

# Union Calendar No. 106

107<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

# 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.

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## 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 *italie*]

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

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## 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.

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 *“Comprehensive Energy Research and Technology Act of*  
 6 *2001”.*

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

*Sec. 1. Short title; table of contents.*  
*Sec. 2. Findings.*  
*Sec. 3. Purposes.*  
*Sec. 4. Goals.*  
*Sec. 5. Definitions.*  
*Sec. 6. Authorizations.*  
*Sec. 7. Balance of funding priorities.*

**TITLE I—ENERGY CONSERVATION AND ENERGY EFFICIENCY**

*Subtitle A—Alternative Fuel Vehicles*

*Sec. 101. Short title.*  
*Sec. 102. Definitions.*  
*Sec. 103. Pilot program.*  
*Sec. 104. Reports to Congress.*  
*Sec. 105. Authorization of appropriations.*

*Subtitle B—Distributed Power Hybrid Energy Systems*

*Sec. 121. Findings.*  
*Sec. 122. Definitions.*  
*Sec. 123. Strategy.*  
*Sec. 124. High power density industry program.*  
*Sec. 125. Micro-cogeneration energy technology.*  
*Sec. 126. Program plan.*  
*Sec. 127. Report.*  
*Sec. 128. Voluntary consensus standards.*

*Subtitle C—Secondary Electric Vehicle Battery Use*

*Sec. 131. Definitions.*

- Sec. 132. Establishment of secondary electric vehicle battery use program.*  
*Sec. 133. Authorization of appropriations.*

*Subtitle D—Green School Buses*

- Sec. 141. Short title.*  
*Sec. 142. Establishment of pilot program.*  
*Sec. 143. Fuel cell bus development and demonstration program.*  
*Sec. 144. Authorization of appropriations.*

*Subtitle E—Next Generation Lighting Initiative*

- Sec. 151. Short title.*  
*Sec. 152. Definition.*  
*Sec. 153. Next Generation Lighting Initiative.*  
*Sec. 154. Study.*  
*Sec. 155. Grant program.*

*Subtitle F—Department of Energy Authorization of Appropriations*

- Sec. 161. Authorization of appropriations.*

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

- Sec. 171. Short title.*  
*Sec. 172. Authorization of appropriations.*  
*Sec. 173. Limits on use of funds.*  
*Sec. 174. Cost sharing.*  
*Sec. 175. Limitation on demonstration and commercial applications of energy  
 technology.*  
*Sec. 176. Reprogramming.*  
*Sec. 177. Budget request format.*  
*Sec. 178. Other provisions.*

*Subtitle H—National Building Performance Initiative*

- Sec. 181. National Building Performance Initiative.*

*TITLE II—RENEWABLE ENERGY*

*Subtitle A—Hydrogen*

- Sec. 201. Short title.*  
*Sec. 202. Purposes.*  
*Sec. 203. Definitions.*  
*Sec. 204. Reports to Congress.*  
*Sec. 205. Hydrogen research and development.*  
*Sec. 206. Demonstrations.*  
*Sec. 207. Technology transfer.*  
*Sec. 208. Coordination and consultation.*  
*Sec. 209. Advisory Committee.*  
*Sec. 210. Authorization of appropriations.*  
*Sec. 211. Repeal.*

*Subtitle B—Bioenergy*

- Sec. 221. Short title.*  
*Sec. 222. Findings.*

- Sec. 223. Definitions.*  
*Sec. 224. Authorization.*  
*Sec. 225. Authorization of appropriations.*

*Subtitle C—Transmission Infrastructure Systems*

- Sec. 241. Transmission infrastructure systems research, development, demonstration, and commercial application.*  
*Sec. 242. Program plan.*  
*Sec. 243. Report.*

*Subtitle D—Department of Energy Authorization of Appropriations*

- Sec. 261. Authorization of appropriations.*

**TITLE III—NUCLEAR ENERGY**

*Subtitle A—University Nuclear Science and Engineering*

- Sec. 301. Short title.*  
*Sec. 302. Findings.*  
*Sec. 303. Department of Energy program.*  
*Sec. 304. Authorization of appropriations.*

*Subtitle B—Advanced Fuel Recycling Technology Research and Development Program*

- Sec. 321. Program.*

*Subtitle C—Department of Energy Authorization of Appropriations*

- Sec. 341. Nuclear Energy Research Initiative.*  
*Sec. 342. Nuclear Energy Plant Optimization program.*  
*Sec. 343. Nuclear energy technologies.*  
*Sec. 344. Authorization of appropriations.*

**TITLE IV—FOSSIL ENERGY**

*Subtitle A—Clean Coal*

- Sec. 401. Short title.*  
*Sec. 402. Findings.*  
*Sec. 403. Definition.*  
*Sec. 404. Clean Coal Power Initiative.*  
*Sec. 405. Authorization of appropriations.*  
*Sec. 406. Project criteria.*  
*Sec. 407. Clean coal centers of excellence.*

*Subtitle B—Oil and Gas*

- Sec. 421. Petroleum-oil technology.*  
*Sec. 422. Gas.*

*Subtitle C—Ultra-Deepwater and Unconventional Drilling*

- Sec. 441. Short title.*  
*Sec. 442. Definitions.*  
*Sec. 443. Ultra-deepwater program.*  
*Sec. 444. National Energy Technology Laboratory.*

- Sec. 445. Advisory Committee.*  
*Sec. 446. Research Organization.*  
*Sec. 447. Grants.*  
*Sec. 448. Plan and funding.*  
*Sec. 449. Audit.*  
*Sec. 450. Fund.*  
*Sec. 451. Sunset.*

*Subtitle D—Fuel Cells*

- Sec. 461. Fuel cells.*

*Subtitle E—Department of Energy Authorization of Appropriations*

- Sec. 481. Authorization of appropriations.*

**TITLE V—SCIENCE**

*Subtitle A—Fusion Energy Sciences*

- Sec. 501. Short title.*  
*Sec. 502. Findings.*  
*Sec. 503. Plan for fusion experiment.*  
*Sec. 504. Plan for fusion energy sciences program.*  
*Sec. 505. Authorization of appropriations.*

*Subtitle B—Spallation Neutron Source*

- Sec. 521. Definition.*  
*Sec. 522. Authorization of appropriations.*  
*Sec. 523. Report.*  
*Sec. 524. Limitations.*

*Subtitle C—Facilities, Infrastructure, and User Facilities*

- Sec. 541. Definition.*  
*Sec. 542. Facility and infrastructure support for nonmilitary energy laboratories.*  
*Sec. 543. User facilities.*

*Subtitle D—Advisory Panel on Office of Science*

- Sec. 561. Establishment.*  
*Sec. 562. Report.*

*Subtitle E—Department of Energy Authorization of Appropriations*

- Sec. 581. Authorization of appropriations.*

**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.*  
*Sec. 602. Limits on use of funds.*  
*Sec. 603. Cost sharing.*  
*Sec. 604. Limitation on demonstration and commercial application of energy technology.*  
*Sec. 605. Reprogramming.*

*Subtitle B—Other Miscellaneous Provisions*

*Sec. 611. Notice of reorganization.*

*Sec. 612. Limits on general plant projects.*

*Sec. 613. Limits on construction projects.*

*Sec. 614. Authority for conceptual and construction design.*

*Sec. 615. National Energy Policy Development Group mandated reports.*

*Sec. 616. Periodic reviews and assessments.*

1 **SEC. 2. FINDINGS.**

2 *The Congress finds that—*

3 *(1) the Nation’s prosperity and way of life are*  
4 *sustained by energy use;*

5 *(2) the growing imbalance between domestic en-*  
6 *ergy production and consumption means that the Na-*  
7 *tion is becoming increasingly reliant on imported en-*  
8 *ergy, which has the potential to undermine the Na-*  
9 *tion’s economy, standard of living, and national secu-*  
10 *rity;*

11 *(3) energy conservation and energy efficiency*  
12 *help maximize the use of available energy resources,*  
13 *reduce energy shortages, lower the Nation’s reliance*  
14 *on energy imports, mitigate the impacts of high en-*  
15 *ergy prices, and help protect the environment and*  
16 *public health;*

17 *(4) development of a balanced portfolio of domes-*  
18 *tic energy supplies will ensure that future generations*  
19 *of Americans will have access to the energy they need;*

20 *(5) energy efficiency technologies, renewable and*  
21 *alternative energy technologies, and advanced energy*  
22 *systems technologies will help diversify the Nation’s*

1 *energy portfolio with few adverse environmental im-*  
2 *pacts and are vital to delivering clean energy to fuel*  
3 *the Nation's economic growth;*

4 *(6) development of reliable, affordable, and envi-*  
5 *ronmentally sound energy efficiency technologies, re-*  
6 *newable and alternative energy technologies, and ad-*  
7 *vanced energy systems technologies will require main-*  
8 *tenance of a vibrant fundamental scientific knowledge*  
9 *base and continued scientific and technological inno-*  
10 *vations that can be accelerated by Federal funding,*  
11 *whereas commercial deployment of such systems and*  
12 *technologies are the responsibility of the private sec-*  
13 *tor;*

14 *(7) Federal funding should focus on those pro-*  
15 *grams, projects, and activities that are long-term,*  
16 *high-risk, noncommercial, and well-managed, and*  
17 *that provide the potential for scientific and techno-*  
18 *logical advances; and*

19 *(8) public-private partnerships should be encour-*  
20 *aged to leverage scarce taxpayer dollars.*

21 **SEC. 3. PURPOSES.**

22 *The purposes of this Act are to—*

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

1           (2) *meet future needs for energy services at the*  
2 *lowest total cost to the Nation, including environ-*  
3 *mental costs, giving balanced and comprehensive con-*  
4 *sideration to technologies that improve the efficiency*  
5 *of energy end uses and that enhance energy supply;*

6           (3) *reduce the air, water, and other environ-*  
7 *mental impacts (including emissions of greenhouse*  
8 *gases) of energy production, distribution, transpor-*  
9 *tation, and use through the development of environ-*  
10 *mentally sustainable energy systems;*

11          (4) *consider the comparative environmental im-*  
12 *pacts of the energy saved or produced by specific pro-*  
13 *grams, projects, or activities;*

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

18          (6) *foster international cooperation by devel-*  
19 *oping international markets for domestically pro-*  
20 *duced sustainable energy technologies, and by trans-*  
21 *ferring environmentally sound, advanced energy sys-*  
22 *tems and technologies to developing countries to pro-*  
23 *mote sustainable development;*

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



1       *and modeled as public-private partnerships, as ap-*  
2       *propriate; and*

3               (8) *enhance the contribution of a given program,*  
4       *project, or activity to fundamental scientific knowl-*  
5       *edge.*

6       **SEC. 4. GOALS.**

7               (a) *IN GENERAL.*—*Subject to subsection (b), in order*  
8       *to achieve the purposes of this Act under section 3, the Sec-*  
9       *retary should conduct a balanced energy research, develop-*  
10       *ment, demonstration, and commercial application portfolio*  
11       *of programs guided by the following goals to meet the pur-*  
12       *poses of this Act under section 3.*

13               (1) *ENERGY CONSERVATION AND ENERGY EFFI-*  
14       *CIENCY.*—

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

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

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

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

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

7                   (B) *For the Industry Sector, the program*  
8                   *should, in cooperation with the affected indus-*  
9                   *tries, improve the energy intensity of the major*  
10                  *energy-consuming industries by at least 25 per-*  
11                  *cent by 2010, compared to the energy intensity*  
12                  *as of the date of the enactment of this Act.*

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

16                  (i) *develop a microturbine (40 to 300*  
17                  *kilowatt) that is more than 40 percent more*  
18                  *efficient by 2006, and more than 50 percent*  
19                  *more efficient by 2010, compared to the effi-*  
20                  *ciency as of the date of the enactment of this*  
21                  *Act; and*

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

1                   2007, compared to such emissions as of the  
2                   date of the enactment of this Act.

3                   (D) For the Transportation Sector, the pro-  
4                   gram should, in cooperation with affected  
5                   industries—

6                   (i) develop a production prototype pas-  
7                   senger automobile that has fuel economy  
8                   equivalent to 80 miles per gallon of gasoline  
9                   by 2004;

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

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

17                               (II) 13 miles per gallon of gaso-  
18                               line by 2010;

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

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

1 (I) in classes 1 and 2 by 300 per-  
2 cent; and

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

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

7 (2) *RENEWABLE ENERGY.*—

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

12 (B) For bioenergy:

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

17 (ii) For biopower systems, the program  
18 should reduce the cost of such systems to en-  
19 able commercialization of integrated power-  
20 generating technologies that employ gas tur-  
21 bines and fuel cells integrated with bio-  
22 energy gasifiers within five years after the  
23 date of the enactment of this Act.

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

1                    *onstration on advanced enzymatic hydrol-*  
2                    *ysis technology for making ethanol from cel-*  
3                    *lulosic feedstock, with the goal that between*  
4                    *2010 and 2015 ethanol produced from en-*  
5                    *ergy crops would be fully competitive in*  
6                    *terms of price with gasoline as a neat fuel,*  
7                    *in either internal combustion engines or*  
8                    *fuel cell vehicles.*

9                    *(C) For Geothermal Technology Develop-*  
10                  *ment, the program should focus on advanced con-*  
11                  *cepts for the long term. The first priority should*  
12                  *be high-grade enhanced geothermal systems; the*  
13                  *second priority should be lower grade, hot dry*  
14                  *rock, and geopressured systems; and the third*  
15                  *priority should be support of field demonstra-*  
16                  *tions of enhanced geothermal systems technology,*  
17                  *including sites in lower grade areas to dem-*  
18                  *onstrate the benefits of reservoir concepts to dif-*  
19                  *ferent conditions.*

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

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

1           *velopment, and demonstration combining high-*  
2           *efficiency and high-temperature receivers with*  
3           *advanced thermal storage and power cycles, with*  
4           *the goal of making solar-only power (including*  
5           *baseload solar power) widely competitive with*  
6           *fossil fuel power by 2015. The program should*  
7           *limit or halt its research and development on*  
8           *power-tower and power-trough technologies be-*  
9           *cause further refinements to these concepts will*  
10          *not further their deployment, and should assess*  
11          *the market prospects for solar dish/engine tech-*  
12          *nologies to determine whether continued research*  
13          *and development is warranted.*

14                 *(F) For Photovoltaic Energy Systems, the*  
15                 *program should pursue research, development,*  
16                 *and demonstration that will, by 2005, increase*  
17                 *the efficiency of thin film modules from the cur-*  
18                 *rent 7 percent to 11 percent in multi-million*  
19                 *watt production; reduce the direct manufac-*  
20                 *turing cost of photovoltaic modules by 30 percent*  
21                 *from the current \$2.50 per watt to \$1.75 per*  
22                 *watt by 2005; and establish greater than a 20-*  
23                 *year lifetime of photovoltaic systems by improv-*  
24                 *ing the reliability and lifetime of balance-of-sys-*  
25                 *tem components and reducing recurring cost by*

1           40 percent. The program's top priority should be  
2           the development of sound manufacturing tech-  
3           nologies for thin-film modules, and the program  
4           should make a concerted effort to integrate fun-  
5           damental research and basic engineering re-  
6           search.

7           (G) For Solar Building Technology Re-  
8           search, the program should complete research  
9           and development on new polymers and manufac-  
10          turing processes to reduce the cost of solar water  
11          heating by 50 percent by 2004, compared to the  
12          cost as of the date of enactment of this Act.

13          (H) For Wind Energy Systems, the pro-  
14          gram should reduce the cost of wind energy to  
15          three cents per kilowatt-hour at Class 6 (15  
16          miles-per-hour annual average) wind sites by  
17          2004, and 4 cents per kilowatt-hour in Class 4  
18          (13 miles-per-hour annual average) wind sites by  
19          2015, and further if required so that wind power  
20          can be widely competitive with fossil-fuel-based  
21          electricity in a restructured electric industry.  
22          Program research on advanced wind turbine  
23          technology should focus on turbulent flow studies,  
24          durable materials to extend turbine life, blade ef-

1       *efficiency, and higher efficiency operation in low*  
2       *quality wind regimes.*

3               *(I) For Electric Energy Systems and Stor-*  
4       *age, including High Temperature Super-*  
5       *conducting Research and Development, Energy*  
6       *Storage Systems, and Transmission Reliability,*  
7       *the program should develop high capacity super-*  
8       *conducting transmission lines and generators,*  
9       *highly reliable energy storage systems, and dis-*  
10       *tributed generating systems to accommodate*  
11       *multiple types of energy sources under common*  
12       *interconnect standards.*

13               *(J) For the International Renewable En-*  
14       *ergy and Renewable Energy Production Incen-*  
15       *tive programs, and Renewable Program Support,*  
16       *the program should encourage the commercial*  
17       *application of renewable energy technologies by*  
18       *developed and developing countries, State and*  
19       *local governmental entities and nonprofit electric*  
20       *cooperatives, and by the competitive domestic*  
21       *market.*

22       (3) *NUCLEAR ENERGY.*—

23               *(A) For university nuclear science and en-*  
24       *gineering, the program should carry out the pro-*  
25       *visions of subtitle A of title III of this Act.*



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

5           (C) *For the Nuclear Energy Research Ini-*  
6 *tiative, the program should accomplish the objec-*  
7 *tives of section 341(b) of this Act.*

8           (D) *For the Nuclear Energy Plant Optimi-*  
9 *zation Program, the program should accomplish*  
10 *the objectives of section 342(b) of this Act.*

11           (E) *For Nuclear Energy Technologies, the*  
12 *program should carry out the provisions of sec-*  
13 *tion 343 of this Act.*

14           (F) *For Advanced Radioisotope Power Sys-*  
15 *tems, the program should ensure that the United*  
16 *States has adequate capability to power future*  
17 *satellite and space missions.*

18           (4) *FOSSIL ENERGY.—*

19           (A) *For core fossil energy research and de-*  
20 *velopment, the program should achieve the goals*  
21 *outlined by the Department's Vision 21 Pro-*  
22 *gram. This research should address fuel-flexible*  
23 *gasification and turbines, fuel cells, advanced-*  
24 *combustion systems, advanced fuels and chemi-*  
25 *cals, advanced modeling and systems analysis,*

1 *materials and heat exchangers, environmental*  
2 *control technologies, gas-stream purification, gas-*  
3 *separation technology, and sequestration research*  
4 *and development focused on cost-effective novel*  
5 *concepts for capturing, reusing or storing, or*  
6 *otherwise mitigating carbon and other green-*  
7 *house gas emissions.*

8 *(B) For offshore oil and natural gas re-*  
9 *sources, the program should investigate and de-*  
10 *velop technologies to—*

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

15 *(ii) develop natural gas and oil re-*  
16 *serves in the ultra-deepwater of the Central*  
17 *and Western Gulf of Mexico. Research and*  
18 *development on ultra-deepwater resource re-*  
19 *covery shall focus on improving the safety*  
20 *and efficiency of such recovery and of sub-*  
21 *sea production technology used for such re-*  
22 *covery, while lowering costs.*

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

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

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

7                     (A) *develop and maintain a robust portfolio*  
8                     *of fundamental scientific and energy research,*  
9                     *including High Energy and Nuclear Physics, Bi-*  
10                    *ological and Environmental Research, Basic En-*  
11                    *ergy Sciences (including Materials Sciences,*  
12                    *Chemical Sciences, Engineering and Geosciences,*  
13                    *and Energy Biosciences), Advanced Scientific*  
14                    *Computing, Energy Research and Analysis,*  
15                    *Multiprogram Energy Laboratories-Facilities*  
16                    *Support, Fusion Energy Sciences, and Facilities*  
17                    *and Infrastructure;*

18                    (B) *maintain, upgrade, and expand, as ap-*  
19                    *propriate, and in accordance with the provisions*  
20                    *of this Act, the scientific user facilities main-*  
21                    *tained by the Office of Science, and ensure that*  
22                    *they are an integral part of the Department’s*  
23                    *mission for exploring the frontiers of funda-*  
24                    *mental energy sciences; and*

1           (C) ensure that its fundamental energy  
2           sciences programs, where appropriate, help in-  
3           form the applied research and development pro-  
4           grams of the Department.

