AUTHORIZATION OF APPROPRIATIONS.—There  
12          are authorized to be appropriated to the Secretary of En-  
13          ergy for carrying out activities to achieve the goals de-  
14          scribed in subsection (a)—

15                 (1) \$420,000,000 for fiscal year 2002;

16                 (2) \$470,000,000 for fiscal year 2003;

17                 (3) \$525,000,000 for fiscal year 2004;

18                 (4) \$585,000,000 for fiscal year 2005; and

19                 (5) \$655,000,000 for fiscal year 2006.

20          **SEC. 103. BIOMASS ENERGY AND RELATED CHEMICAL RE-**  
21                                 **SEARCH, DEVELOPMENT, AND DEMONSTRA-**  
22                                 **TION.**

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

1 enhance biomass energy and related chemical research, de-  
2 velopment, and demonstration with the following goals:

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

5 (2) For biomass-based power systems, the pro-  
6 gram should enable commercialization, within five  
7 years after the date of the enactment of this Act, of  
8 integrated power-generating technologies that em-  
9 ploy gas turbines and fuel cells integrated with bio-  
10 mass gasifiers.

11 (3) For biofuels, the program should accelerate  
12 research, development, and demonstration on ad-  
13 vanced enzymatic hydrolysis technology for making  
14 ethanol from cellulosic feedstock, with the goal that  
15 between 2010 and 2015 ethanol produced from en-  
16 ergy crops would be fully competitive in terms of  
17 price with gasoline as a neat fuel, in either internal  
18 combustion engines or fuel cell vehicles.

19 (b) AUTHORIZATION OF APPROPRIATIONS.—There  
20 are authorized to be appropriated to the Secretary of En-  
21 ergy for carrying out research, development, and dem-  
22 onstration activities on biomass-related technologies, in-  
23 cluding transportation, power, and related chemical pro-  
24 duction technologies, under the Biomass Research and De-  
25 velopment Act of 2000—

- 1 (1) for biomass transportation—
- 2 (A) \$54,000,000 for fiscal year 2002;
- 3 (B) \$65,000,000 for fiscal year 2003;
- 4 (C) \$78,000,000 for fiscal year 2004;
- 5 (D) \$94,000,000 for fiscal year 2005; and
- 6 (E) \$113,000,000 for fiscal year 2006;
- 7 (2) for biomass power—
- 8 (A) \$48,000,000 for fiscal year 2002;
- 9 (B) \$58,000,000 for fiscal year 2003;
- 10 (C) \$70,000,000 for fiscal year 2004;
- 11 (D) \$84,000,000 for fiscal year 2005; and
- 12 (E) \$101,000,000 for fiscal year 2006; and
- 13 (3) for biomass energy-related industrial
- 14 applications—
- 15 (A) \$53,000,000 for fiscal year 2002;
- 16 (B) \$58,000,000 for fiscal year 2003;
- 17 (C) \$63,000,000 for fiscal year 2004;
- 18 (D) \$68,000,000 for fiscal year 2005; and
- 19 (E) \$73,000,000 for fiscal year 2006.

20 **SEC. 104. ASSESSMENT OF RENEWABLE ENERGY RE-**

21 **SOURCES.**

22 (a) IN GENERAL.—Not later than one year after the

23 date of the enactment of this Act, the Secretary of Energy

24 shall submit to the Congress an assessment of all renew-

1 able energy resources available for commercial applica-  
2 tions within the United States.

3 (b) RESOURCE ASSESSMENT.—Such assessment shall  
4 include a detailed inventory describing the available  
5 amount and characteristics of renewable energy sources,  
6 and an estimate of the research, development, demonstra-  
7 tion, and commercial applications efforts necessary to de-  
8 velop each resource. The assessment shall also include  
9 such other information as the Secretary of Energy believes  
10 would be useful in achieving wider commercial applications  
11 of emerging and state-of-the-art renewable energy genera-  
12 tion facilities or devices.

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

17 (d) AUTHORIZATION OF APPROPRIATIONS.—For the  
18 purposes of carrying out this section, there are authorized  
19 to be appropriated to the Secretary of Energy  
20 \$10,000,000 for fiscal year 2002, and such sums as may  
21 be necessary for the fiscal years 2003 through 2020.

