

108TH CONGRESS
1ST SESSION

H. R. 1777

To provide for the establishment at the Department of Energy of a program for hydrogen fuel cell vehicles and infrastructure, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 11, 2003

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

A BILL

To provide for the establishment at the Department of Energy of a program for hydrogen fuel cell vehicles and infrastructure, 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. DEFINITIONS.**

4 In this Act:

5 (1) The term “Advisory Committee” means the
6 Hydrogen Technical and Fuel Cell Advisory Com-
7 mittee established under section 5 of this Act.

1 (2) The term “Department” means the Depart-
2 ment of Energy.

3 (3) The term “fuel cell” means a device that di-
4 rectly converts the chemical energy of a fuel and an
5 oxidant into electricity by an electrochemical process
6 taking place at separate electrodes in the device.

7 (4) The term “infrastructure” means the equip-
8 ment, systems, or facilities used to produce, dis-
9 tribute, deliver, or store hydrogen and other ad-
10 vanced clean fuels.

11 (5) The term “light duty vehicle” means a car
12 or truck, classified by the Department of Transpor-
13 tation as a Class I or IIA vehicle.

14 (6) The term “Secretary” means the Secretary
15 of Energy.

16 **SEC. 2. PLAN.**

17 Not later than six months after the date of enactment
18 of this Act, the Secretary shall transmit to the Congress
19 a coordinated plan for the programs described in this Act
20 and any other programs of the Department that are di-
21 rectly related to fuel cells or hydrogen. The plan shall de-
22 scribe, at a minimum—

23 (1) the agenda for the next five years for the
24 programs authorized under this Act, including the
25 agenda for each activity enumerated in section 3(a);

1 (2) the types of entities that will carry out the
2 activities under this Act and what role each entity
3 is expected to play;

4 (3) the milestones that will be used to evaluate
5 the programs for the next five years;

6 (4) the most significant technical and nontech-
7 nical hurdles that stand in the way of achieving the
8 goals described in section 3(b), and how the pro-
9 grams will address those hurdles; and

10 (5) the policy assumptions that are implicit in
11 the plan, including any assumptions that would af-
12 fect the sources of hydrogen or the marketability of
13 hydrogen-related products.

14 **SEC. 3. PROGRAM.**

15 (a) **ACTIVITIES.**—The Secretary, in partnership with
16 the private sector, shall conduct a program to address—

17 (1) production of hydrogen from diverse energy
18 sources, including—

19 (A) fossil fuels, which may include carbon
20 capture and sequestration;

21 (B) hydrogen-carrier fuels (including eth-
22 anol and methanol);

23 (C) renewable energy resources; and

24 (D) nuclear energy;

1 (2) the safe delivery of hydrogen or hydrogen-
2 carrier fuels, including—

3 (A) transmission by pipeline and other dis-
4 tribution methods; and

5 (B) convenient and economic refueling of
6 vehicles either at central refueling stations or
7 through distributed on-site generation;

8 (3) advanced vehicle technologies, including—

9 (A) engine and emission control systems;

10 (B) energy storage, electric propulsion, and
11 hybrid systems;

12 (C) automotive materials;

13 (D) clean fuels in addition to hydrogen;

14 and

15 (E) other advanced vehicle technologies;

16 (4) storage of hydrogen or hydrogen-carrier
17 fuels, including development of materials for safe
18 and economic storage in gaseous, liquid, or solid
19 form at refueling facilities and onboard vehicles;

20 (5) development of safe, durable, affordable,
21 and efficient fuel cells, including research and devel-
22 opment on fuel-flexible fuel cell power systems, im-
23 proved manufacturing processes, high-temperature
24 membranes, cost-effective fuel processing for natural

1 gas, fuel cell stack and system reliability, low tem-
2 perature operation, and cold start capability; and

3 (6) development of necessary codes and stand-
4 ards (including international codes and standards)
5 and safety practices for the production, distribution,
6 storage, and use of hydrogen, hydrogen-carrier fuels
7 and related products.

8 (b) PROGRAM GOALS.—

9 (1) VEHICLES.—For vehicles, the goals of the
10 program are—

11 (A) to enable a commitment by auto-
12 makers no later than year 2015 to offer safe,
13 affordable, and technically viable hydrogen fuel
14 cell vehicles in the mass consumer market; and

15 (B) to enable production, delivery, and ac-
16 ceptance by consumers of model year 2020 hy-
17 drogen fuel cell and other vehicles that will
18 have—

19 (i) a range of at least three hundred
20 miles;

21 (ii) improved performance and ease of
22 driving;

23 (iii) safety and performance com-
24 parable to vehicle technologies in the mar-
25 ket;

1 (iv) when compared to light duty vehi-
2 cles in model year 2003—

3 (I) a fuel economy that is two
4 and one half times the equivalent fuel
5 economy of comparable light duty ve-
6 hicles in model year 2003; and

7 (II) near zero emissions of air
8 pollutants; and

9 (v) vehicle fuel system crash integrity
10 and occupant protection.