5           (b) *REVIEW AND ASSESSMENT.*—The Secretary shall  
6           perform an assessment that establishes measurable cost and  
7           performance-based goals, or that modifies the goals under  
8           subsection (a), as appropriate, for 2005, 2010, 2015, and  
9           2020 for each of the programs authorized by this Act that  
10          would enable each such program to meet the purposes of  
11          this Act under section 3. Such assessment shall be based  
12          on the latest scientific and technical knowledge, and shall  
13          also take into consideration, as appropriate, the compara-  
14          tive environmental impacts (including emissions of green-  
15          house gases) of the energy saved or produced by specific pro-  
16          grams.

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

23          (d) *SCHEDULE.*—The Secretary shall—

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

1       *goals for the programs authorized by this Act for pub-*  
2       *lic comment—*

3               *(A) in the case of a program established be-*  
4       *fore the date of the enactment of this Act, not*  
5       *later than 120 days after the date of the enact-*  
6       *ment of this Act; and*

7               *(B) in the case of a program not established*  
8       *before the date of the enactment of this Act, not*  
9       *later than 120 days after the date of establish-*  
10       *ment of the program;*

11              *(2) not later than 60 days after the date of pub-*  
12       *lication under paragraph (1), after taking into con-*  
13       *sideration any public comments received, transmit to*  
14       *the Congress and publish in the Federal Register the*  
15       *final measurable cost and performance-based goals;*  
16       *and*

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

19       **SEC. 5. DEFINITIONS.**

20       *For purposes of this Act, except as otherwise*  
21       *provided—*

22              *(1) the term “Administrator” means the Admin-*  
23       *istrator of the Environmental Protection Agency;*

24              *(2) the term “appropriate congressional commit-*  
25       *tees” means—*

1           (A) the Committee on Science and the Com-  
2           mittee on Appropriations of the House of Rep-  
3           resentatives; and

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

7           (3) the term “Department” means the Depart-  
8           ment of Energy; and

9           (4) the term “Secretary” means the Secretary of  
10          Energy.

11 **SEC. 6. AUTHORIZATIONS.**

12          Authorizations of appropriations under this Act are  
13 for environmental research and development, scientific and  
14 energy research, development, and demonstration, and com-  
15 mercial application of energy technology programs,  
16 projects, and activities.

17 **SEC. 7. BALANCE OF FUNDING PRIORITIES.**

18          (a) *SENSE OF CONGRESS.*—It is the sense of the Con-  
19 gress that the funding of the various programs authorized  
20 by titles I through IV of this Act should remain in the same  
21 proportion to each other as provided in this Act, regardless  
22 of the total amount of funding made available for those pro-  
23 grams.

24          (b) *REPORT TO CONGRESS.*—If for fiscal year 2002,  
25 2003, or 2004 the amounts appropriated in general appro-

1 *priations Acts for the programs authorized in titles I*  
2 *through IV of this Act are not in the same proportion to*  
3 *one another as are the authorizations for such programs in*  
4 *this Act, the Secretary and the Administrator shall, within*  
5 *60 days after the date of the enactment of the last general*  
6 *appropriations Act appropriating amounts for such pro-*  
7 *grams, transmit to the appropriate congressional commit-*  
8 *tees a report describing the programs, projects, and activi-*  
9 *ties that would have been funded if the proportions provided*  
10 *for in this Act had been maintained in the appropriations.*  
11 *The amount appropriated for the program receiving the*  
12 *highest percentage of its authorized funding for a fiscal year*  
13 *shall be used as the baseline for calculating the proportional*  
14 *deficiencies of appropriations for other programs in that*  
15 *fiscal year.*

16 **TITLE I—ENERGY CONSERVA-**  
17 **TION AND ENERGY EFFI-**  
18 **CIENCY**

19 **Subtitle A—Alternative Fuel**  
20 **Vehicles**

21 **SEC. 101. SHORT TITLE.**

22 *This subtitle may be cited as the “Alternative Fuel Ve-*  
23 *hicle Acceleration Act of 2001”.*

1 **SEC. 102. DEFINITIONS.**

2 *For the purposes of this subtitle, the following defini-*  
3 *tions apply:*

4 (1) *ALTERNATIVE FUEL VEHICLE.—*

5 (A) *IN GENERAL.—Except as provided in*  
6 *subparagraph (B), the term “alternative fuel ve-*  
7 *hicle” means a motor vehicle that is powered—*

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

10 (ii) *by liquefied natural gas;*

11 (iii) *by compressed natural gas;*

12 (iv) *by liquefied petroleum gas;*

13 (v) *by hydrogen;*

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

16 (vii) *by propane.*

17 (B) *EXCLUSIONS.—The term “alternative*  
18 *fuel vehicle” does not include—*

19 (i) *any vehicle designed to operate sole-*  
20 *ly on gasoline or diesel derived from fossil*  
21 *fuels, regardless of whether it can also be*  
22 *operated on an alternative fuel; or*

23 (ii) *any vehicle that the Secretary de-*  
24 *termines, by rule, does not yield substantial*  
25 *environmental benefits over a vehicle oper-*



1                    *ating solely on gasoline or diesel derived*  
2                    *from fossil fuels.*

3                    (2) *PILOT PROGRAM.—The term “pilot program”*  
4                    *means the competitive grant program established*  
5                    *under section 103.*

6                    (3) *ULTRA-LOW SULFUR DIESEL VEHICLE.—The*  
7                    *term “ultra-low sulfur diesel vehicle” means a vehicle*  
8                    *powered by a heavy-duty diesel engine that—*

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

12                    (B) *emits not more than the lesser of—*

13                    (i) *for vehicles manufactured in—*

14                    (I) *model years 2001 through*  
15                    *2003, 3.0 grams per brake horsepower-*  
16                    *hour of nonmethane hydrocarbons and*  
17                    *oxides of nitrogen and .01 grams per*  
18                    *brake horsepower-hour of particulate*  
19                    *matter; and*

20                    (II) *model years 2004 through*  
21                    *2006, 2.5 grams per brake horsepower-*  
22                    *hour of nonmethane hydrocarbons and*  
23                    *oxides of nitrogen and .01 grams per*  
24                    *brake horsepower-hour of particulate*  
25                    *matter; or*

1                   (ii) the emissions of nonmethane hy-  
2                   drocarbons, oxides of nitrogen, and particu-  
3                   late matter of the best performing tech-  
4                   nology of ultra-low sulfur diesel vehicles of  
5                   the same type that are commercially avail-  
6                   able.

7 **SEC. 103. PILOT PROGRAM.**

8           (a) *ESTABLISHMENT.*—The Secretary shall establish a  
9           competitive grant pilot program to provide not more than  
10          15 grants to State governments, local governments, or met-  
11          ropolitan transportation authorities to carry out a project  
12          or projects for the purposes described in subsection (b).

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

15                  (1) *The acquisition of alternative fuel vehicles,*  
16                  *including—*

17                          (A) *passenger vehicles;*

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

20                          (C) *delivery vehicles for goods or services;*

21                          (D) *ground support vehicles at public air-*  
22                          *ports, including vehicles to carry baggage or*  
23                          *push airplanes away from terminal gates; and*

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

1            *sonnel or other State or local government or met-*  
2            *ropolitan transportation authority employees.*

3            *(2) The acquisition of ultra-low sulfur diesel ve-*  
4            *hicles.*

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

8            *(4) Operation and maintenance of vehicles, in-*  
9            *frastructure, and equipment acquired as part of a*  
10           *project funded by the grant.*

11           *(c) APPLICATIONS.—*

12           *(1) REQUIREMENTS.—The Secretary shall issue*  
13           *requirements for applying for grants under the pilot*  
14           *program. At a minimum, the Secretary shall require*  
15           *that applications be submitted by the head of a State*  
16           *or local government or a metropolitan transportation*  
17           *authority, or any combination thereof, and shall*  
18           *include—*

19           *(A) at least one project to enable passengers*  
20           *or goods to be transferred directly from one alter-*  
21           *native fuel vehicle or ultra-low sulfur diesel vehi-*  
22           *cle to another in a linked transportation system;*

23           *(B) a description of the projects proposed in*  
24           *the application, including how they meet the re-*  
25           *quirements of this subtitle;*

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

3           (D) an estimate of the air pollution emis-  
4 sions reduced and fossil fuel displaced as a result  
5 of the projects proposed in the application, and  
6 a plan to collect and disseminate environmental  
7 data, related to the projects to be funded under  
8 the grant, over the life of the projects;

9           (E) a description of how the projects pro-  
10 posed in the application will be sustainable  
11 without Federal assistance after the completion  
12 of the term of the grant;

13           (F) a complete description of the costs of  
14 each project proposed in the application, includ-  
15 ing acquisition, construction, operation, and  
16 maintenance costs over the expected life of the  
17 project;

18           (G) a description of which costs of the  
19 projects proposed in the application will be sup-  
20 ported by Federal assistance under this subtitle;  
21 and

22           (H) documentation to the satisfaction of the  
23 Secretary that diesel fuel containing sulfur at  
24 not more than 15 parts per million is available  
25 for carrying out the projects, and a commitment

1           *by the applicant to use such fuel in carrying out*  
2           *the projects.*

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

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

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

12           (2) *demonstrate the greatest commitment on the*  
13           *part of the applicant to ensure funding for the pro-*  
14           *posed projects and the greatest likelihood that each*  
15           *project proposed in the application will be main-*  
16           *tained or expanded after Federal assistance under*  
17           *this subtitle is completed; and*

18           (3) *exceed the minimum requirements of sub-*  
19           *section (c)(1)(A).*

20           (e) *PILOT PROJECT REQUIREMENTS.*—

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

24           (2) *COST SHARING.*—*The Secretary shall not*  
25           *provide more than 50 percent of the cost, incurred*

1        *during the period of the grant, of any project under*  
2        *the pilot program.*

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

6            (4) *DEPLOYMENT AND DISTRIBUTION.—The Sec-*  
7        *retary shall seek to the maximum extent practicable*  
8        *to achieve nationwide deployment of alternative fuel*  
9        *vehicles through the pilot program, and shall ensure*  
10       *a broad geographic distribution of project sites.*

11           (5) *TRANSFER OF INFORMATION AND KNOWL-*  
12        *EDGE.—The Secretary shall establish mechanisms to*  
13        *ensure that the information and knowledge gained by*  
14        *participants in the pilot program are transferred*  
15        *among the pilot program participants and to other*  
16        *interested parties, including other applicants that*  
17        *submitted applications.*

18           (f) *SCHEDULE.—*

19            (1) *PUBLICATION.—Not later than 3 months*  
20        *after the date of enactment of this Act, the Secretary*  
21        *shall publish in the Federal Register, Commerce Busi-*  
22        *ness Daily, and elsewhere as appropriate, a request*  
23        *for applications to undertake projects under the pilot*  
24        *program. Applications shall be due within 6 months*  
25        *of the publication of the notice.*

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

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

10 **SEC. 104. REPORTS TO CONGRESS.**

11           (a) *INITIAL REPORT.*—Not later than 2 months after  
12           the date grants are awarded under this subtitle, the Sec-  
13           retary shall transmit to the appropriate congressional com-  
14           mittees a report containing—

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

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

19                   (3) a description of the mechanisms used by the  
20                   Secretary to ensure that the information and knowl-  
21                   edge gained by participants in the pilot program are  
22                   transferred among the pilot program participants  
23                   and to other interested parties, including other appli-  
24                   cants that submitted applications.

1       (b) *EVALUATION.*—Not later than 3 years after the  
2 date of enactment of this Act, and annually thereafter until  
3 the pilot program ends, the Secretary shall transmit to the  
4 appropriate congressional committees a report containing  
5 an evaluation of the effectiveness of the pilot program, in-  
6 cluding an assessment of the benefits to the environment de-  
7 rived from the projects included in the pilot program as  
8 well as an estimate of the potential benefits to the environ-  
9 ment to be derived from widespread application of alter-  
10 native fuel vehicles and ultra-low sulfur diesel vehicles.

11 **SEC. 105. AUTHORIZATION OF APPROPRIATIONS.**

12       There are authorized to be appropriated to the Sec-  
13 retary \$200,000,000 to carry out this subtitle, to remain  
14 available until expended.

15       **Subtitle B—Distributed Power**  
16               **Hybrid Energy Systems**

17 **SEC. 121. FINDINGS.**

18       The Congress makes the following findings:

19               (1) Our ability to take advantage of our renew-  
20 able, indigenous resources in a cost-effective manner  
21 can be greatly advanced through systems that com-  
22 pensate for the intermittent nature of these resources  
23 through distributed power hybrid systems.

24               (2) Distributed power hybrid systems can—



1           (A) shelter consumers from temporary en-  
2           ergy price volatility created by supply and de-  
3           mand mismatches;

4           (B) increase the reliability of energy sup-  
5           ply; and

6           (C) address significant local differences in  
7           power and economic development needs and re-  
8           source availability that exist throughout the  
9           United States.

10          (3) Realizing these benefits will require a con-  
11          certed and integrated effort to remove market barriers  
12          to adopting distributed power hybrid systems by—

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

16               (B) providing the policy framework that re-  
17               duces such barriers.

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

1 **SEC. 122. DEFINITIONS.**

2 *For purposes of this subtitle—*

3 (1) *the term “distributed power hybrid system”*  
4 *means a system using 2 or more distributed power*  
5 *sources, operated together with associated supporting*  
6 *equipment, including storage equipment, and software*  
7 *necessary to provide electric power onsite and to an*  
8 *electric distribution system; and*

9 (2) *the term “distributed power source” means*  
10 *an independent electric energy source of usually 10*  
11 *megawatts or less located close to a residential, com-*  
12 *mercial, or industrial load center, including—*

13 (A) *reciprocating engines;*

14 (B) *turbines;*

15 (C) *microturbines;*

16 (D) *fuel cells;*

17 (E) *solar electric systems;*

18 (F) *wind energy systems;*

19 (G) *biopower systems;*

20 (H) *geothermal power systems; or*

21 (I) *combined heat and power systems.*

22 **SEC. 123. STRATEGY.**

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

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

4           (2) *technology gaps and barriers (including bar-*  
5           *riers to efficient connection with the power grid) that*  
6           *hamper the use of distributed power hybrid systems.*

7           (b) *ELEMENTS.—The strategy shall provide for devel-*  
8           *opment of—*

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

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

16           (3) *design tools to characterize the benefits of dis-*  
17           *tributed power hybrid systems for consumers, to re-*  
18           *duce testing needs, to speed commercialization, and to*  
19           *generate data characterizing grid operations, includ-*  
20           *ing interconnection requirements;*

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

23           (5) *a comprehensive research, development, dem-*  
24           *onstration, and commercial application program to*  
25           *ensure the reliability, efficiency, and environmental*

1        *integrity of distributed energy resources, focused on*  
2        *filling gaps in distributed power hybrid systems tech-*  
3        *nologies identified under subsection (a)(2), which may*  
4        *include—*

5                *(A) integration of a wide variety of ad-*  
6                *vanced technologies into distributed power hy-*  
7                *brid systems;*

8                *(B) energy storage devices;*

9                *(C) environmental control technologies;*

10               *(D) interconnection standards, protocols,*  
11               *and equipment; and*

12               *(E) ancillary equipment for dispatch and*  
13               *control.*

14        *(c) IMPLEMENTATION AND INTEGRATION.—The Sec-*  
15        *retary shall implement the strategy transmitted under sub-*  
16        *section (a) and the research program under subsection*  
17        *(b)(5). Activities pursuant to the strategy shall be inte-*  
18        *grated with other activities of the Department’s Office of*  
19        *Power Technologies.*

20        **SEC. 124. HIGH POWER DENSITY INDUSTRY PROGRAM.**

21               *(a) IN GENERAL.—The Secretary shall develop and*  
22        *implement a comprehensive research, development, dem-*  
23        *onstration, and commercial application program to im-*  
24        *prove energy efficiency, reliability, and environmental re-*  
25        *sponsibility in high power density industries, such as data*

1 *centers, server farms, telecommunications facilities, and*  
2 *heavy industry.*

3 (b) *AREAS.—In carrying out this section, the Sec-*  
4 *retary shall consider technologies that provide—*

5 (1) *significant improvement in efficiency of high*  
6 *power density facilities, and in data and tele-*  
7 *communications centers, using advanced thermal con-*  
8 *trol technologies;*

9 (2) *significant improvements in air-conditioning*  
10 *efficiency in facilities such as data centers and tele-*  
11 *communications facilities;*

12 (3) *significant advances in peak load reduction;*  
13 *and*

14 (4) *advanced real time metering and load man-*  
15 *agement and control devices.*

16 (c) *IMPLEMENTATION AND INTEGRATION.—Activities*  
17 *pursuant to this program shall be integrated with other ac-*  
18 *tivities of the Department’s Office of Power Technologies.*

19 **SEC. 125. MICRO-COGENERATION ENERGY TECHNOLOGY.**

20 *The Secretary shall make competitive, merit-based*  
21 *grants to consortia of private sector entities for the develop-*  
22 *ment of micro-cogeneration energy technology. The con-*  
23 *sortia shall explore the creation of small-scale combined*  
24 *heat and power through the use of residential heating appli-*  
25 *ances. There are authorized to be appropriated to the Sec-*

1 *retary \$20,000,000 to carry out this section, to remain*  
2 *available until expended.*

3 **SEC. 126. PROGRAM PLAN.**

4 *Within 4 months after the date of enactment of this*  
5 *Act, the Secretary, in consultation with other appropriate*  
6 *Federal agencies, shall prepare and transmit to the Con-*  
7 *gress a 5-year program plan to guide activities under this*  
8 *subtitle. In preparing the program plan, the Secretary shall*  
9 *consult with appropriate representatives of the distributed*  
10 *energy resources, power transmission, and high power den-*  
11 *sity industries to prioritize appropriate program areas. The*  
12 *Secretary shall also seek the advice of utilities, energy serv-*  
13 *ices providers, manufacturers, institutions of higher learn-*  
14 *ing, other appropriate State and local agencies, environ-*  
15 *mental organizations, professional and technical societies,*  
16 *and any other persons the Secretary considers appropriate.*

17 **SEC. 127. REPORT.**

18 *Two years after date of enactment of this Act and at*  
19 *two year intervals thereafter, the Secretary, jointly with*  
20 *other appropriate Federal agencies, shall transmit a report*  
21 *to Congress describing the progress made to achieve the pur-*  
22 *poses of this subtitle.*