1 **SEC. 105. ENHANCED AERONAUTICAL SYSTEM ENERGY EF-**  
2 **FICIENCY RESEARCH, DEVELOPMENT, AND**  
3 **DEMONSTRATION.**

4 (a) GOALS.—For aeronautical system energy effi-  
5 ciency, the National Aeronautics and Space Administra-  
6 tion shall seek to—

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

12 (2) develop air transportation management  
13 operational concepts and procedures that will enable  
14 a 25 percent increase in the energy efficiency of the  
15 overall air transport system on a per flight basis by  
16 2010 as compared to the efficiency as of the date of  
17 the enactment of this Act.

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

23 (1) \$50,000,000 for fiscal year 2002;

24 (2) \$55,000,000 for fiscal year 2003;

25 (3) \$60,000,000 for fiscal year 2004;

26 (4) \$65,000,000 for fiscal year 2005; and

1 (5) \$70,000,000 for fiscal year 2006.

2 **SEC. 106. PROGRESS REPORT.**

3 The Secretary of Energy shall transmit to the Com-  
4 mittee on Science of the House of Representatives and the  
5 Committee on Energy and Natural Resources of the Sen-  
6 ate an annual report assessing the progress made pursu-  
7 ant to this title in achieving the goal set forth in section  
8 3. The first such report shall be transmitted along with  
9 the first annual budget request from the President occur-  
10 ring at least 6 months after the date of the enactment  
11 of this Act.

12 **TITLE II—COMMERCIAL**  
13 **APPLICATIONS**

14 **SEC. 201. STUDY OF FINANCING FOR PROTOTYPE TECH-**  
15 **NOLOGIES.**

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

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

1 (c) CONTENT OF THE ASSESSMENT.—The assess-  
2 ment shall include a comprehensive examination of all  
3 available techniques to safeguard private investors against  
4 risks (including both market-based and government-im-  
5 posed risks) that are beyond the control of the investors.  
6 Such techniques may include Federal loan guarantees,  
7 Federal price guarantees, special tax considerations, and  
8 direct Federal investment.

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

13 **SEC. 202. REGULATORY REVIEWS FOR NEW TECHNOLOGIES**  
14 **AND PROCESSES.**

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

20 (1) existing regulations and policies that act as  
21 barriers to the development and commercialization of  
22 emerging renewable energy and energy efficiency  
23 technologies and processes (including fuel cells, com-  
24 bined heat and power, distributed generation, and  
25 small-scale renewable energy); and

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

3           (A) remove barriers to market entry for  
4       emerging renewable energy and energy effi-  
5       ciency technologies;

6           (B) increase energy efficiency; or

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

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

15       (c) CONTENTS OF THE REPORTS.—The reports re-  
16   quired under subsection (b) shall—

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

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

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

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

4 (B) encourage the adoption of energy effi-  
5 ciency and process improvements.

6 **SEC. 203. COMMERCIALIZATION ASSISTANCE.**

7 (a) **AUTHORITY.**—The Secretary of Energy shall pro-  
8 vide, through a competitive review process, assistance to  
9 private sector entities for the commercial application of  
10 renewable energy and energy efficiency technologies.

11 (b) **APPLICATIONS.**—The Secretary of Energy shall  
12 establish requirements for applications for assistance  
13 under this section. Such applications shall contain a com-  
14 mercial application plan, including a description of the fi-  
15 nancial, business, and technical support (including sup-  
16 port from universities and national laboratories) the appli-  
17 cant anticipates in its commercial application effort.

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

1 (d) AUTHORIZATION OF APPROPRIATIONS.—There  
2 are authorized to be appropriated to the Secretary of En-  
3 ergy for carrying out this section \$200,000,000 for each  
4 of the fiscal years 2002 through 2006, and such sums as  
5 may be necessary for each of the fiscal years 2007 through  
6 2020.

7 **SEC. 204. EDUCATION AND OUTREACH.**

8 (a) PROGRAM.—The Secretary of Energy shall estab-  
9 lish a program education and outreach, including innova-  
10 tive education and outreach techniques, on renewable en-  
11 ergy and energy efficiency technologies to manufacturers,  
12 consumers, engineers, architects, builders, energy service  
13 companies, universities, facility planners and managers,  
14 State and local governments, and other appropriate enti-  
15 ties.

16 (b) AUTHORIZATION OF APPROPRIATIONS.—There  
17 are authorized to be appropriated to the Secretary of En-  
18 ergy for carrying out this section \$100,000,000 for each  
19 of the fiscal years 2002 through 2006, and such sums as  
20 may be necessary for each of the fiscal years 2007 through  
21 2020.

○