23 **SEC. 128. VOLUNTARY CONSENSUS STANDARDS.**

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

1 *Institute of Standards and Technology, shall work with the*  
2 *Institute of Electrical and Electronic Engineers and other*  
3 *standards development organizations toward the develop-*  
4 *ment of voluntary consensus standards for distributed en-*  
5 *ergy systems for use in manufacturing and using equip-*  
6 *ment and systems for connection with electric distribution*  
7 *systems, for obtaining electricity from, or providing elec-*  
8 *tricity to, such systems.*

9           ***Subtitle C—Secondary Electric***  
10           ***Vehicle Battery Use***

11 ***SEC. 131. DEFINITIONS.***

12           *For purposes of this subtitle, the term—*

13                   (1) *“battery” means an energy storage device*  
14                   *that previously has been used to provide motive power*  
15                   *in a vehicle powered in whole or in part by elec-*  
16                   *tricity; and*

17                   (2) *“associated equipment” means equipment lo-*  
18                   *cated at the location where the batteries will be used*  
19                   *that is necessary to enable the use of the energy stored*  
20                   *in the batteries.*

21 ***SEC. 132. ESTABLISHMENT OF SECONDARY ELECTRIC VEHI-***  
22           ***CLE BATTERY USE PROGRAM.***

23           (a) *PROGRAM.—The Secretary shall establish and con-*  
24 *duct a research, development, and demonstration program*  
25 *for the secondary use of batteries where the original use of*

1 *such batteries was in transportation applications. Such*  
2 *program shall be—*

3 *(1) designed to demonstrate the use of batteries*  
4 *in secondary application, including utility and com-*  
5 *mmercial power storage and power quality;*

6 *(2) structured to evaluate the performance, in-*  
7 *cluding longevity of useful service life and costs, of*  
8 *such batteries in field operations, and evaluate the*  
9 *necessary supporting infrastructure, including dis-*  
10 *posal and reuse of batteries; and*

11 *(3) coordinated with ongoing secondary battery*  
12 *use programs underway at the national laboratories*  
13 *and in industry.*

14 *(b) SOLICITATION.—(1) Not later than 6 months after*  
15 *the date of the enactment of this Act, the Secretary shall*  
16 *solicit proposals to demonstrate the secondary use of bat-*  
17 *teries and associated equipment and supporting infrastruc-*  
18 *ture in geographic locations throughout the United States.*  
19 *The Secretary may make additional solicitations for pro-*  
20 *posals if the Secretary determines that such solicitations are*  
21 *necessary to carry out this section.*

22 *(2)(A) Proposals submitted in response to a solicita-*  
23 *tion under this section shall include—*

24 *(i) a description of the project, including the bat-*  
25 *teries to be used in the project, the proposed locations*



1       *and applications for the batteries, the number of bat-*  
2       *teries to be demonstrated, and the type, characteris-*  
3       *tics, and estimated life-cycle costs of the batteries com-*  
4       *pared to other energy storage devices currently used;*

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

8             *(iii) the type of associated equipment to be dem-*  
9       *onstrated and the type of supporting infrastructure to*  
10       *be demonstrated; and*

11            *(iv) any other information the Secretary con-*  
12       *siders appropriate.*

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

16        *(c) SELECTION OF PROPOSALS.—(1)(A) The Secretary*  
17        *shall, not later than 3 months after the closing date estab-*  
18        *lished by the Secretary for receipt of proposals under sub-*  
19        *section (b), select at least 5 proposals to receive financial*  
20        *assistance under this section.*

21            *(B) No one project selected under this section shall re-*  
22        *ceive more than 25 percent of the funds authorized under*  
23        *this section. No more than 3 projects selected under this sec-*  
24        *tion shall demonstrate the same battery type.*

1           (2) *In selecting a proposal under this section, the Sec-*  
2 *retary shall consider—*

3                   (A) *the ability of the proposer to acquire the bat-*  
4 *teries and associated equipment and to successfully*  
5 *manage and conduct the demonstration project, in-*  
6 *cluding the reporting requirements set forth in para-*  
7 *graph (3)(B);*

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

10                  (C) *the long-term technical and competitive via-*  
11 *bility of the batteries to be used in the project and of*  
12 *the original manufacturer of such batteries;*

13                  (D) *the suitability of the batteries for their in-*  
14 *tended uses;*

15                  (E) *the technical performance of the battery, in-*  
16 *cluding the expected additional useful life and the*  
17 *battery's ability to retain energy;*

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

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

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

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

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

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

7           (A) as a part of a demonstration project, the  
8           users of the batteries provide to the proposer informa-  
9           tion regarding the operation, maintenance, perform-  
10          ance, and use of the batteries, and the proposer pro-  
11          vide such information to the battery manufacturer,  
12          for 3 years after the beginning of the demonstration  
13          project;

14          (B) the proposer provide to the Secretary such  
15          information regarding the operation, maintenance,  
16          performance, and use of the batteries as the Secretary  
17          may request during the period of the demonstration  
18          project; and

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

21 **SEC. 133. AUTHORIZATION OF APPROPRIATIONS.**

22          There are authorized to be appropriated to the Sec-  
23          retary, from amounts authorized under section 161(a), for  
24          purposes of this subtitle—

25               (1) \$1,000,000 for fiscal year 2002;

1           (2) \$7,000,000 for fiscal year 2003; and

2           (3) \$7,000,000 for fiscal year 2004.

3 *Such appropriations may remain available until expended.*

4       ***Subtitle D—Green School Buses***

5 ***SEC. 141. SHORT TITLE.***

6       *This subtitle may be cited as the “Clean Green School*  
7 *Bus Act of 2001”.*

8 ***SEC. 142. ESTABLISHMENT OF PILOT PROGRAM.***

9       (a) *ESTABLISHMENT.*—*The Secretary shall establish a*  
10 *pilot program for awarding grants on a competitive basis*  
11 *to eligible entities for the demonstration and commercial*  
12 *application of alternative fuel school buses and ultra-low*  
13 *sulfur diesel school buses.*

14       (b) *REQUIREMENTS.*—*Not later than 3 months after*  
15 *the date of the enactment of this Act, the Secretary shall*  
16 *establish and publish in the Federal register grant require-*  
17 *ments on eligibility for assistance, and on implementation*  
18 *of the program established under subsection (a), including*  
19 *certification requirements to ensure compliance with this*  
20 *subtitle.*

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

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

1           (1) *to a local governmental entity responsible for*  
2 *providing school bus service for one or more public*  
3 *school systems; or*

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

7           (e) *TYPES OF GRANTS.—*

8           (1) *IN GENERAL.—Grants under this section*  
9 *shall be for the demonstration and commercial appli-*  
10 *cation of technologies to facilitate the use of alter-*  
11 *native fuel school buses and ultra-low sulfur diesel*  
12 *school buses in lieu of buses manufactured before*  
13 *model year 1977 and diesel-powered buses manufac-*  
14 *tured before model year 1991.*

15           (2) *NO ECONOMIC BENEFIT.—Other than the re-*  
16 *ceipt of the grant, a recipient of a grant under this*  
17 *section may not receive any economic benefit in con-*  
18 *nection with the receipt of the grant.*

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

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

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

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

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

11                   (B) *to provide—*

12                           (i) *up to 10 percent of the price of the*  
13 *alternative fuel buses acquired, for necessary*  
14 *alternative fuel infrastructure if the infra-*  
15 *structure will only be available to the grant*  
16 *recipient; and*

17                           (ii) *up to 15 percent of the price of the*  
18 *alternative fuel buses acquired, for necessary*  
19 *alternative fuel infrastructure if the infra-*  
20 *structure will be available to the grant re-*  
21 *ipient and to other bus fleets.*

22           (3) *The grant recipient shall be required to pro-*  
23 *vide at least the lesser of 15 percent of the total cost*  
24 *of each bus received or \$15,000 per bus.*

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

10          (g) *BUSES.—Funding under a grant made under this*  
11          *section may be used to demonstrate the use only of new al-*  
12          *ternative fuel school buses or ultra-low sulfur diesel school*  
13          *buses—*

14                 (1) *with a gross vehicle weight of greater than*  
15                 *14,000 pounds;*

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

17                 (3) *that, in the case of alternative fuel school*  
18                 *buses, emit not more than—*

19                         (A) *for buses manufactured in model years*  
20                         *2001 and 2002, 2.5 grams per brake horsepower-*  
21                         *hour of nonmethane hydrocarbons and oxides of*  
22                         *nitrogen and .01 grams per brake horsepower-*  
23                         *hour of particulate matter; and*

24                         (B) *for buses manufactured in model years*  
25                         *2003 through 2006, 1.8 grams per brake horse-*

1           *power-hour of nonmethane hydrocarbons and ox-*  
2           *ides of nitrogen and .01 grams per brake horse-*  
3           *power-hour of particulate matter; and*

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

6                   (A) *for buses manufactured in model years*  
7                   *2001 through 2003, 3.0 grams per brake horse-*  
8                   *power-hour of nonmethane hydrocarbons and ox-*  
9                   *ides of nitrogen and .01 grams per brake horse-*  
10                   *power-hour of particulate matter; and*

11                   (B) *for buses manufactured in model years*  
12                   *2004 through 2006, 2.5 grams per brake horse-*  
13                   *power-hour of nonmethane hydrocarbons and ox-*  
14                   *ides of nitrogen and .01 grams per brake horse-*  
15                   *power-hour of particulate matter,*

16           *except that under no circumstances shall buses be ac-*  
17           *quired under this section that emit nonmethane hy-*  
18           *drocarbons, oxides of nitrogen, or particulate matter*  
19           *at a rate greater than the best performing technology*  
20           *of ultra-low sulfur diesel school buses commercially*  
21           *available at the time the grant is made.*

22           (h) *DEPLOYMENT AND DISTRIBUTION.—The Secretary*  
23           *shall seek to the maximum extent practicable to achieve na-*  
24           *tionwide deployment of alternative fuel school buses through*  
25           *the program under this section, and shall ensure a broad*



1 *geographic distribution of grant awards, with a goal of no*  
2 *State receiving more than 10 percent of the grant funding*  
3 *made available under this section for a fiscal year.*

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

9 (j) *DEFINITIONS.—For purposes of this section—*

10 (1) *the term “alternative fuel school bus” means*  
11 *a bus powered substantially by electricity (including*  
12 *electricity supplied by a fuel cell), or by liquefied nat-*  
13 *ural gas, compressed natural gas, liquefied petroleum*  
14 *gas, hydrogen, propane, or methanol or ethanol at no*  
15 *less than 85 percent by volume; and*

16 (2) *the term “ultra-low sulfur diesel school bus”*  
17 *means a school bus powered by diesel fuel which con-*  
18 *tains sulfur at not more than 15 parts per million.*

19 **SEC. 143. FUEL CELL BUS DEVELOPMENT AND DEMONSTRATION PROGRAM.**  
20

21 (a) *ESTABLISHMENT OF PROGRAM.—The Secretary*  
22 *shall establish a program for entering into cooperative*  
23 *agreements with private sector fuel cell bus developers for*  
24 *the development of fuel cell-powered school buses, and subse-*  
25 *quently with not less than 2 units of local government using*

1 *natural gas-powered school buses and such private sector*  
2 *fuel cell bus developers to demonstrate the use of fuel cell-*  
3 *powered school buses.*

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

6 (1) *20 percent for fuel infrastructure develop-*  
7 *ment activities; and*

8 (2) *50 percent for demonstration activities and*  
9 *for development activities not described in paragraph*

10 (1).

11 (c) *FUNDING.*—*No more than \$25,000,000 of the*  
12 *amounts authorized under section 144 may be used for car-*  
13 *rying out this section for the period encompassing fiscal*  
14 *years 2002 through 2006.*

15 (d) *REPORTS TO CONGRESS.*—*Not later than 3 years*  
16 *after the date of the enactment of this Act, and not later*  
17 *than October 1, 2006, the Secretary shall transmit to the*  
18 *appropriate congressional committees a report that—*

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

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

1 **SEC. 144. AUTHORIZATION OF APPROPRIATIONS.**

2 *There are authorized to be appropriated to the Sec-*  
3 *retary for carrying out this subtitle, to remain available*  
4 *until expended—*

5 *(1) \$40,000,000 for fiscal year 2002;*

6 *(2) \$50,000,000 for fiscal year 2003;*

7 *(3) \$60,000,000 for fiscal year 2004;*

8 *(4) \$70,000,000 for fiscal year 2005; and*

9 *(5) \$80,000,000 for fiscal year 2006.*

10 ***Subtitle E—Next Generation***  
11 ***Lighting Initiative***

12 **SEC. 151. SHORT TITLE.**

13 *This subtitle may be cited as “Next Generation Light-*  
14 *ing Initiative Act”.*

15 **SEC. 152. DEFINITION.**

16 *In this subtitle, the term “Lighting Initiative” means*  
17 *the “Next Generation Lighting Initiative” established under*  
18 *section 153(a).*

19 **SEC. 153. NEXT GENERATION LIGHTING INITIATIVE.**

20 *(a) ESTABLISHMENT.—The Secretary is authorized to*  
21 *establish a lighting initiative to be known as the “Next Gen-*  
22 *eration Lighting Initiative” to research, develop, and con-*  
23 *duct demonstration activities on advanced lighting tech-*  
24 *nologies, including white light emitting diodes.*

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

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

- 4 (1) *longer lasting;*
- 5 (2) *more energy-efficient; and*
- 6 (3) *cost-competitive.*

7 **SEC. 154. STUDY.**

8 (a) *IN GENERAL.*—*Not later than 6 months after the*  
9 *date of enactment of this Act, the Secretary, in consultation*  
10 *with other Federal agencies, as appropriate, shall complete*  
11 *a study on strategies for the development and commercial*  
12 *application of advanced lighting technologies. The Sec-*  
13 *retary shall request a review by the National Academies of*  
14 *Sciences and Engineering of the study under this sub-*  
15 *section, and shall transmit the results of the study to the*  
16 *appropriate congressional committees.*

17 (b) *REQUIREMENTS.*—*The study shall—*

- 18 (1) *develop a comprehensive strategy to imple-*  
19 *ment the Lighting Initiative; and*
- 20 (2) *identify the research and development, manu-*  
21 *facturing, deployment, and marketing barriers that*  
22 *must be overcome to achieve a goal of a 25 percent*  
23 *market penetration by advanced lighting technologies*  
24 *into the incandescent and fluorescent lighting market*  
25 *by the year 2012.*

1           (c) *IMPLEMENTATION.*—As soon as practicable after  
2 the review of the study under subsection (a) is transmitted  
3 to the Secretary by the National Academies of Sciences and  
4 Engineering, the Secretary shall adapt the implementation  
5 of the Lighting Initiative taking into consideration the rec-  
6 ommendations of the National Academies of Sciences and  
7 Engineering.

8 **SEC. 155. GRANT PROGRAM.**

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

14           (b) *ANNUAL REVIEW.*—

15               (1) *IN GENERAL.*—An annual independent re-  
16 view of the grant-related activities of firms and re-  
17 search organizations receiving a grant under this sec-  
18 tion shall be conducted by a committee appointed by  
19 the Secretary under the Federal Advisory Committee  
20 Act (5 U.S.C. App.), or, at the request of the Sec-  
21 retary, a committee appointed by the National Acad-  
22 emies of Sciences and Engineering.

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

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

4       *(c) TECHNICAL AND FINANCIAL ASSISTANCE.—The na-*  
5       *tional laboratories and other Federal agencies, as appro-*  
6       *priate, shall cooperate with and provide technical and fi-*  
7       *nancial assistance to firms and research organizations con-*  
8       *ducting research, development, and demonstration projects*  
9       *carried out under this subtitle.*

10       ***Subtitle F—Department of Energy***  
11       ***Authorization of Appropriations***

12       ***SEC. 161. AUTHORIZATION OF APPROPRIATIONS.***

13       *(a) OPERATION AND MAINTENANCE.—In addition to*  
14       *amounts authorized to be appropriated under section 105,*  
15       *section 125, and section 144, there are authorized to be ap-*  
16       *propriated to the Secretary for subtitle B, subtitle C, sub-*  
17       *title E, and for Energy Conservation operation and mainte-*  
18       *nance (including Building Technology, State and Commu-*  
19       *nity Sector (Nongrants), Industry Sector, Transportation*  
20       *Sector, Power Technologies, and Policy and Management)*  
21       *\$625,000,000 for fiscal year 2002, \$700,000,000 for fiscal*  
22       *year 2003, and \$800,000,000 for fiscal year 2004, to remain*  
23       *available until expended.*

1           (b) *LIMITS ON USE OF FUNDS.*—None of the funds au-  
2           thorized to be appropriated in subsection (a) may be used  
3           for—

4                   (1) *Building Technology, State and Community*  
5           Sector—

6                           (A) *Residential Building Energy Codes;*

7                           (B) *Commercial Building Energy Codes;*

8                           (C) *Lighting and Appliance Standards;*

9                           (D) *Weatherization Assistance Program; or*

10                          (E) *State Energy Program; or*

11                          (2) *Federal Energy Management Program.*

12           ***Subtitle G—Environmental Protec-***  
13           ***tion Agency Office of Air and***  
14           ***Radiation Authorization of Ap-***  
15           ***propriations***

16           ***SEC. 171. SHORT TITLE.***

17                   This subtitle may be cited as the “*Environmental Pro-*  
18           *tection Agency Office of Air and Radiation Authorization*  
19           *Act of 2001*”.

20           ***SEC. 172. AUTHORIZATION OF APPROPRIATIONS.***

21                   There are authorized to be appropriated to the Admin-  
22           istrator for the Office of Air and Radiation \$156,700,000  
23           for fiscal year 2002, \$163,000,000 for fiscal year 2003, and  
24           \$169,400,000 for fiscal year 2004 to remain available until  
25           expended, of which—

1           (1) \$28,300,000 for fiscal year 2002, \$29,400,000  
2           for fiscal year 2003, and \$30,600,000 for fiscal year  
3           2004 shall be for Science; and

4           (2) \$128,400,000 for fiscal year 2002,  
5           \$133,600,000 for fiscal year 2003, and \$138,800,000  
6           for fiscal year 2004 shall be for Climate Change Pro-  
7           tection Programs, of which—

8                   (A) \$52,700,000 for fiscal year 2002,  
9                   \$54,800,000 for fiscal year 2003, and  
10                  \$57,000,000 for fiscal year 2004 shall be for  
11                  Buildings;

12                  (B) \$32,400,000 for fiscal year 2002,  
13                  \$33,700,000 for fiscal year 2003, and  
14                  \$35,000,000 for fiscal year 2004 shall be for  
15                  Transportation;

16                  (C) \$32,000,000 for fiscal year 2002,  
17                  \$33,300,000 for fiscal year 2003, and  
18                  \$34,600,000 for fiscal year 2004 shall be for In-  
19                  dustry;

20                  (D) \$1,700,000 for fiscal year 2002,  
21                  \$1,750,000 for fiscal year 2003, and \$1,800,000  
22                  for fiscal year 2004 shall be for Carbon Removal;

23                  (E) \$2,500,000 for fiscal year 2002,  
24                  \$2,600,000 for fiscal year 2003, and \$2,700,000



1           *for fiscal year 2004 shall be for State and Local*  
2           *Climate;*

3                     *(F) \$6,300,000 for fiscal year 2002,*  
4                     *\$6,600,000 for fiscal year 2003, and \$6,800,000*  
5                     *for fiscal year 2004 shall be for International*  
6                     *Capacity Building; and*

7                     *(G) \$800,000 for fiscal year 2002, \$850,000*  
8                     *for fiscal year 2003, and \$900,000 for fiscal year*  
9                     *2004 shall be for Technical Cooperation with In-*  
10                    *dustrial and Developing Countries.*

11 **SEC. 173. LIMITS ON USE OF FUNDS.**

12           *(a) PRODUCTION OR PROVISION OF ARTICLES OR*  
13           *SERVICES.—None of the funds authorized to be appro-*  
14           *priated by this subtitle may be used to produce or provide*  
15           *articles or services for the purpose of selling the articles or*  
16           *services to a person outside the Federal Government, unless*  
17           *the Administrator determines that comparable articles or*  
18           *services are not available from a commercial source in the*  
19           *United States.*

20           *(b) REQUESTS FOR PROPOSALS.—None of the funds*  
21           *authorized to be appropriated by this subtitle may be used*  
22           *by the Environmental Protection Agency to prepare or ini-*  
23           *tiate Requests for Proposals for a program if the program*  
24           *has not been authorized by Congress.*

1 **SEC. 174. COST SHARING.**

2       (a) *RESEARCH AND DEVELOPMENT.*—*Except as other-*  
3 *wise provided in this subtitle, for research and development*  
4 *programs carried out under this subtitle, the Administrator*  
5 *shall require a commitment from non-Federal sources of at*  
6 *least 20 percent of the cost of the project. The Administrator*  
7 *may reduce or eliminate the non-Federal requirement under*  
8 *this subsection if the Administrator determines that the re-*  
9 *search and development is of a basic or fundamental nature.*

10       (b) *DEMONSTRATION AND COMMERCIAL APPLICA-*  
11 *TION.*—*Except as otherwise provided in this subtitle, the*  
12 *Administrator shall require at least 50 percent of the costs*  
13 *directly and specifically related to any demonstration or*  
14 *commercial application project under this subtitle to be pro-*  
15 *vided from non-Federal sources. The Administrator may re-*  
16 *duce the non-Federal requirement under this subsection if*  
17 *the Administrator determines that the reduction is nec-*  
18 *essary and appropriate considering the technological risks*  
19 *involved in the project and is necessary to meet the objec-*  
20 *tives of this subtitle.*

21       (c) *CALCULATION OF AMOUNT.*—*In calculating the*  
22 *amount of the non-Federal commitment under subsection*  
23 *(a) or (b), the Administrator may include personnel, serv-*  
24 *ices, equipment, and other resources.*

1 **SEC. 175. LIMITATION ON DEMONSTRATION AND COMMERCIAL APPLICATIONS OF ENERGY TECHNOLOGY.**  
2  
3

4 *The Administrator shall provide funding for scientific*  
5 *or energy demonstration or commercial application of en-*  
6 *ergy technology programs, projects, or activities of the Office*  
7 *of Air and Radiation only for technologies or processes that*  
8 *can be reasonably expected to yield new, measurable benefits*  
9 *to the cost, efficiency, or performance of the technology or*  
10 *process.*

11 **SEC. 176. REPROGRAMMING.**

12 (a) *AUTHORITY.—The Administrator may use*  
13 *amounts appropriated under this subtitle for a program,*  
14 *project, or activity other than the program, project, or ac-*  
15 *tivity for which such amounts were appropriated only if—*

16 (1) *the Administrator has transmitted to the ap-*  
17 *propriate congressional committees a report described*  
18 *in subsection (b) and a period of 30 days has elapsed*  
19 *after such committees receive the report;*

20 (2) *amounts used for the program, project, or ac-*  
21 *tivity do not exceed—*

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

24 (B) *\$250,000 more than the amount author-*  
25 *ized for the program, project, or activity,*

26 *whichever is less; and*

1           (3) *the program, project, or activity has been*  
2           *presented to, or requested of, the Congress by the Ad-*  
3           *ministrator.*

4           (b) *REPORT.—(1) The report referred to in subsection*  
5           *(a) is a report containing a full and complete statement*  
6           *of the action proposed to be taken and the facts and cir-*  
7           *cumstances relied upon in support of the proposed action.*

8           (2) *In the computation of the 30-day period under sub-*  
9           *section (a), there shall be excluded any day on which either*  
10          *House of Congress is not in session because of an adjourn-*  
11          *ment of more than 3 days to a day certain.*

12          (c) *LIMITATIONS.—(1) In no event may the total*  
13          *amount of funds obligated pursuant to this subtitle exceed*  
14          *the total amount authorized to be appropriated by this sub-*  
15          *title.*

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

19          **SEC. 177. BUDGET REQUEST FORMAT.**

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

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

3 *(1) a description of, and funding requested or al-*  
4 *located for, each such program, project, or activity;*

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

7 *(3) an estimate of the amounts to be expended by*  
8 *each recipient of funds identified under paragraph*  
9 *(2).*

10 **SEC. 178. OTHER PROVISIONS.**

11 *(a) ANNUAL OPERATING PLAN AND REPORTS.—The*  
12 *Administrator shall provide simultaneously to the Com-*  
13 *mittee on Science of the House of Representatives—*

14 *(1) any annual operating plan or other oper-*  
15 *ational funding document, including any additions or*  
16 *amendments thereto; and*

17 *(2) any report relating to the environmental re-*  
18 *search or development, scientific or energy research,*  
19 *development, or demonstration, or commercial appli-*  
20 *cation of energy technology programs, projects, or ac-*  
21 *tivities of the Environmental Protection Agency,*

22 *provided to any committee of Congress.*

23 *(b) NOTICE OF REORGANIZATION.—The Administrator*  
24 *shall provide notice to the appropriate congressional com-*  
25 *mittees not later than 15 days before any reorganization*

1 *of any environmental research or development, scientific or*  
2 *energy research, development, or demonstration, or commer-*  
3 *cial application of energy technology program, project, or*  
4 *activity of the Office of Air and Radiation.*

5       ***Subtitle H—National Building***  
6               ***Performance Initiative***

7 ***SEC. 181. NATIONAL BUILDING PERFORMANCE INITIATIVE.***

8       (a) *INTERAGENCY GROUP.*—*Not later than 3 months*  
9 *after the date of the enactment of this Act, the Director of*  
10 *the Office of Science and Technology Policy shall establish*  
11 *an Interagency Group responsible for the development and*  
12 *implementation of a National Building Performance Ini-*  
13 *tiative to address energy conservation and research and de-*  
14 *velopment and related issues. The National Institute of*  
15 *Standards and Technology shall provide necessary adminis-*  
16 *trative support for the Interagency Group.*

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

1           (1) *research, development, and demonstration of*  
2           *systems and materials for new construction and ret-*  
3           *rofit, on the building envelope and components; and*

4           (2) *the collection and dissemination in a usable*  
5           *form of research results and other pertinent informa-*  
6           *tion to the design and construction industry, govern-*  
7           *ment officials, and the general public.*

8           (c) *NATIONAL BUILDING PERFORMANCE ADVISORY*  
9           *COMMITTEE.—A National Building Performance Advisory*  
10          *Committee shall be established to advise on creation of the*  
11          *plan, review progress made under the plan, advise on any*  
12          *improvements that should be made to the plan, and report*  
13          *to the Congress on actions that have been taken to advance*  
14          *the Nation’s capability in furtherance of the plan. The*  
15          *members shall include representatives of a broad cross-sec-*  
16          *tion of interests such as the research, technology transfer,*  
17          *architectural, engineering, and financial communities; ma-*  
18          *terials and systems suppliers; State, county, and local gov-*  
19          *ernments; the residential, multifamily, and commercial sec-*  
20          *tors of the construction industry; and the insurance indus-*  
21          *try.*

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

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

4 ***TITLE II—RENEWABLE ENERGY***  
5 ***Subtitle A—Hydrogen***

6 ***SEC. 201. SHORT TITLE.***

7 *This subtitle may be cited as the “Robert S. Walker*  
8 *and George E. Brown, Jr. Hydrogen Energy Act of 2001”.*

9 ***SEC. 202. PURPOSES.***

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

13 *“(b) PURPOSES.—The purposes of this Act are—*

14 *“(1) to direct the Secretary to conduct research,*  
15 *development, and demonstration activities leading to*  
16 *the production, storage, transportation, and use of hy-*  
17 *drogen for industrial, commercial, residential, trans-*  
18 *portation, and utility applications;*

19 *“(2) to direct the Secretary to develop a program*  
20 *of technology assessment, information dissemination,*  
21 *and education in which Federal, State, and local*  
22 *agencies, members of the energy, transportation, and*  
23 *other industries, and other entities may participate;*  
24 *and*



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

5 **SEC. 203. DEFINITIONS.**

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

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

11          (2) by inserting before paragraph (2), as so re-  
12          designated by paragraph (1) of this section, the fol-  
13          lowing new paragraph:

14                 “(1) ‘advisory committee’ means the advisory  
15                 committee established under section 108;”.

16 **SEC. 204. REPORTS TO CONGRESS.**

17           Section 103 of the Spark M. Matsunaga Hydrogen Re-  
18           search, Development, and Demonstration Act of 1990 is  
19           amended to read as follows:

20 **“SEC. 103. REPORTS TO CONGRESS.**

21           “(a) *REQUIREMENT.*—Not later than 1 year after the  
22           date of the enactment of the Robert S. Walker and George  
23           E. Brown, Jr. Hydrogen Energy Act of 2001, and bienni-  
24           ally thereafter, the Secretary shall transmit to Congress a

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

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

6 “(1) *an assessment of the extent to which the*  
7 *program is meeting the purposes specified in section*  
8 *102(b);*

9 “(2) *a determination of the effectiveness of the*  
10 *technology assessment, information dissemination,*  
11 *and education program established under section 106;*

12 “(3) *an analysis of Federal, State, local, and*  
13 *private sector hydrogen-related research, development,*  
14 *and demonstration activities to identify productive*  
15 *areas for increased intergovernmental and private-*  
16 *public sector collaboration; and*

17 “(4) *recommendations of the advisory committee*  
18 *for any improvements needed in the programs and*  
19 *activities authorized by this Act.”.*

20 **SEC. 205. HYDROGEN RESEARCH AND DEVELOPMENT.**

21 *Section 104 of the Spark M. Matsunaga Hydrogen Re-*  
22 *search, Development, and Demonstration Act of 1990 is*  
23 *amended to read as follows:*

1 **“SEC. 104. HYDROGEN RESEARCH AND DEVELOPMENT.**

2       “(a) *ESTABLISHMENT OF PROGRAM.*—*The Secretary*  
3 *shall conduct a hydrogen research and development pro-*  
4 *gram relating to production, storage, transportation, and*  
5 *use of hydrogen, with the goal of enabling the private sector*  
6 *to demonstrate the technical feasibility of using hydrogen*  
7 *for industrial, commercial, residential, transportation, and*  
8 *utility applications.*

9       “(b) *ELEMENTS.*—*In conducting the program author-*  
10 *ized by this section, the Secretary shall—*

11               “(1) *give particular attention to developing an*  
12 *understanding and resolution of critical technical*  
13 *issues preventing the introduction of hydrogen as an*  
14 *energy carrier into the marketplace;*

15               “(2) *initiate or accelerate existing research and*  
16 *development in critical technical issues that will con-*  
17 *tribute to the development of more economical hydro-*  
18 *gen production, storage, transportation, and use, in-*  
19 *cluding critical technical issues with respect to pro-*  
20 *duction (giving priority to those production tech-*  
21 *niques that use renewable energy resources as their*  
22 *primary source of energy for hydrogen production),*  
23 *liquefaction, transmission, distribution, storage, and*  
24 *use (including use of hydrogen in surface transpor-*  
25 *tation); and*

1           “(3) survey private sector and public sector hy-  
2           drogen research and development activities worldwide,  
3           and take steps to ensure that research and develop-  
4           ment activities under this section do not—

5                   “(A) duplicate any available research and  
6                   development results; or

7                   “(B) displace or compete with the privately  
8                   funded hydrogen research and development ac-  
9                   tivities of United States industry.

10           “(c) *EVALUATION OF TECHNOLOGIES.*—The Secretary  
11 shall evaluate, for the purpose of determining whether to  
12 undertake or fund research and development activities  
13 under this section, any reasonable new or improved tech-  
14 nology that could lead or contribute to the development of  
15 economical hydrogen production, storage, transportation,  
16 and use.

17           “(d) *RESEARCH AND DEVELOPMENT SUPPORT.*—The  
18 Secretary is authorized to arrange for tests and demonstra-  
19 tions and to disseminate to researchers and developers in-  
20 formation, data, and other materials necessary to support  
21 the research and development activities authorized under  
22 this section and other efforts authorized under this Act, con-  
23 sistent with section 106 of this Act.

24           “(e) *COMPETITIVE PEER REVIEW.*—The Secretary  
25 shall carry out or fund research and development activities

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

3       “(f) *COST SHARING.*—*For research and development*  
4 *programs carried out under this section, the Secretary shall*  
5 *require a commitment from non-Federal sources of at least*  
6 *20 percent of the cost of the project. The Secretary may re-*  
7 *duce or eliminate the non-Federal requirement under this*  
8 *subsection if the Secretary determines that the research and*  
9 *development is of a basic or fundamental nature.”.*

10 **SEC. 206. DEMONSTRATIONS.**

11       *Section 105 of the Spark M. Matsunaga Hydrogen Re-*  
12 *search, Development, and Demonstration Act of 1990 is*  
13 *amended—*

14           (1) *in subsection (a), by striking “, preferably in*  
15 *self-contained locations,”;*

16           (2) *in subsection (b), by striking “at self-con-*  
17 *tained sites” and inserting “, which shall include a*  
18 *fuel cell bus demonstration program to address hydro-*  
19 *gen production, storage, and use in transit bus appli-*  
20 *cations”;* and

21           (3) *in subsection (c), by inserting “NON-FED-*  
22 *ERAL FUNDING REQUIREMENT.—” after “(c)”.*

1 **SEC. 207. TECHNOLOGY TRANSFER.**

2 *Section 106 of the Spark M. Matsunaga Hydrogen Re-*  
3 *search, Development, and Demonstration Act of 1990 is*  
4 *amended to read as follows:*

5 **“SEC. 106. TECHNOLOGY ASSESSMENT, INFORMATION DIS-**  
6 **SEMINATION, AND EDUCATION PROGRAM.**

7 *“(a) PROGRAM.—The Secretary shall, in consultation*  
8 *with the advisory committee, conduct a program designed*  
9 *to accelerate wider application of hydrogen production,*  
10 *storage, transportation, and use technologies, including ap-*  
11 *plication in foreign countries to increase the global market*  
12 *for the technologies and foster global economic development*  
13 *without harmful environmental effects.*

14 *“(b) INFORMATION.—The Secretary, in carrying out*  
15 *the program authorized by subsection (a), shall—*

16 *“(1) undertake an update of the inventory and*  
17 *assessment, required under section 106(b)(1) of this*  
18 *Act as in effect before the date of the enactment of the*  
19 *Robert S. Walker and George E. Brown, Jr. Hydro-*  
20 *gen Energy Act of 2001, of hydrogen technologies and*  
21 *their commercial capability to economically produce,*  
22 *store, transport, or use hydrogen in industrial, com-*  
23 *mercial, residential, transportation, and utility sec-*  
24 *tor; and*

25 *“(2) develop, with other Federal agencies as ap-*  
26 *propriate and industry, an information exchange*

1        *program to improve technology transfer for hydrogen*  
2        *production, storage, transportation, and use, which*  
3        *may consist of workshops, publications, conferences,*  
4        *and a database for the use by the public and private*  
5        *sectors.”.*

6        **SEC. 208. COORDINATION AND CONSULTATION.**

7        *Section 107 of the Spark M. Matsunaga Hydrogen Re-*  
8        *search, Development, and Demonstration Act of 1990 is*  
9        *amended—*

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

12            *“(1) shall establish a central point for the coordi-*  
13        *nation of all hydrogen research, development, and*  
14        *demonstration activities of the Department; and”;*  
15        *and*

16            *(2) by amending subsection (c) to read as fol-*  
17        *lows:*

18            *“(c) CONSULTATION.—The Secretary shall consult*  
19        *with other Federal agencies as appropriate, and the advi-*  
20        *sory committee, in carrying out the Secretary’s authorities*  
21        *pursuant to this Act.”.*

22        **SEC. 209. ADVISORY COMMITTEE.**

23        *Section 108 of the Spark M. Matsunaga Hydrogen Re-*  
24        *search, Development, and Demonstration Act of 1990 is*  
25        *amended to read as follows:*

1 **“SEC. 108. ADVISORY COMMITTEE.**

2       “(a) *ESTABLISHMENT.*—*The Secretary shall enter into*  
3 *appropriate arrangements with the National Academies of*  
4 *Sciences and Engineering to establish an advisory com-*  
5 *mittee consisting of experts drawn from domestic industry,*  
6 *academia, Governmental laboratories, and financial, envi-*  
7 *ronmental, and other organizations, as appropriate, to re-*  
8 *view and advise on the progress made through the programs*  
9 *and activities authorized under this Act.*

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

15       “(c) *REVIEW.*—*The advisory committee shall review*  
16 *and make any necessary recommendations to the Secretary*  
17 *on—*

18               “(1) *the implementation and conduct of pro-*  
19 *grams and activities authorized under this Act; and*

20               “(2) *the economic, technological, and environ-*  
21 *mental consequences of the deployment of hydrogen*  
22 *production, storage, transportation, and use systems.*

23       “(d) *RESPONSIBILITIES OF THE SECRETARY.*—*The*  
24 *Secretary shall consider, but need not adopt, any rec-*  
25 *ommendations of the advisory committee under subsection*  
26 *(c). The Secretary shall provide an explanation of the rea-*



1 *sons that any such recommendations will not be imple-*  
 2 *mented and include such explanation in the report to Con-*  
 3 *gress under section 103(a) of this Act.”.*

4 **SEC. 210. AUTHORIZATION OF APPROPRIATIONS.**

5 *Section 109 of the Spark M. Matsunaga Hydrogen Re-*  
 6 *search, Development, and Demonstration Act of 1990 is*  
 7 *amended to read as follows:*

8 **“SEC. 109. AUTHORIZATION OF APPROPRIATIONS.**

9 *“(a) RESEARCH AND DEVELOPMENT; ADVISORY COM-*  
 10 *MITTEE.—There are authorized to be appropriated to the*  
 11 *Secretary to carry out sections 104 and 108—*

12 *“(1) \$40,000,000 for fiscal year 2002;*

13 *“(2) \$45,000,000 for fiscal year 2003;*

14 *“(3) \$50,000,000 for fiscal year 2004;*

15 *“(4) \$55,000,000 for fiscal year 2005; and*

16 *“(5) \$60,000,000 for fiscal year 2006.*

17 *“(b) DEMONSTRATION.—There are authorized to be ap-*  
 18 *propriated to the Secretary to carry out section 105—*

19 *“(1) \$20,000,000 for fiscal year 2002;*

20 *“(2) \$25,000,000 for fiscal year 2003;*

21 *“(3) \$30,000,000 for fiscal year 2004;*

22 *“(4) \$35,000,000 for fiscal year 2005; and*

23 *“(5) \$40,000,000 for fiscal year 2006.”.*

1 **SEC. 211. REPEAL.**

2 (a) *REPEAL.*—*Title II of the Hydrogen Future Act of*  
3 *1996 is repealed.*

4 (b) *CONFORMING AMENDMENT.*—*Section 2 of the Hy-*  
5 *drogen Future Act of 1996 is amended by striking “titles*  
6 *II and III” and inserting “title III”.*

7 ***Subtitle B—Bioenergy***

8 **SEC. 221. SHORT TITLE.**

9 *This subtitle may be cited as the “Bioenergy Act of*  
10 *2001”.*

11 **SEC. 222. FINDINGS.**

12 *Congress finds that bioenergy has potential to help—*

13 (1) *meet the Nation’s energy needs;*

14 (2) *reduce reliance on imported fuels;*

15 (3) *promote rural economic development;*

16 (4) *provide for productive utilization of agricul-*  
17 *tural residues and waste materials, and forestry resi-*  
18 *dues and byproducts; and*

19 (5) *protect the environment.*

20 **SEC. 223. DEFINITIONS.**

21 *For purposes of this subtitle—*

22 (1) *the term “bioenergy” means energy derived*  
23 *from any organic matter that is available on a re-*  
24 *newable or recurring basis, including agricultural*  
25 *crops and trees, wood and wood wastes and residues,*

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

3                *(2) the term “biofuels” includes liquid or gaseous*  
4        *fuels, industrial chemicals, or both;*

5                *(3) the term “biopower” includes the generation*  
6        *of electricity or process steam or both; and*

7                *(4) the term “integrated bioenergy research and*  
8        *development” includes biopower and biofuels applica-*  
9        *tions.*

10 **SEC. 224. AUTHORIZATION.**

11        *The Secretary is authorized to conduct environmental*  
12 *research and development, scientific and energy research,*  
13 *development, and demonstration, and commercial applica-*  
14 *tion of energy technology programs, projects, and activities*  
15 *related to bioenergy, including biopower energy systems,*  
16 *biofuels energy systems, and integrated bioenergy research*  
17 *and development.*

18 **SEC. 225. AUTHORIZATION OF APPROPRIATIONS.**

19        *(a) BIOPOWER ENERGY SYSTEMS.—There are author-*  
20 *ized to be appropriated to the Secretary for Biopower En-*  
21 *ergy Systems programs, projects, and activities—*

22                *(1) \$45,700,000 for fiscal year 2002;*

23                *(2) \$52,500,000 for fiscal year 2003;*

24                *(3) \$60,300,000 for fiscal year 2004;*

25                *(4) \$69,300,000 for fiscal year 2005; and*

1           (5) \$79,600,000 for fiscal year 2006.

2           (b) *BIOFUELS ENERGY SYSTEMS.*—*There are author-*  
3 *ized to be appropriated to the Secretary for biofuels energy*  
4 *systems programs, projects, and activities—*

5           (1) \$53,500,000 for fiscal year 2002;

6           (2) \$61,400,000 for fiscal year 2003;

7           (3) \$70,600,000 for fiscal year 2004;

8           (4) \$81,100,000 for fiscal year 2005; and

9           (5) \$93,200,000 for fiscal year 2006.

10          (c) *INTEGRATED BIOENERGY RESEARCH AND DEVEL-*  
11 *OPMENT.*—*There are authorized to be appropriated to the*  
12 *Secretary for integrated bioenergy research and develop-*  
13 *ment programs, projects, and activities, \$49,000,000 for*  
14 *each of the fiscal years 2002 through 2006. Activities funded*  
15 *under this subsection shall be coordinated with ongoing re-*  
16 *lated programs of other Federal agencies, including the*  
17 *Plant Genome Program of the National Science Founda-*  
18 *tion.*

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

1                   **Subtitle C—Transmission**  
2                   **Infrastructure Systems**

3 **SEC. 241. TRANSMISSION INFRASTRUCTURE SYSTEMS RE-**  
4                   **SEARCH, DEVELOPMENT, DEMONSTRATION,**  
5                   **AND COMMERCIAL APPLICATION.**

6           (a) *IN GENERAL.*—*The Secretary shall develop and*  
7 *implement a comprehensive research, development, dem-*  
8 *onstration, and commercial application program to ensure*  
9 *the reliability, efficiency, and environmental integrity of*  
10 *electrical transmission systems. Such program shall include*  
11 *advanced energy technologies and systems, high capacity*  
12 *superconducting transmission lines and generators, ad-*  
13 *vanced grid reliability and efficiency technologies develop-*  
14 *ment, technologies contributing to significant load reduc-*  
15 *tions, advanced metering, load management and control*  
16 *technologies, and technology transfer and education.*

17           (b) *TECHNOLOGY.*—*In carrying out this subtitle, the*  
18 *Secretary may include research, development, and dem-*  
19 *onstration on and commercial application of improved*  
20 *transmission technologies including the integration of the*  
21 *following technologies into improved transmission systems:*

22                   (1) *High temperature superconductivity.*

23                   (2) *Advanced transmission materials.*

1           (3) *Self-adjusting equipment, processes, or soft-*  
2           *ware for survivability, security, and failure contain-*  
3           *ment.*

4           (4) *Enhancements of energy transfer over exist-*  
5           *ing lines.*

6           (5) *Any other infrastructure technologies, as ap-*  
7           *propriate.*

8   **SEC. 242. PROGRAM PLAN.**

9           *Within 4 months after the date of the enactment of this*  
10          *Act, the Secretary, in consultation with other appropriate*  
11          *Federal agencies, shall prepare and transmit to Congress*  
12          *a 5-year program plan to guide activities under this sub-*  
13          *title. In preparing the program plan, the Secretary shall*  
14          *consult with appropriate representatives of the trans-*  
15          *mission infrastructure systems industry to select and*  
16          *prioritize appropriate program areas. The Secretary shall*  
17          *also seek the advice of utilities, energy services providers,*  
18          *manufacturers, institutions of higher learning, other appro-*  
19          *priate State and local agencies, environmental organiza-*  
20          *tions, professional and technical societies, and any other*  
21          *persons as the Secretary considers appropriate.*

22   **SEC. 243. REPORT.**

23          *Two years after the date of the enactment of this Act,*  
24          *and at two year intervals thereafter, the Secretary, in con-*  
25          *sultation with other appropriate Federal agencies, shall*

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

6 ***Subtitle D—Department of Energy***  
7 ***Authorization of Appropriations***

8 ***SEC. 261. AUTHORIZATION OF APPROPRIATIONS.***

9       (a) *OPERATION AND MAINTENANCE.—There are au-*  
10 *thorized to be appropriated to the Secretary for Renewable*  
11 *Energy operation and maintenance, including activities*  
12 *under subtitle C, Geothermal Technology Development, Hy-*  
13 *dropower, Concentrating Solar Power, Photovoltaic Energy*  
14 *Systems, Solar Building Technology Research, Wind En-*  
15 *ergy Systems, High Temperature Superconducting Re-*  
16 *search and Development, Energy Storage Systems, Trans-*  
17 *mission Reliability, International Renewable Energy Pro-*  
18 *gram, Renewable Energy Production Incentive Program,*  
19 *Renewable Program Support, National Renewable Energy*  
20 *Laboratory, and Program Direction, and including*  
21 *amounts authorized under the amendment made by section*  
22 *210 and amounts authorized under section 225,*  
23 *\$535,000,000 for fiscal year 2002, \$639,000,000 for fiscal*  
24 *year 2003, and \$683,000,000 for fiscal year 2004, to remain*  
25 *available until expended.*

1           **(b) WAVE POWERED ELECTRIC GENERATION.**—*Within*  
2 *the amounts authorized to be appropriated to the Secretary*  
3 *under subsection (a), the Secretary shall carry out a re-*  
4 *search program, in conjunction with other appropriate Fed-*  
5 *eral agencies, on wave powered electric generation.*

6           **(c) ASSESSMENT OF RENEWABLE ENERGY RE-**  
7 **SOURCES.**—

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

14           **(2) RESOURCE ASSESSMENT.**—*Such report shall*  
15 *include a detailed inventory describing the available*  
16 *amount and characteristics of solar, wind, biomass,*  
17 *geothermal, hydroelectric, and other renewable energy*  
18 *sources, and an estimate of the costs needed to develop*  
19 *each resource. The report shall also include such other*  
20 *information as the Secretary believes would be useful*  
21 *in siting renewable energy generation, such as appro-*  
22 *priate terrain, population and load centers, nearby*  
23 *energy infrastructure, and location of energy re-*  
24 *sources.*



1           (3) *AVAILABILITY.*—*The information and cost es-*  
2           *timates in this report shall be updated annually and*  
3           *made available to the public, along with the data used*  
4           *to create the report.*

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

7           (d) *LIMITS ON USE OF FUNDS.*—*None of the funds au-*  
8           *thorized to be appropriated in subsection (a) may be used*  
9           *for—*

10           (1) *Departmental Energy Management Program;*

11           *or*

12           (2) *Renewable Indian Energy Resources.*

13           ***TITLE III—NUCLEAR ENERGY***

14           ***Subtitle A—University Nuclear***

15           ***Science and Engineering***

16           ***SEC. 301. SHORT TITLE.***

17           *This subtitle may be cited as “Department of Energy*  
18           *University Nuclear Science and Engineering Act”.*

19           ***SEC. 302. FINDINGS.***

20           *The Congress finds the following:*

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

1        *over two-thirds of the faculty in these programs are*  
2        *45 years of age or older. Also, since 1980, the number*  
3        *of university research and training reactors in the*  
4        *United States has declined by over 50 percent. Most*  
5        *of these reactors were built in the late 1950s and*  
6        *1960s with 30-year to 40-year operating licenses, and*  
7        *many will require relicensing in the next several*  
8        *years.*

9                *(2) A decline in a competent nuclear workforce,*  
10        *and the lack of adequately trained nuclear scientists*  
11        *and engineers, will affect the ability of the United*  
12        *States to solve future nuclear waste storage issues, op-*  
13        *erate existing and design future fission reactors in the*  
14        *United States, respond to future nuclear events world-*  
15        *wide, help stem the proliferation of nuclear weapons,*  
16        *and design and operate naval nuclear reactors.*

17                *(3) The Department of Energy's Office of Nu-*  
18        *clear Energy, Science and Technology, a principal*  
19        *Federal agency for civilian research in nuclear*  
20        *science and engineering, is well suited to help main-*  
21        *tain tomorrow's human resource and training invest-*  
22        *ment in the nuclear sciences and engineering.*

23        **SEC. 303. DEPARTMENT OF ENERGY PROGRAM.**

24                *(a) ESTABLISHMENT.—The Secretary, through the Of-*  
25        *fice of Nuclear Energy, Science and Technology, shall sup-*

1 port a program to maintain the Nation's human resource  
2 investment and infrastructure in the nuclear sciences and  
3 engineering consistent with the Department's statutory au-  
4 thorities related to civilian nuclear research, development,  
5 and demonstration and commercial application of energy  
6 technology.

7 (b) *DUTIES OF THE OFFICE OF NUCLEAR ENERGY,*  
8 *SCIENCE AND TECHNOLOGY.*—*In carrying out the program*  
9 *under this subtitle, the Director of the Office of Nuclear En-*  
10 *ergy, Science and Technology shall—*

11 (1) *develop a robust graduate and undergraduate*  
12 *fellowship program to attract new and talented stu-*  
13 *dents;*

14 (2) *assist universities in recruiting and retain-*  
15 *ing new faculty in the nuclear sciences and engineer-*  
16 *ing through a Junior Faculty Research Initiation*  
17 *Grant Program;*

18 (3) *maintain a robust investment in the funda-*  
19 *mental nuclear sciences and engineering through the*  
20 *Nuclear Engineering Education Research Program;*

21 (4) *encourage collaborative nuclear research*  
22 *among industry, national laboratories, and univer-*  
23 *sities through the Nuclear Energy Research Initiative;*

24 (5) *assist universities in maintaining reactor in-*  
25 *frastructure; and*

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

3           (c) *MAINTAINING UNIVERSITY RESEARCH AND TRAIN-*  
4           *ING REACTORS AND ASSOCIATED INFRASTRUCTURE.—The*  
5           *Secretary, through the Office of Nuclear Energy, Science*  
6           *and Technology, shall provide for the following university*  
7           *research and training reactor infrastructure maintenance*  
8           *and research activities:*

9           (1) *Refueling of university research reactors with*  
10           *low enriched fuels, upgrade of operational instrumen-*  
11           *tation, and sharing of reactors among universities.*

12           (2) *In collaboration with the United States nu-*  
13           *clear industry, assistance, where necessary, in reli-*  
14           *censing and upgrading university training reactors*  
15           *as part of a student training program.*

16           (3) *A university reactor research and training*  
17           *award program that provides for reactor improve-*  
18           *ments as part of a focused effort that emphasizes re-*  
19           *search, training, and education.*

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

23           (1) *a sabbatical fellowship program for univer-*  
24           *sity faculty to spend extended periods of time at De-*

1        *partment of Energy laboratories in the areas of nu-*  
2        *clear science and technology; and*

3                *(2) a visiting scientist program in which labora-*  
4        *tory staff can spend time in academic nuclear science*  
5        *and engineering departments.*

6        *The Secretary may under subsection (b)(1) provide for fel-*  
7        *lowships for students to spend time at Department of En-*  
8        *ergy laboratories in the areas of nuclear science and tech-*  
9        *nology under the mentorship of laboratory staff.*

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

17        *(f) MERIT REVIEW REQUIRED.—All grants, contracts,*  
18        *cooperative agreements, or other financial assistance*  
19        *awards under this subtitle shall be made only after inde-*  
20        *pendent merit review.*

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

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

5 **SEC. 304. AUTHORIZATION OF APPROPRIATIONS.**

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

10 (1) *\$30,200,000 for fiscal year 2002.*

11 (2) *\$41,000,000 for fiscal year 2003.*

12 (3) *\$47,900,000 for fiscal year 2004.*

13 (4) *\$55,600,000 for fiscal year 2005.*

14 (5) *\$64,100,000 for fiscal year 2006.*

15 (b) *GRADUATE AND UNDERGRADUATE FELLOW-*  
16 *SHIPS.*—*Of the funds authorized by subsection (a), the fol-*  
17 *lowing sums are authorized to be appropriated to carry out*  
18 *section 303(b)(1):*

19 (1) *\$3,000,000 for fiscal year 2002.*

20 (2) *\$3,100,000 for fiscal year 2003.*

21 (3) *\$3,200,000 for fiscal year 2004.*

22 (4) *\$3,200,000 for fiscal year 2005.*

23 (5) *\$3,200,000 for fiscal year 2006.*

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

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

3 (1) \$5,000,000 for fiscal year 2002.

4 (2) \$7,000,000 for fiscal year 2003.

5 (3) \$8,000,000 for fiscal year 2004.

6 (4) \$9,000,000 for fiscal year 2005.

7 (5) \$10,000,000 for fiscal year 2006.

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

12 (1) \$8,000,000 for fiscal year 2002.

13 (2) \$12,000,000 for fiscal year 2003.

14 (3) \$13,000,000 for fiscal year 2004.

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

16 (5) \$20,000,000 for fiscal year 2006.

17 (e) *COMMUNICATION AND OUTREACH RELATED TO NU-*  
18 *CLEAR SCIENCE AND ENGINEERING.*—*Of the funds author-*  
19 *ized by subsection (a), the following sums are authorized*  
20 *to be appropriated to carry out section 303(b)(5):*

21 (1) \$200,000 for fiscal year 2002.

22 (2) \$200,000 for fiscal year 2003.

23 (3) \$300,000 for fiscal year 2004.

24 (4) \$300,000 for fiscal year 2005.

25 (5) \$300,000 for fiscal year 2006.

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

5           (1) \$6,000,000 for fiscal year 2002.

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

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

8           (4) \$7,500,000 for fiscal year 2005.

9           (5) \$8,000,000 for fiscal year 2006.

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

13          (1) \$1,000,000 for fiscal year 2002.

14          (2) \$1,100,000 for fiscal year 2003.

15          (3) \$1,200,000 for fiscal year 2004.

16          (4) \$1,300,000 for fiscal year 2005.

17          (5) \$1,300,000 for fiscal year 2006.

18          (h) *REACTOR RESEARCH AND TRAINING AWARD PRO-*  
19 *GRAM.*—Of the funds authorized by subsection (a), the fol-  
20 lowing sums are authorized to be appropriated to carry out  
21 section 303(c)(3):

22          (1) \$6,000,000 for fiscal year 2002.

23          (2) \$10,000,000 for fiscal year 2003.

24          (3) \$14,000,000 for fiscal year 2004.

25          (4) \$18,000,000 for fiscal year 2005.



1           (5) \$20,000,000 for fiscal year 2006.

2           (i) *UNIVERSITY-DOE LABORATORY INTERACTIONS.*—

3 *Of the funds authorized by subsection (a), the following*

4 *sums are authorized to be appropriated to carry out section*

5 *303(d):*

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

7           (2) \$1,100,000 for fiscal year 2003.

8           (3) \$1,200,000 for fiscal year 2004.

9           (4) \$1,300,000 for fiscal year 2005.

10          (5) \$1,300,000 for fiscal year 2006.

11 ***Subtitle B—Advanced Fuel Recy-***  
12 ***cling Technology Research and***  
13 ***Development Program***

14 ***SEC. 321. PROGRAM.***

15          (a) *IN GENERAL.*—*The Secretary, through the Director*

16 *of the Office of Nuclear Energy, Science and Technology,*

17 *shall conduct an advanced fuel recycling technology re-*

18 *search and development program to further the availability*

19 *of proliferation-resistant fuel recycling technologies as an*

20 *alternative to aqueous reprocessing in support of evaluation*

21 *of alternative national strategies for spent nuclear fuel and*

22 *the Generation IV advanced reactor concepts, subject to an-*

23 *ual review by the Secretary's Nuclear Energy Research*

24 *Advisory Committee or other independent entity, as appro-*

25 *priate.*

1       (b) *REPORTS.*—*The Secretary shall report on the ac-*  
2 *tivities of the advanced fuel recycling technology research*  
3 *and development program, as part of the Department’s an-*  
4 *nual budget submission.*

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

8           (1) *\$10,000,000 for fiscal year 2002; and*

9           (2) *such sums as are necessary for fiscal year*  
10 *2003 and fiscal year 2004.*

11       ***Subtitle C—Department of Energy***  
12       ***Authorization of Appropriations***

13       ***SEC. 341. NUCLEAR ENERGY RESEARCH INITIATIVE.***

14       (a) *PROGRAM.*—*The Secretary, through the Office of*  
15 *Nuclear Energy, Science and Technology, shall conduct a*  
16 *Nuclear Energy Research Initiative for grants to be com-*  
17 *petitively awarded and subject to peer review for research*  
18 *relating to nuclear energy.*

19       (b) *OBJECTIVES.*—*The program shall be directed to-*  
20 *ward accomplishing the objectives of—*

21           (1) *developing advanced concepts and scientific*  
22 *breakthroughs in nuclear fission and reactor tech-*  
23 *nology to address and overcome the principal tech-*  
24 *nical and scientific obstacles to the expanded use of*  
25 *nuclear energy in the United States;*

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

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

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

11          (5) *promoting United States leadership and*  
12          *partnerships in bilateral and multilateral nuclear en-*  
13          *ergy research.*

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

17                 (1) *\$60,000,000 for fiscal year 2002; and*

18                 (2) *such sums as are necessary for fiscal year*  
19                 *2003 and fiscal year 2004.*

20          **SEC. 342. NUCLEAR ENERGY PLANT OPTIMIZATION PRO-**  
21                         **GRAM.**

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

1 *dust*ry by least 50 percent and subject to annual review by  
2 *the Secretary's Nuclear Energy Research Advisory Com-*  
3 *mittee or other independent entity, as appropriate.*

4 (b) *OBJECTIVES.*—*The program shall be directed to-*  
5 *ward accomplishing the objectives of—*

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

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

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

13 (1) *\$15,000,000 for fiscal year 2002; and*

14 (2) *such sums as are necessary for fiscal years*  
15 *2003 and 2004.*

16 **SEC. 343. NUCLEAR ENERGY TECHNOLOGIES.**

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

24 (b) *REACTOR CHARACTERISTICS.*—*To the extent prac-*  
25 *ticable, in conducting the study under subsection (a), the*

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

4           (1) *economics competitive with any other genera-*  
5 *tors;*

6           (2) *enhanced safety features, including passive*  
7 *safety features;*

8           (3) *substantially reduced production of high-level*  
9 *waste, as compared with the quantity of waste pro-*  
10 *duced by reactors in operation on the date of enact-*  
11 *ment of this Act;*

12           (4) *highly proliferation-resistant fuel and waste;*

13           (5) *sustainable energy generation including opti-*  
14 *mized fuel utilization; and*

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

18       (c) *CONSULTATION.—In conducting the study under*  
19 *subsection (a), the Secretary shall consult with appropriate*  
20 *representatives of industry, institutions of higher education,*  
21 *Federal agencies, and international, professional, and tech-*  
22 *nical organizations.*

23       (d) *REPORT.—*

24           (1) *IN GENERAL.—Not later than December 31,*  
25 *2002, the Secretary shall transmit to the appropriate*

1        *congressional committees a report describing the ac-*  
2        *tivities of the Secretary under this section, and plans*  
3        *for research and development leading to a public/pri-*  
4        *rate cooperative demonstration of one or more Gen-*  
5        *eration IV nuclear energy systems.*

6            (2) *CONTENTS.—The report shall contain—*

7            (A) *an assessment of all available tech-*  
8            *nologies;*

9            (B) *a summary of actions needed for the*  
10          *most promising candidates to be considered as*  
11          *viable commercial options within the five to ten*  
12          *years after the date of the report, with consider-*  
13          *ation of regulatory, economic, and technical*  
14          *issues;*

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

18          (D) *an evaluation of opportunities for pub-*  
19          *lic/private partnerships;*

20          (E) *a recommendation for structure of a*  
21          *public/private partnership to share in develop-*  
22          *ment and construction costs;*

23          (F) *a plan leading to the selection and con-*  
24          *ceptual design, by September 30, 2004, of at*  
25          *least one Generation IV nuclear energy system*

1           *concept recommended under subparagraph (C)*  
2           *for demonstration through a public/private part-*  
3           *nership;*

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

7           (H) *a recommendation for appropriate in-*  
8           *volvement of other Federal agencies.*

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

13                 (1) *\$20,000,000 for fiscal year 2002; and*

14                 (2) *such sums as are necessary for fiscal year*  
15                 *2003 and fiscal year 2004.*

16          **SEC. 344. AUTHORIZATION OF APPROPRIATIONS.**

17           (a) *OPERATION AND MAINTENANCE.—There are au-*  
18          *thorized to be appropriated to the Secretary to carry out*  
19          *activities authorized under this title for nuclear energy op-*  
20          *eration and maintenance, including amounts authorized*  
21          *under sections 304(a), 321(c), 341(c), 342(c), and 343(e),*  
22          *and including Advanced Radioisotope Power Systems, Test*  
23          *Reactor Landlord, and Program Direction, \$191,200,000*  
24          *for fiscal year 2002, \$199,000,000 for fiscal year 2003, and*

1 \$207,000,000 for fiscal year 2004, to remain available until  
2 expended.

3 (b) *CONSTRUCTION.*—There are authorized to be ap-  
4 propriated to the Secretary—

5 (1) \$950,000 for fiscal year 2002, \$2,200,000 for  
6 fiscal year 2003, \$1,246,000 for fiscal year 2004, and  
7 \$1,699,000 for fiscal year 2005 for completion of con-  
8 struction of Project 99–E–200, Test Reactor Area  
9 Electric Utility Upgrade, Idaho National Engineer-  
10 ing and Environmental Laboratory; and

11 (2) \$500,000 for fiscal year 2002, \$500,000 for  
12 fiscal year 2003, \$500,000 for fiscal year 2004, and  
13 \$500,000 for fiscal year 2005, for completion of con-  
14 struction of Project 95–E–201, Test Reactor Area  
15 Fire and Life Safety Improvements, Idaho National  
16 Engineering and Environmental Laboratory.

17 (c) *LIMITS ON USE OF FUNDS.*—None of the funds au-  
18 thorized to be appropriated in subsection (a) may be used  
19 for—

20 (1) *Nuclear Energy Isotope Support and Produc-*  
21 *tion;*

22 (2) *Argonne National Laboratory-West Oper-*  
23 *ations;*

24 (3) *Fast Flux Test Facility; or*

25 (4) *Nuclear Facilities Management.*



**TITLE IV—FOSSIL ENERGY****Subtitle A—Clean Coal****3 SEC. 401. SHORT TITLE.**

4       *This subtitle may be cited as the “National Electricity*  
5 *and Environmental Technology Research and Development*  
6 *Act”.*

**7 SEC. 402. FINDINGS.**

8       *Congress finds that—*

9           (1) *reliable, affordable, increasingly clean elec-*  
10 *tricity will continue to power the growing United*  
11 *States economy;*

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

17           (3) *coal, which, as of the date of enactment of*  
18 *this Act, accounts for more than 1/2 of all electricity*  
19 *generated in the United States, is the most abundant*  
20 *fossil energy resource of the United States;*

21           (4) *coal comprises more than 85 percent of all*  
22 *fossil resources in the United States and exists in*  
23 *quantities sufficient to supply the United States for*  
24 *250 years at current usage rates;*

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

7           (6) *continued environmental improvement in*  
8           *coal-based generation through continued research, de-*  
9           *velopment, and demonstration toward an ultimate*  
10          *goal of near-zero emissions is important and desir-*  
11          *able.*

12 **SEC. 403. DEFINITION.**

13          *In this subtitle, the term “cost and performance-based*  
14          *goals” means the cost and performance-based goals estab-*  
15          *lished under section 4.*

16 **SEC. 404. CLEAN COAL POWER INITIATIVE.**

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

21                 (1) *this subtitle;*

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

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

1           (4) *title XIII of the Energy Policy Act of 1992*  
2           (42 U.S.C. 13331 et seq.).

3           (b) *CONDITIONS.—The research, development, dem-*  
4 *onstration, and commercial application program described*  
5 *in subsection (a) shall be designed to achieve the cost and*  
6 *performance-based goals.*

7 **SEC. 405. AUTHORIZATION OF APPROPRIATIONS.**

8           (a) *CLEAN COAL POWER INITIATIVE.—Except as pro-*  
9 *vided in section 406, there are authorized to be appro-*  
10 *priated to the Secretary to carry out the Clean Coal Power*  
11 *Initiative under section 404 \$200,000,000 for each of the*  
12 *fiscal years 2002 through 2011, to remain available until*  
13 *expended.*

14           (b) *OTHER COAL AND RELATED TECHNOLOGIES PRO-*  
15 *GRAMS.—Except as provided in section 406, there are au-*  
16 *thorized to be appropriated to the Secretary \$172,000,000*  
17 *for fiscal year 2002, \$179,000,000 for fiscal year 2003, and*  
18 *\$186,000,000 for fiscal year 2004, to remain available until*  
19 *expended, for other coal and related technologies research*  
20 *and development programs, which shall include—*

- 21           (1) *Innovations for Existing Plants;*  
22           (2) *Integrated Gasification Combined Cycle;*  
23           (3) *advanced combustion systems;*  
24           (4) *Turbines;*  
25           (5) *Sequestration Research and Development;*

- 1           (6) *innovative technologies for demonstration;*
- 2           (7) *Transportation Fuels and Chemicals;*
- 3           (8) *Solid Fuels and Feedstocks;*
- 4           (9) *Advanced Fuels Research; and*
- 5           (10) *Advanced Research.*

6           (c) *LIMIT ON USE OF FUNDS.—Notwithstanding sub-*  
7 *sections (a) and (b), no funds may be used to carry out*  
8 *the activities authorized by this subtitle after September 30,*  
9 *2002, unless the Secretary has transmitted to the appro-*  
10 *priate congressional committees the report required by this*  
11 *subsection and 1 month have elapsed since that trans-*  
12 *mission. The report shall include—*

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

15                   (A) *a detailed assessment of whether the ag-*  
16 *gregate funding levels provided under subsection*  
17 *(a) are the appropriate funding levels for that*  
18 *program;*

19                   (B) *a detailed description of how proposals*  
20 *will be solicited and evaluated, including a list*  
21 *of all demonstration activities expected to be un-*  
22 *dertaken;*

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

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

4           (E) a detailed description of how the pro-  
5           gram will avoid problems enumerated in General  
6           Accounting Office reports on the Clean Coal  
7           Technology Program, including problems that  
8           have resulted in unspent funds and projects that  
9           failed either financially or scientifically;

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

12               (A) a detailed description of how proposals  
13               will be solicited and evaluated, including a list  
14               of all demonstration activities expected to be un-  
15               dertaken; and

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

19               (3) a description of how the programs will be  
20               carried out under subsection (a) and subsection (b) so  
21               as to complement each other and not duplicate activi-  
22               ties.

23          (d) *APPLICABILITY.*—Subsection (c) shall not apply to  
24          any program, project, or activity begun before September  
25          30, 2001.

1 **SEC. 406. PROJECT CRITERIA.**

2 (a) *IN GENERAL.*—*The Secretary shall not provide*  
3 *funding for any research, development, demonstration, or*  
4 *commercial application of coal and related technologies that*  
5 *do not advance efficiency, environmental performance, and*  
6 *cost competitiveness well beyond the level of technologies*  
7 *that are in operation or have been demonstrated as of the*  
8 *date of the enactment of this Act.*

9 (b) *TECHNICAL CRITERIA FOR CLEAN COAL POWER*  
10 *INITIATIVE.*—

11 (1) *SEQUESTRATION AND GASIFICATION.*—(A) *In*  
12 *allocating the funds authorized under section 405(a),*  
13 *the Secretary shall ensure that at least 80 percent of*  
14 *the funds are used only for projects on carbon seques-*  
15 *tration, or coal-based gasification technologies, in-*  
16 *cluding gasification combined cycle, gasification fuel*  
17 *cells, gasification coproduction and hybrid gasifi-*  
18 *cation/combustion.*

19 (B) *The Secretary shall set technical milestones*  
20 *specifying emissions levels that coal gasification*  
21 *projects must be designed to and reasonably expected*  
22 *to achieve. The milestones shall get more restrictive*  
23 *through the life of the program. The milestones shall*  
24 *be designed to achieve by 2020 coal gasification*  
25 *projects able—*

26 (i) *to remove 99 percent of sulfur dioxide;*

1           (ii) to emit no more than .05 lbs of NO<sub>x</sub> per  
2 million BTU;

3           (iii) to remove 95 percent of mercury; and

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

6           (2) *OTHER PROJECTS.*—For projects not de-  
7 scribed in paragraph (1), the Secretary shall set tech-  
8 nical milestones specifying emissions levels that the  
9 projects must be designed to and reasonably expected  
10 to achieve. The milestones shall get more restrictive  
11 through the life of the program. The milestones shall  
12 be designed to achieve by 2010 projects able—

13           (A) to remove 97 percent of sulfur dioxide;

14           (B) to emit no more than .08 lbs of NO<sub>x</sub> per  
15 million BTU;

16           (C) to remove 90 percent of mercury; and

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

19           (c) *FINANCIAL CRITERIA.*—The Secretary shall not  
20 provide a funding award for any research, development,  
21 demonstration, or commercial application of coal and re-  
22 lated technologies unless the recipient of the award has doc-  
23 umented to the satisfaction of the Secretary that—

24           (1) the award recipient is financially viable  
25 without the receipt of additional Federal funding;

1           (2) *the recipient will provide sufficient informa-*  
2           *tion to the Secretary for the Secretary to ensure that*  
3           *the award funds are spent efficiently and effectively;*  
4           *and*

5           (3) *a market exists for the technology being dem-*  
6           *onstrated or applied, as evidenced by statements of*  
7           *interest in writing from potential purchasers of the*  
8           *technology.*

9           (d) *FEDERAL SHARE.*—*The Federal share of the cost*  
10          *of a coal or related technology project funded by the Sec-*  
11          *retary shall not exceed 50 percent.*

12          **SEC. 407. CLEAN COAL CENTERS OF EXCELLENCE.**

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



1                   **Subtitle B—Oil and Gas**

2   **SEC. 421. PETROLEUM-OIL TECHNOLOGY.**

3           *The Secretary shall conduct a program of research, de-*  
 4 *velopment, demonstration, and commercial application on*  
 5 *petroleum-oil technology. The program shall address—*

6                   (1) *Exploration and Production Supporting Re-*  
 7 *search;*

8                   (2) *Oil Technology Reservoir Management/Ex-*  
 9 *tension; and*

10                  (3) *Effective Environmental Protection.*

11 **SEC. 422. GAS.**

12           *The Secretary shall conduct a program of research, de-*  
 13 *velopment, demonstration, and commercial application on*  
 14 *natural gas technologies. The program shall address—*

15                   (1) *Exploration and Production;*

16                   (2) *Infrastructure; and*

17                   (3) *Effective Environmental Protection.*

18                   **Subtitle C—Ultra-Deepwater and**  
 19                   **Unconventional Drilling**

20 **SEC. 441. SHORT TITLE.**

21           *This subtitle may be cited as the “Natural Gas and*  
 22 *Other Petroleum Research, Development, and Demonstra-*  
 23 *tion Act of 2001”.*

24 **SEC. 442. DEFINITIONS.**

25           *For purposes of this subtitle—*

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

3           (2) the term “Fund” means the Ultra-Deepwater  
4 and Unconventional Gas Research Fund established  
5 under section 450;

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

9           (4) the term “Research Organization” means the  
10 Research Organization created pursuant to section  
11 446(a);

12           (5) the term “ultra-deepwater” means water  
13 depths greater than 1,500 meters; and

14           (6) the term “unconventional” means located in  
15 heretofore inaccessible or uneconomic formations on  
16 land.

17 **SEC. 443. ULTRA-DEEPWATER PROGRAM.**

18           The Secretary shall establish a program of research,  
19 development, and demonstration of ultra-deepwater natural  
20 gas and other petroleum exploration and production tech-  
21 nologies, in areas currently available for Outer Continental  
22 Shelf leasing. The program shall be carried out by the Re-  
23 search Organization as provided in this subtitle.

1 **SEC. 444. NATIONAL ENERGY TECHNOLOGY LABORATORY.**

2       *The National Energy Technology Laboratory and the*  
3 *United States Geological Survey, when appropriate, shall*  
4 *carry out programs of long-term research into new natural*  
5 *gas and other petroleum exploration and production tech-*  
6 *nologies and environmental mitigation technologies for pro-*  
7 *duction from unconventional and ultra-deepwater re-*  
8 *sources, including methane hydrates. Such Laboratory shall*  
9 *also conduct a program of research, development, and dem-*  
10 *onstration of new technologies for the reduction of green-*  
11 *house gas emissions from unconventional and ultra-deep-*  
12 *water natural gas or other petroleum exploration and pro-*  
13 *duction activities, including sub-sea floor carbon sequestra-*  
14 *tion technologies.*

15 **SEC. 445. ADVISORY COMMITTEE.**

16       *(a) ESTABLISHMENT.—The Secretary shall, within 3*  
17 *months after the date of the enactment of this Act, establish*  
18 *an Advisory Committee consisting of 7 members, each hav-*  
19 *ing extensive operational knowledge of and experience in*  
20 *the natural gas and other petroleum exploration and pro-*  
21 *duction industry who are not Federal Government employ-*  
22 *ees or contractors. A minimum of 4 members shall have ex-*  
23 *tensive knowledge of ultra-deepwater natural gas or other*  
24 *petroleum exploration and production technologies, a min-*  
25 *imum of 2 members shall have extensive knowledge of un-*  
26 *conventional natural gas or other petroleum exploration*

1 *and production technologies, and at least 1 member shall*  
2 *have extensive knowledge of greenhouse gas emission reduc-*  
3 *tion technologies, including carbon sequestration.*

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

8 (c) *COMPENSATION.—Members of the Advisory Com-*  
9 *mittee shall serve without compensation but shall receive*  
10 *travel expenses, including per diem in lieu of subsistence,*  
11 *in accordance with applicable provisions under subchapter*  
12 *I of chapter 57 of title 5, United States Code.*

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

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

20 **SEC. 446. RESEARCH ORGANIZATION.**

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

1 *months after such solicitation, shall select an entity to cre-*  
2 *ate the Research Organization.*

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

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

7 (2) *be entities exempt from tax under section*  
8 *501(c)(3) of the Internal Revenue Code of 1986; and*

9 (3) *be experienced in planning and managing*  
10 *programs in natural gas or other petroleum explo-*  
11 *ration and production research, development, and*  
12 *demonstration.*

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

17 (d) *FUNCTIONS.—The Research Organization shall—*

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

20 (A) *research institutions;*

21 (B) *institutions of higher education;*

22 (C) *companies; and*

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

1           *search, development, and demonstration of un-*  
2           *conventional and ultra-deepwater natural gas or*  
3           *other petroleum exploration and production tech-*  
4           *nologies; and*

5           (2) *review activities under those grants to ensure*  
6           *that they comply with the requirements of this sub-*  
7           *title and serve the purposes for which the grant was*  
8           *made.*

9 **SEC. 447. GRANTS.**

10           (a) *TYPES OF GRANTS.—*

11           (1) *UNCONVENTIONAL.—The Research Organiza-*  
12           *tion shall award grants for research, development,*  
13           *and demonstration of technologies to maximize the*  
14           *value of the Government's natural gas and other pe-*  
15           *troleum resources in unconventional reservoirs, and to*  
16           *develop technologies to increase the supply of natural*  
17           *gas and other petroleum resources by lowering the cost*  
18           *and improving the efficiency of exploration and pro-*  
19           *duction of unconventional reservoirs, while improving*  
20           *safety and minimizing environmental impacts.*

21           (2) *ULTRA-DEEPWATER.—The Research Organi-*  
22           *zation shall award grants for research, development,*  
23           *and demonstration of natural gas or other petroleum*  
24           *exploration and production technologies to—*

1           (A) maximize the value of the Federal Gov-  
2 ernment's natural gas and other petroleum re-  
3 sources in the ultra-deepwater areas;

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

8           (C) improve safety and minimize the envi-  
9 ronmental impacts of ultra-deepwater develop-  
10 ments.

11           (3) *ULTRA-DEEPWATER ARCHITECTURE.*—*The*  
12 *Research Organization shall award a grant to one or*  
13 *more consortia described in section 446(d)(1)(D) for*  
14 *the purpose of developing and demonstrating the next*  
15 *generation architecture for ultra-deepwater produc-*  
16 *tion of natural gas and other petroleum in further-*  
17 *ance of the purposes stated in paragraph (2)(A)*  
18 *through (C).*

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

21           (1) *If the grant recipient consists of more than*  
22 *one entity, the recipient shall provide a signed con-*  
23 *tract agreed to by all participating members clearly*  
24 *defining all rights to intellectual property for existing*  
25 *technology and for future inventions conceived and*

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

3               *(2) There shall be a repayment schedule for Fed-*  
4       *eral dollars provided for demonstration projects under*  
5       *the grant in the event of a successful commercializa-*  
6       *tion of the demonstrated technology. Such repayment*  
7       *schedule shall provide that the payments are made to*  
8       *the Secretary with the express intent that these pay-*  
9       *ments not impede the adoption of the demonstrated*  
10       *technology in the marketplace. In the event that such*  
11       *impedance occurs due to market forces or other fac-*  
12       *tors, the Research Organization shall renegotiate the*  
13       *grant agreement so that the acceptance of the tech-*  
14       *nology in the marketplace is enabled.*

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

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

22               *(5) The total amount of funds made available*  
23       *under a grant provided under subsection (a)(1) or (2)*  
24       *shall not exceed 50 percent of the total cost of the ac-*  
25       *tivities covered by the grant, except that the Research*



1        *Organization may elect to provide grants covering a*  
2        *higher percentage, not to exceed 90 percent, of total*  
3        *project costs in the case of grants made solely to inde-*  
4        *pendent producers.*

5            *(6) An appropriate amount of funds provided*  
6        *under a grant shall be used for the broad dissemina-*  
7        *tion of technologies developed under the grant to in-*  
8        *terested institutions of higher education, industry,*  
9        *and appropriate Federal and State technology entities*  
10       *to ensure the greatest possible benefits for the public*  
11       *and use of government resources.*

12           *(7) Demonstrations of ultra-deepwater tech-*  
13        *nologies for which funds are provided under a grant*  
14        *may be conducted in ultra-deepwater or deepwater lo-*  
15        *cations.*

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

18            *(1) 15 percent shall be for grants under sub-*  
19        *section (a)(1).*

20            *(2) 15 percent shall be for grants under sub-*  
21        *section (a)(2).*

22            *(3) 60 percent shall be for grants under sub-*  
23        *section (a)(3).*

24            *(4) 10 percent shall be for carrying out section*  
25        *444.*

1 **SEC. 448. PLAN AND FUNDING.**

2       (a) *TRANSMITTAL TO SECRETARY.*—*The Research Or-*  
3 *ganization shall transmit to the Secretary an annual plan*  
4 *proposing projects and funding of activities under each*  
5 *paragraph of section 447(a).*

6       (b) *REVIEW.*—*The Secretary shall have 1 month to re-*  
7 *view the annual plan, and shall approve the plan, if it is*  
8 *consistent with this subtitle. If the Secretary approves the*  
9 *plan, the Secretary shall provide funding as proposed in*  
10 *the plan.*

11       (c) *DISAPPROVAL.*—*If the Secretary does not approve*  
12 *the plan, the Secretary shall notify the Research Organiza-*  
13 *tion of the reasons for disapproval and shall withhold fund-*  
14 *ing until a new plan is submitted which the Secretary ap-*  
15 *proves. Within 1 month after notifying the Research Orga-*  
16 *nization of a disapproval, the Secretary shall notify the ap-*  
17 *propriate congressional committees of the disapproval.*

18 **SEC. 449. AUDIT.**

19       *The Secretary shall retain an independent, commercial*  
20 *auditor to determine the extent to which the funds author-*  
21 *ized by this subtitle have been expended in a manner con-*  
22 *sistent with the purposes of this subtitle. The auditor shall*  
23 *transmit a report annually to the Secretary, who shall*  
24 *transmit the report to the appropriate congressional com-*  
25 *mittees, along with a plan to remedy any deficiencies cited*  
26 *in the report.*

1 **SEC. 450. FUND.**

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

8 (b) *FUNDING SOURCES.*—

9 (1) *LOANS FROM TREASURY.*—*There are author-*  
10 *ized to be appropriated to the Secretary \$900,000,000*  
11 *for the period encompassing fiscal years 2002 through*  
12 *2009. Such amounts shall be deposited by the Sec-*  
13 *retary in the Fund, and shall be considered loans*  
14 *from the Treasury. Income received by the United*  
15 *States in connection with any ultra-deepwater oil*  
16 *and gas leases shall be deposited in the Treasury and*  
17 *considered as repayment for the loans under this*  
18 *paragraph.*

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

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

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

3        **SEC. 451. SUNSET.**

4        *No funds are authorized to be appropriated for car-*  
5        *rying out this subtitle after fiscal year 2009. The Research*  
6        *Organization shall be terminated when it has expended all*  
7        *funds made available pursuant to this subtitle.*

8                                **Subtitle D—Fuel Cells**

9        **SEC. 461. FUEL CELLS.**

10        *(a) IN GENERAL.—The Secretary shall conduct a pro-*  
11        *gram of research, development, demonstration, and commer-*  
12        *cial application on fuel cells. The program shall address—*

- 13                                *(1) Advanced Research;*  
14                                *(2) Systems Development;*  
15                                *(3) Vision 21-Hybrids; and*  
16                                *(4) Innovative Concepts.*

17        *(b) MANUFACTURING PRODUCTION AND PROCESSES.—*  
18        *In addition to the program under subsection (a), the Sec-*  
19        *retary, in consultation other Federal agencies, as appro-*  
20        *priate, shall establish a program for the demonstration of*  
21        *fuel cell technologies, including fuel cell proton exchange*  
22        *membrane technology, for commercial, residential, and*  
23        *transportation applications. The program shall specifically*  
24        *focus on promoting the application of and improved manu-*  
25        *facturing production and processes for fuel cell technologies.*

1           (c) *AUTHORIZATION OF APPROPRIATIONS.*—*Within the*  
2 *amounts authorized to be appropriated under section*  
3 *481(a), there are authorized to be appropriated to the Sec-*  
4 *retary for the purpose of carrying out subsection (b),*  
5 *\$28,000,000 for each of fiscal years 2002 through 2004.*

6           ***Subtitle E—Department of Energy***  
7           ***Authorization of Appropriations***

8           ***SEC. 481. AUTHORIZATION OF APPROPRIATIONS.***

9           (a) *OPERATION AND MAINTENANCE.*—*There are au-*  
10 *thorized to be appropriated to the Secretary for operation*  
11 *and maintenance for subtitle B and subtitle D, and for Fos-*  
12 *sil Energy Research and Development Headquarters Pro-*  
13 *gram Direction, Field Program Direction, Plant and Cap-*  
14 *ital Equipment, Cooperative Research and Development,*  
15 *Import/Export Authorization, and Advanced Metallurgical*  
16 *Processes \$282,000,000 for fiscal year 2002, \$293,000,000*  
17 *for fiscal year 2003, and \$305,000,000 for fiscal year 2004,*  
18 *to remain available until expended.*

19           (b) *LIMITS ON USE OF FUNDS.*—*None of the funds au-*  
20 *thorized to be appropriated in subsection (a) may be used*  
21 *for—*

22                   (1) *Gas Hydrates.*

23                   (2) *Fossil Energy Environmental Restoration; or*

1           (3) *research, development, demonstration, and*  
2           *commercial application on coal and related tech-*  
3           *nologies, including activities under subtitle A.*

4                           **TITLE V—SCIENCE**  
5           **Subtitle A—Fusion Energy Sciences**

6   **SEC. 501. SHORT TITLE.**

7           *This subtitle may be cited as the “Fusion Energy*  
8           *Sciences Act of 2001”.*

9   **SEC. 502. FINDINGS.**

10          *The Congress finds that—*

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

13               (2) *environmental quality is closely linked to en-*  
14               *ergy production and use;*

15               (3) *population, worldwide economic development,*  
16               *energy consumption, and stress on the environment*  
17               *are all expected to increase substantially in the com-*  
18               *ing decades;*

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

23               (5) *fusion energy is an attractive long-term en-*  
24               *ergy source because of the virtually inexhaustible sup-*

1 *ply of fuel, and the promise of minimal adverse envi-*  
2 *ronmental impact and inherent safety;*

3 *(6) the National Research Council, the Presi-*  
4 *dent's Committee of Advisers on Science and Tech-*  
5 *nology, and the Secretary of Energy Advisory Board*  
6 *have each recently reviewed the Fusion Energy*  
7 *Sciences Program and each strongly supports the fun-*  
8 *damental science and creative innovation of the pro-*  
9 *gram, and has confirmed that progress toward the*  
10 *goal of producing practical fusion energy has been ex-*  
11 *cellent, although much scientific and engineering*  
12 *work remains to be done;*

13 *(7) each of these reviews stressed the need for a*  
14 *magnetic fusion burning plasma experiment to ad-*  
15 *dress key scientific issues and as a necessary step in*  
16 *the development of fusion energy;*

17 *(8) the National Research Council has also called*  
18 *for a broadening of the Fusion Energy Sciences Pro-*  
19 *gram research base as a means to more fully integrate*  
20 *the fusion science community into the broader sci-*  
21 *entific community; and*

22 *(9) the Fusion Energy Sciences Program budget*  
23 *is inadequate to support the necessary science and in-*  
24 *novation for the present generation of experiments,*  
25 *and cannot accommodate the cost of a burning plas-*

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

4        **SEC. 503. PLAN FOR FUSION EXPERIMENT.**

5        (a) *PLAN FOR UNITED STATES FUSION EXPERI-*  
6        *MENT.—The Secretary, on the basis of full consultation with*  
7        *the Fusion Energy Sciences Advisory Committee and the*  
8        *Secretary of Energy Advisory Board, as appropriate, shall*  
9        *develop a plan for United States construction of a magnetic*  
10       *fusion burning plasma experiment for the purpose of accel-*  
11       *erating scientific understanding of fusion plasmas. The Sec-*  
12       *retary shall request a review of the plan by the National*  
13       *Academy of Sciences, and shall transmit the plan and the*  
14       *review to the Congress by July 1, 2004.*

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

17                (1) *address key burning plasma physics issues;*  
18        *and*

19                (2) *include specific information on the scientific*  
20        *capabilities of the proposed experiment, the relevance*  
21        *of these capabilities to the goal of practical fusion en-*  
22        *ergy, and the overall design of the experiment includ-*  
23        *ing its estimated cost and potential construction sites.*

24       (c) *UNITED STATES PARTICIPATION IN AN INTER-*  
25       *NATIONAL EXPERIMENT.—In addition to the plan described*



1 *in subsection (a), the Secretary, on the basis of full con-*  
2 *sultation with the Fusion Energy Sciences Advisory Com-*  
3 *mittee and the Secretary of Energy Advisory Board, as ap-*  
4 *propriate, may also develop a plan for United States par-*  
5 *ticipation in an international burning plasma experiment*  
6 *for the same purpose, whose construction is found by the*  
7 *Secretary to be highly likely and where United States par-*  
8 *ticipation is cost effective relative to the cost and scientific*  
9 *benefits of a domestic experiment described in subsection*  
10 *(a). If the Secretary elects to develop a plan under this sub-*  
11 *section, he shall include the information described in sub-*  
12 *section (b), and an estimate of the cost of United States*  
13 *participation in such an international experiment. The*  
14 *Secretary shall request a review by the National Academies*  
15 *of Sciences and Engineering of a plan developed under this*  
16 *subsection, and shall transmit the plan and the review to*  
17 *the Congress not later than July 1, 2004.*

18       (d) *AUTHORIZATION OF RESEARCH AND DEVELOP-*  
19 *MENT.—The Secretary, through the Fusion Energy Sciences*  
20 *Program, may conduct any research and development nec-*  
21 *essary to fully develop the plans described in this section.*

22 **SEC. 504. PLAN FOR FUSION ENERGY SCIENCES PROGRAM.**

23       *Not later than 6 months after the date of the enactment*  
24 *of this Act, the Secretary, in full consultation with FESAC,*  
25 *shall develop and transmit to the Congress a plan for the*

1 *purpose of ensuring a strong scientific base for the Fusion*  
2 *Energy Sciences Program and to enable the experiments de-*  
3 *scribed in section 503. Such plan shall include as its*  
4 *objectives—*

5 *(1) to ensure that existing fusion research facili-*  
6 *ties and equipment are more fully utilized with ap-*  
7 *propriate measurements and control tools;*

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

10 *(3) to ensure that the selection of and funding*  
11 *for new magnetic and inertial fusion research facili-*  
12 *ties is based on scientific innovation and cost effec-*  
13 *tiveness;*

14 *(4) to improve the communication of scientific*  
15 *results and methods between the fusion science com-*  
16 *munity and the wider scientific community;*

17 *(5) to ensure that adequate support is provided*  
18 *to optimize the design of the magnetic fusion burning*  
19 *plasma experiments referred to in section 503;*

20 *(6) to ensure that inertial confinement fusion fa-*  
21 *cilities are utilized to the extent practicable for the*  
22 *purpose of inertial fusion energy research and devel-*  
23 *opment;*

24 *(7) to develop a roadmap for a fusion-based en-*  
25 *ergy source that shows the important scientific ques-*

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

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

7            *(9) to ensure that the National Science Founda-*  
8        *tion, and other agencies, as appropriate, play a role*  
9        *in extending the reach of fusion science and in spon-*  
10       *soring general plasma science; and*

11           *(10) to ensure that there be continuing broad as-*  
12       *sessments of the outlook for fusion energy and periodic*  
13       *external reviews of fusion energy sciences.*

14    **SEC. 505. AUTHORIZATION OF APPROPRIATIONS.**

15        *There are authorized to be appropriated to the Sec-*  
16       *retary for the development and review, but not for imple-*  
17       *mentation, of the plans described in this subtitle and for*  
18       *activities of the Fusion Energy Sciences Program*  
19       *\$320,000,000 for fiscal year 2002 and \$335,000,000 for fis-*  
20       *cal year 2003, of which up to \$15,000,000 for each of fiscal*  
21       *year 2002 and fiscal year 2003 may be used to establish*  
22       *several new centers of excellence, selected through a competi-*  
23       *tive peer-review process and devoted to exploring the fron-*  
24       *tiers of fusion science.*

1       **Subtitle B—Spallation Neutron**  
 2                                   **Source**

3   **SEC. 521. DEFINITION.**

4           *For the purposes of this subtitle, the term “Spallation*  
 5 *Neutron Source” means Department Project 99–E–334,*  
 6 *Oak Ridge National Laboratory, Oak Ridge, Tennessee.*

7   **SEC. 522. AUTHORIZATION OF APPROPRIATIONS.**

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

- 11                   *(1) \$276,300,000 for fiscal year 2002;*  
 12                   *(2) \$210,571,000 for fiscal year 2003;*  
 13                   *(3) \$124,600,000 for fiscal year 2004;*  
 14                   *(4) \$79,800,000 for fiscal year 2005; and*  
 15                   *(5) \$41,100,000 for fiscal year 2006 for comple-*  
 16           *tion of construction.*

17           *(b) AUTHORIZATION OF OTHER PROJECT FUNDING.—*  
 18 *There are authorized to be appropriated to the Secretary*  
 19 *for other project costs (including research and development*  
 20 *necessary to complete the project, preoperations costs, and*  
 21 *capital equipment not related to construction) of the Spall-*  
 22 *ation Neutron Source \$15,353,000 for fiscal year 2002 and*  
 23 *\$103,279,000 for the period encompassing fiscal years 2003*  
 24 *through 2006, to remain available until expended through*  
 25 *September 30, 2006.*

1 **SEC. 523. REPORT.**

2 *The Secretary shall report on the Spallation Neutron*  
 3 *Source as part of the Department's annual budget submis-*  
 4 *sion, including a description of the achievement of mile-*  
 5 *stones, a comparison of actual costs to estimated costs, and*  
 6 *any changes in estimated project costs or schedule.*

7 **SEC. 524. LIMITATIONS.**

8 *The total amount obligated by the Department, includ-*  
 9 *ing prior year appropriations, for the Spallation Neutron*  
 10 *Source may not exceed—*

- 11 *(1) \$1,192,700,000 for costs of construction;*  
 12 *(2) \$219,000,000 for other project costs; and*  
 13 *(3) \$1,411,700,000 for total project cost.*

14 ***Subtitle C—Facilities,***  
 15 ***Infrastructure, and User Facilities***

16 **SEC. 541. DEFINITION.**

17 *For purposes of this subtitle—*

18 *(1) the term “nonmilitary energy laboratory”*  
 19 *means—*

- 20 *(A) Ames Laboratory;*  
 21 *(B) Argonne National Laboratory;*  
 22 *(C) Brookhaven National Laboratory;*  
 23 *(D) Fermi National Accelerator Laboratory;*  
 24 *(E) Lawrence Berkeley National Labora-*  
 25 *tory;*  
 26 *(F) Oak Ridge National Laboratory;*

1           (G) *Pacific Northwest National Laboratory;*

2           (H) *Princeton Plasma Physics Laboratory;*

3           (I) *Stanford Linear Accelerator Center;*

4           (J) *Thomas Jefferson National Accelerator*  
5 *Facility; or*

6           (K) *any other facility of the Department*  
7 *that the Secretary, in consultation with the Di-*  
8 *rector, Office of Science and the appropriate con-*  
9 *gressional committees, determines to be consistent*  
10 *with the mission of the Office of Science; and*

11       (2) *the term “user facility” means—*

12           (A) *an Office of Science facility at a non-*  
13 *military energy laboratory that provides special*  
14 *scientific and research capabilities, including*  
15 *technical expertise and support as appropriate,*  
16 *to serve the research needs of the Nation’s univer-*  
17 *sities, industry, private laboratories, Federal lab-*  
18 *oratories, and others, including research institu-*  
19 *tions or individuals from other nations where re-*  
20 *ciprocal accommodations are provided to United*  
21 *States research institutions and individuals or*  
22 *where the Secretary considers such accommoda-*  
23 *tion to be in the national interest; and*

24           (B) *any other Office of Science funded facil-*  
25 *ity designated by the Secretary as a user facility.*

1 **SEC. 542. FACILITY AND INFRASTRUCTURE SUPPORT FOR**  
2 **NONMILITARY ENERGY LABORATORIES.**

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

6 (1) *maintaining existing facilities and infra-*  
7 *structure, as needed;*

8 (2) *closing unneeded facilities;*

9 (3) *making facility modifications; and*

10 (4) *building new facilities.*

11 (b) *PLAN.*—*The Secretary shall prepare a comprehen-*  
12 *sive 10-year plan for conducting future facility mainte-*  
13 *nance, making repairs, modifications, and new additions,*  
14 *and constructing new facilities at each nonmilitary energy*  
15 *laboratory. Such plan shall provide for facilities work in*  
16 *accordance with the following priorities:*

17 (1) *Providing for the safety and health of em-*  
18 *ployees, visitors, and the general public with regard*  
19 *to correcting existing structural, mechanical, elec-*  
20 *trical, and environmental deficiencies.*

21 (2) *Providing for the repair and rehabilitation of*  
22 *existing facilities to keep them in use and prevent de-*  
23 *terioration, if feasible.*

24 (3) *Providing engineering design and construc-*  
25 *tion services for those facilities that require modifica-*

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

3        *(c) REPORT.—*

4            *(1) TRANSMITTAL.—Within 1 year after the date*  
5        *of the enactment of this Act, the Secretary shall pre-*  
6        *pare and transmit to the appropriate congressional*  
7        *committees a report containing the plan prepared*  
8        *under subsection (b).*

9            *(2) CONTENTS.—For each nonmilitary energy*  
10       *laboratory, such report shall contain—*

11            *(A) the current priority list of proposed fa-*  
12        *cilities and infrastructure projects, including*  
13        *cost and schedule requirements;*

14            *(B) a current ten-year plan that dem-*  
15        *onstrates the reconfiguration of its facilities and*  
16        *infrastructure to meet its missions and to ad-*  
17        *dress its long-term operational costs and return*  
18        *on investment;*

19            *(C) the total current budget for all facilities*  
20        *and infrastructure funding; and*

21            *(D) the current status of each facilities and*  
22        *infrastructure project compared to the original*  
23        *baseline cost, schedule, and scope.*

24            *(3) ADDITIONAL ELEMENTS.—The report shall*  
25        *also—*



1           (A) include a plan for new facilities and fa-  
2           cility modifications at each nonmilitary energy  
3           laboratory that will be required to meet the De-  
4           partment's changing missions of the twenty-first  
5           century, including schedules and estimates for  
6           implementation, and including a section out-  
7           lining long-term funding requirements consistent  
8           with anticipated budgets and annual authoriza-  
9           tion of appropriations;

10           (B) address the coordination of moderniza-  
11           tion and consolidation of facilities among the  
12           nonmilitary energy laboratories in order to meet  
13           changing mission requirements; and

14           (C) provide for annual reports to the appro-  
15           priate congressional committees on accomplish-  
16           ments, conformance to schedules, commitments,  
17           and expenditures.

18 **SEC. 543. USER FACILITIES.**

19           (a) *NOTICE REQUIREMENT.*—When the Department  
20           makes a user facility available to universities and other po-  
21           tential users, or seeks input from universities and other po-  
22           tential users regarding significant characteristics or equip-  
23           ment in a user facility or a proposed user facility, the De-  
24           partment shall ensure broad public notice of such avail-

1 ability or such need for input to universities and other po-  
2 tential users.

3 (b) *COMPETITION REQUIREMENT.*—When the Depart-  
4 ment considers the participation of a university or other  
5 potential user in the establishment or operation of a user  
6 facility, the Department shall employ full and open com-  
7 petition in selecting such a participant.

8 (c) *PROHIBITION.*—The Department may not redesign-  
9 nate a user facility, as defined by section 541(b) as some-  
10 thing other than a user facility to avoid the requirements  
11 of subsections (a) and (b).

12 ***Subtitle D—Advisory Panel on***  
13 ***Office of Science***

14 ***SEC. 561. ESTABLISHMENT.***

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

19 (1) *address concerns about the current status and*  
20 *the future of scientific research supported by the Of-*  
21 *fice;*

22 (2) *examine alternatives to the current organiza-*  
23 *tional structure of the Office within the Department,*  
24 *taking into consideration existing structures for the*

1 support of scientific research in other Federal agen-  
2 cies and the private sector; and

3 (3) suggest actions to strengthen the scientific re-  
4 search supported by the Office that might be taken  
5 jointly by the Department and Congress.

6 **SEC. 562. REPORT.**

7 Within 6 months after the date of the enactment of this  
8 Act, the Advisory Panel shall transmit its findings and rec-  
9 ommendations in a report to the Director of the Office of  
10 Science and Technology Policy and the Secretary. The Di-  
11 rector and the Secretary shall jointly—

12 (1) consider each of the Panel's findings and rec-  
13 ommendations, and comment on each as they consider  
14 appropriate; and

15 (2) transmit the Panel's report and the com-  
16 ments of the Director and the Secretary on the report  
17 to the appropriate congressional committees within 9  
18 months after the date of the enactment of this Act.

19 **Subtitle E—Department of Energy**  
20 **Authorization of Appropriations**

21 **SEC. 581. AUTHORIZATION OF APPROPRIATIONS.**

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

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

11 *(b) RESEARCH REGARDING PRECIOUS METAL CATAL-*  
12 *YSIS.—Within the amounts authorized to be appropriated*  
13 *to the Secretary under subsection (a), \$5,000,000 for fiscal*  
14 *year 2002 may be used to carry out research in the use*  
15 *of precious metals (excluding platinum, palladium, and*  
16 *rhodium) in catalysis, either directly through national lab-*  
17 *oratories, or through the award of grants, cooperative agree-*  
18 *ments, or contracts with public or nonprofit entities.*

19 *(c) CONSTRUCTION.—In addition to the amounts au-*  
20 *thorized to be appropriated under section 522(a) for con-*  
21 *struction of the Spallation Neutron Source, there are au-*  
22 *thorized to be appropriated to the Secretary for Science—*

23 *(1) \$11,400,000 for fiscal year 2002 for comple-*  
24 *tion of construction of Project 98-G-304, Neutrinos*

1 *at the Main Injector, Fermi National Accelerator*  
2 *Laboratory;*

3 (2) \$11,405,000 for fiscal year 2002 for comple-  
4 tion of construction of Project 01-E-300, Laboratory  
5 for Comparative and Functional Genomics, Oak  
6 Ridge National Laboratory;

7 (3) \$4,000,000 for fiscal year 2002, \$8,000,000  
8 for fiscal year 2003, and \$2,000,000 for fiscal year  
9 2004 for completion of construction of Project 02-SC-  
10 002, Project Engineering Design (PED), Various Lo-  
11 cations;

12 (4) \$3,183,000 for fiscal year 2002 for comple-  
13 tion of construction of Project 02-SC-002, Multipro-  
14 gram Energy Laboratories Infrastructure Project En-  
15 gineering Design (PED), Various Locations; and

16 (5) \$18,633,000 for fiscal year 2002 and  
17 \$13,029,000 for fiscal year 2003 for completion of  
18 construction of Project MEL-001, Multiprogram En-  
19 ergy Laboratories, Infrastructure, Various Locations.

20 (d) LIMITS ON USE OF FUNDS.—None of the funds au-  
21 thorized to be appropriated in subsection (c) may be used  
22 for construction at any national security laboratory as de-  
23 fined in section 3281(1) of the National Defense Authoriza-  
24 tion Act for Fiscal Year 2000 (50 U.S.C. 2471(1)) or at  
25 any nuclear weapons production facility as defined in sec-

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

3       ***TITLE VI—MISCELLANEOUS***  
4       ***Subtitle A—General Provisions for***  
5       ***the Department of Energy***

6 ***SEC. 601. RESEARCH, DEVELOPMENT, DEMONSTRATION,***  
7               ***AND COMMERCIAL APPLICATION OF ENERGY***  
8               ***TECHNOLOGY PROGRAMS, PROJECTS, AND***  
9               ***ACTIVITIES.***

10       (a) *AUTHORIZED ACTIVITIES.*—*Except as otherwise*  
11 *provided in this Act, research, development, demonstration,*  
12 *and commercial application programs, projects, and activi-*  
13 *ties for which appropriations are authorized under this Act*  
14 *may be carried out under the procedures of the Federal Non-*  
15 *nuclear Energy Research and Development Act of 1974 (42*  
16 *U.S.C. 5901 et seq.), the Atomic Energy Act of 1954 (42*  
17 *U.S.C. 2011 et seq.), or any other Act under which the Sec-*  
18 *retary is authorized to carry out such programs, projects,*  
19 *and activities, but only to the extent the Secretary is au-*  
20 *thorized to carry out such activities under each such Act.*

21       (b) *AUTHORIZED AGREEMENTS.*—*Except as otherwise*  
22 *provided in this Act, in carrying out research, development,*  
23 *demonstration, and commercial application programs,*  
24 *projects, and activities for which appropriations are au-*  
25 *thorized under this Act, the Secretary may use, to the extent*

1 *authorized under applicable provisions of law, contracts, co-*  
2 *operative agreements, cooperative research and development*  
3 *agreements under the Stevenson-Wydler Technology Innova-*  
4 *tion Act of 1980 (15 U.S.C. 3701 et seq.), grants, joint ven-*  
5 *tures, and any other form of agreement available to the Sec-*  
6 *retary.*

7 (c) *DEFINITION.*—*For purposes of this section, the*  
8 *term “joint venture” has the meaning given that term under*  
9 *section 2 of the National Cooperative Research and Produc-*  
10 *tion Act of 1993 (15 U.S.C. 4301), except that such term*  
11 *may apply under this section to research, development,*  
12 *demonstration, and commercial application of energy tech-*  
13 *nology joint ventures.*

14 (d) *PROTECTION OF INFORMATION.*—*Section 12(c)(7)*  
15 *of the Stevenson-Wydler Technology Innovation Act of 1980*  
16 *(15 U.S.C. 3710a(c)(7)), relating to the protection of infor-*  
17 *mation, shall apply to research, development, demonstra-*  
18 *tion, and commercial application of energy technology pro-*  
19 *grams, projects, and activities for which appropriations are*  
20 *authorized under this Act.*

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

1           (f) *OUTREACH.*—*The Secretary shall ensure that each*  
2 *program authorized by this Act includes an outreach com-*  
3 *ponent to provide information, as appropriate, to manufac-*  
4 *turers, consumers, engineers, architects, builders, energy*  
5 *service companies, universities, facility planners and man-*  
6 *agers, State and local governments, and other entities.*

7           (g) *GUIDELINES AND PROCEDURES.*—*The Secretary*  
8 *shall provide guidelines and procedures for the transition,*  
9 *where appropriate, of energy technologies from research*  
10 *through development and demonstration to commercial ap-*  
11 *plication of energy technology. Nothing in this section shall*  
12 *preclude the Secretary from—*

13                 (1) *entering into a contract, cooperative agree-*  
14 *ment, cooperative research and development agree-*  
15 *ment under the Stevenson-Wydler Technology Innova-*  
16 *tion Act of 1980 (15 U.S.C. 3701 et seq.), grant, joint*  
17 *venture, or any other form of agreement available to*  
18 *the Secretary under this section that relates to re-*  
19 *search, development, demonstration, and commercial*  
20 *application of energy technology; or*

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



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

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

10    **SEC. 602. LIMITS ON USE OF FUNDS.**

11        *(a) MANAGEMENT AND OPERATING CONTRACTS.—*

12                *(1) COMPETITIVE PROCEDURE REQUIREMENT.—*

13        *None of the funds authorized to be appropriated to the*  
14        *Secretary by this Act may be used to award a man-*  
15        *agement and operating contract for a federally owned*  
16        *or operated nonmilitary energy laboratory of the De-*  
17        *partment unless such contract is awarded using com-*  
18        *petitive procedures or the Secretary grants, on a case-*  
19        *by-case basis, a waiver to allow for such a deviation.*  
20        *The Secretary may not delegate the authority to grant*  
21        *such a waiver.*

22                *(2) CONGRESSIONAL NOTICE.—At least 2 months*  
23        *before a contract award, amendment, or modification*  
24        *for which the Secretary intends to grant such a waiv-*  
25        *er, the Secretary shall submit to the appropriate con-*

1        *gressional committees a report notifying the commit-*  
2        *tees of the waiver and setting forth the reasons for the*  
3        *waiver.*

4        *(b) PRODUCTION OR PROVISION OF ARTICLES OR*  
5        *SERVICES.—None of the funds authorized to be appro-*  
6        *priated to the Secretary by this Act may be used to produce*  
7        *or provide articles or services for the purpose of selling the*  
8        *articles or services to a person outside the Federal Govern-*  
9        *ment, unless the Secretary determines that comparable arti-*  
10       *cles or services are not available from a commercial source*  
11       *in the United States.*

12       *(c) REQUESTS FOR PROPOSALS.—None of the funds*  
13       *authorized to be appropriated to the Secretary by this Act*  
14       *may be used by the Department to prepare or initiate Re-*  
15       *quests for Proposals for a program if the program has not*  
16       *been authorized by Congress.*

17       **SEC. 603. COST SHARING.**

18       *(a) RESEARCH AND DEVELOPMENT.—Except as other-*  
19       *wise provided in this Act, for research and development pro-*  
20       *grams carried out under this Act, the Secretary shall re-*  
21       *quire a commitment from non-Federal sources of at least*  
22       *20 percent of the cost of the project. The Secretary may re-*  
23       *duce or eliminate the non-Federal requirement under this*  
24       *subsection if the Secretary determines that the research and*  
25       *development is of a basic or fundamental nature.*

1           (b) *DEMONSTRATION AND COMMERCIAL APPLICA-*  
2 *TION.—Except as otherwise provided in this Act, the Sec-*  
3 *retary shall require at least 50 percent of the costs directly*  
4 *and specifically related to any demonstration or commer-*  
5 *cial application project under this Act to be provided from*  
6 *non-Federal sources. The Secretary may reduce the non-*  
7 *Federal requirement under this subsection if the Secretary*  
8 *determines that the reduction is necessary and appropriate*  
9 *considering the technological risks involved in the project*  
10 *and is necessary to meet the objectives of this Act.*

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

15 **SEC. 604. LIMITATION ON DEMONSTRATION AND COMMER-**  
16 **CIAL APPLICATION OF ENERGY TECHNOLOGY.**

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

1 **SEC. 605. REPROGRAMMING.**

2 (a) *AUTHORITY.*—*The Secretary may use amounts ap-*  
3 *propriated under this Act for a program, project, or activity*  
4 *other than the program, project, or activity for which such*  
5 *amounts were appropriated only if—*

6 (1) *the Secretary has transmitted to the appro-*  
7 *priate congressional committees a report described in*  
8 *subsection (b) and a period of 30 days has elapsed*  
9 *after such committees receive the report;*

10 (2) *amounts used for the program, project, or ac-*  
11 *tivity do not exceed—*

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

14 (B) *\$250,000 more than the amount author-*  
15 *ized for the program, project, or activity,*  
16 *whichever is less; and*

17 (3) *the program, project, or activity has been*  
18 *presented to, or requested of, the Congress by the Sec-*  
19 *retary.*

20 (b) *REPORT.*—(1) *The report referred to in subsection*  
21 *(a) is a report containing a full and complete statement*  
22 *of the action proposed to be taken and the facts and cir-*  
23 *cumstances relied upon in support of the proposed action.*

24 (2) *In the computation of the 30-day period under sub-*  
25 *section (a), there shall be excluded any day on which either*

1 *House of Congress is not in session because of an adjourn-*  
2 *ment of more than 3 days to a day certain.*

3 (c) *LIMITATIONS.—(1) In no event may the total*  
4 *amount of funds obligated by the Secretary pursuant to this*  
5 *Act exceed the total amount authorized to be appropriated*  
6 *to the Secretary by this Act.*

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

## 10 ***Subtitle B—Other Miscellaneous*** 11 ***Provisions***

### 12 ***SEC. 611. NOTICE OF REORGANIZATION.***

13 *The Secretary shall provide notice to the appropriate*  
14 *congressional committees not later than 15 days before any*  
15 *reorganization of any environmental research or develop-*  
16 *ment, scientific or energy research, development, or dem-*  
17 *onstration, or commercial application of energy technology*  
18 *program, project, or activity of the Department.*

### 19 ***SEC. 612. LIMITS ON GENERAL PLANT PROJECTS.***

20 *If, at any time during the construction of a civilian*  
21 *environmental research and development, scientific or en-*  
22 *ergy research, development, or demonstration, or commer-*  
23 *cial application of energy technology project of the Depart-*  
24 *ment for which no specific funding level is provided by law,*  
25 *the estimated cost (including any revision thereof) of the*

1 *project exceeds \$5,000,000, the Secretary may not continue*  
2 *such construction unless the Secretary has furnished a com-*  
3 *plete report to the appropriate congressional committees ex-*  
4 *plaining the project and the reasons for the estimate or revi-*  
5 *sion.*

6 **SEC. 613. LIMITS ON CONSTRUCTION PROJECTS.**

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

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

19               (2) *the amount of the total estimated cost for the*  
20 *project as shown in the most recent budget justifica-*  
21 *tion data submitted to Congress.*

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

24               (1) *the Secretary has submitted to the appro-*  
25 *priate congressional committees a report on the pro-*

1        *posed actions and the circumstances making such ac-*  
2        *tions necessary; and*

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

5        *(c) EXCLUSION.—In the computation of the 30-day pe-*  
6        *riod described in subsection (b)(2), there shall be excluded*  
7        *any day on which either House of Congress is not in session*  
8        *because of an adjournment of more than 3 days to a day*  
9        *certain.*

10       *(d) EXCEPTION.—Subsections (a) and (b) shall not*  
11       *apply to any construction project that has a current esti-*  
12       *mated cost of less than \$5,000,000.*

13       **SEC. 614. AUTHORITY FOR CONCEPTUAL AND CONSTRUC-**  
14                                        **TION DESIGN.**

15       *(a) REQUIREMENT FOR CONCEPTUAL DESIGN.—(1)*  
16       *Subject to paragraph (2) and except as provided in para-*  
17       *graph (3), before submitting to Congress a request for funds*  
18       *for a construction project that is in support of a civilian*  
19       *environmental research and development, scientific or en-*  
20       *ergy research, development, or demonstration, or commer-*  
21       *cial application of energy technology program, project, or*  
22       *activity of the Department, the Secretary shall complete a*  
23       *conceptual design for that project.*

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

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

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

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

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

20 **SEC. 615. NATIONAL ENERGY POLICY DEVELOPMENT**  
21 **GROUP MANDATED REPORTS.**

22 *(a) THE SECRETARY'S REVIEW OF ENERGY EFFI-*  
23 *CIENCY RENEWABLE ENERGY, AND ALTERNATIVE ENERGY*  
24 *RESEARCH AND DEVELOPMENT.—Upon completion of the*  
25 *Secretary's review of current funding and historic perform-*



1 *ance of the Department's energy efficiency, renewable en-*  
2 *ergy, and alternative energy research and development pro-*  
3 *grams in response to the recommendations of the May 16,*  
4 *2001, Report of the National Energy Policy Development*  
5 *Group, the Secretary shall transmit a report containing the*  
6 *results of such review to the appropriate congressional com-*  
7 *mittees.*

8       **(b) REVIEW AND RECOMMENDATIONS ON USING THE**  
9 **NATION'S ENERGY RESOURCES MORE EFFICIENTLY.—**  
10 *Upon completion of the Office of Science and Technology*  
11 *Policy and the President's Council of Advisors on Science*  
12 *and Technology reviewing and making recommendations on*  
13 *using the Nation's energy resources more efficiently, in re-*  
14 *sponse to the recommendation of the May 16, 2001, Report*  
15 *of the National Energy Policy Development Group, the Di-*  
16 *rector of the Office of Science and Technology Policy shall*  
17 *transmit a report containing the results of such review and*  
18 *recommendations to the appropriate congressional commit-*  
19 *tees.*

20 **SEC. 616. PERIODIC REVIEWS AND ASSESSMENTS.**

21       *The Secretary shall enter into appropriate arrange-*  
22 *ments with the National Academies of Sciences and Engi-*  
23 *neering to ensure that there be periodic reviews and assess-*  
24 *ments of the programs authorized by this Act, as well as*  
25 *the measurable cost and performance-based goals for such*

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



**Union Calendar No. 106**

107<sup>TH</sup> CONGRESS  
1<sup>ST</sup> SESSION

**H. R. 2460**

**[Report No. 107-177]**

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**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.

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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