11 (2) HYDROGEN ENERGY AND ENERGY INFRA-
12 STRUCTURE.—For hydrogen energy and energy in-
13 frastructure, the goals of the program are to enable
14 a commitment not later than 2015 that will lead to
15 infrastructure by 2020 that will provide—

16 (A) safe and convenient refueling;

17 (B) improved overall efficiency;

18 (C) widespread availability of hydrogen
19 from domestic energy sources through—

20 (i) production, with consideration of
21 emissions levels;

22 (ii) delivery, including transmission by
23 pipeline and other distribution methods for
24 hydrogen; and

1 (iii) storage, including storage in sur-
2 face transportation vehicles;

3 (D) hydrogen for fuel cells, internal com-
4 bustion engines, and other energy conversion
5 devices for portable, stationary, and transpor-
6 tation applications; and

7 (E) other technologies consistent with the
8 Department's plan.

9 (3) FUEL CELLS.—The goals for fuel cells and
10 their portable, stationary, and transportation appli-
11 cations are to enable—

12 (A) safe, economical, and environmentally
13 sound hydrogen fuel cells;

14 (B) fuel cells for light duty and other vehi-
15 cles; and

16 (C) other technologies consistent with the
17 Department's plan.

18 (c) DEMONSTRATION.—In carrying out the program
19 under this section, the Secretary shall fund a limited num-
20 ber of demonstration projects. In selecting projects under
21 this subsection, the Secretary shall, to the extent prac-
22 ticable and in the public interest, select projects that—

23 (1) involve using hydrogen and related products
24 at facilities or installations that would exist without
25 the demonstration program, such as existing office

1 buildings, military bases, vehicle fleet centers, tran-
2 sit bus authorities, or parks;

3 (2) depend on reliable power from hydrogen to
4 carry out essential activities;

5 (3) lead to the replication of hydrogen tech-
6 nologies and draw such technologies into the market-
7 place;

8 (4) integrate in a single project both mobile and
9 stationary applications of hydrogen fuel cells;

10 (5) address the interdependency of demand for
11 hydrogen fuel cell applications and hydrogen fuel in-
12 frastructure; and

13 (6) raise awareness of hydrogen technology
14 among the public.

15 (d) DEPLOYMENT.—In carrying out the program
16 under this section, the Secretary shall, in partnership with
17 the private sector, conduct activities to facilitate the de-
18 ployment of—

19 (1) hydrogen energy and energy infrastructure;

20 (2) fuel cells;

21 (3) advanced vehicle technologies; and

22 (4) clean fuels in addition to hydrogen.

23 (e) FUNDING.—(1) The Secretary shall carry out the
24 program under this section using a competitive, merit-re-
25 view process and consistent with the generally applicable

1 Federal laws and regulations governing awards of finan-
2 cial assistance, contracts, or other agreements.

3 (2) Activities under this section may be carried out
4 by funding nationally recognized university-based research
5 centers.

6 (3) The Secretary shall endeavor to avoid duplication
7 or displacement of other research and development pro-
8 grams and activities.

9 (f) COST SHARING.—

10 (1) REQUIREMENT.—For projects carried out
11 through grants, cooperative agreements, or contracts
12 under this section, the Secretary shall require a
13 commitment from non-Federal sources of at least—

14 (A) 20 percent of the cost of a project, ex-
15 cept projects carried out under subsections (c)
16 and (d); and

17 (B) 50 percent of the cost of a project car-
18 ried out under subsection (c) or (d).

19 (2) REDUCTION.—The Secretary may reduce
20 the non-Federal requirement under paragraph (1) if
21 the Secretary determines that—

22 (A) the reduction is appropriate consid-
23 ering the technological risks involved; or

1 (B) the project is for technical analyses or
2 other activities that the Secretary does not ex-
3 pect to result in a marketable product.

4 (3) SIZE OF NON-FEDERAL SHARE.—The Sec-
5 retary may consider the size of the non-Federal
6 share in selecting projects.

7 **SEC. 4. INTERAGENCY TASK FORCE.**

8 (a) ESTABLISHMENT.—Not later than 120 days after
9 the date of enactment of this Act, the President shall es-
10 tablish an interagency task force chaired by the Secretary
11 or his designee with representatives from each of the fol-
12 lowing:

13 (1) The Office of Science and Technology Pol-
14 icy within the Executive Office of the President.

15 (2) The Department of Transportation.

16 (3) The Department of Defense.

17 (4) The Department of Commerce (including
18 the National Institute of Standards and Tech-
19 nology).

20 (5) The Environmental Protection Agency.

21 (6) The National Aeronautics and Space Ad-
22 ministration.

23 (7) Other Federal agencies as the Secretary de-
24 termines appropriate.

25 (b) DUTIES.—

1 (1) PLANNING.—The interagency task force
2 shall work toward—

3 (A) a safe, economical, and environ-
4 mentally sound fuel infrastructure for hydrogen
5 and hydrogen-carrier fuels, including an infra-
6 structure that supports buses and other fleet
7 transportation;

8 (B) fuel cells in government and other ap-
9 plications, including portable, stationary, and
10 transportation applications;

11 (C) distributed power generation, including
12 the generation of combined heat, power, and
13 clean fuels including hydrogen;

14 (D) uniform hydrogen codes, standards,
15 and safety protocols; and

16 (E) vehicle hydrogen fuel system integrity
17 safety performance.

18 (2) ACTIVITIES.—The interagency task force
19 may organize workshops and conferences, may issue
20 publications, and may create databases to carry out
21 its duties. The interagency task force shall—

22 (A) foster the exchange of generic, non-
23 proprietary information and technology among
24 industry, academia, and government;

1 (B) develop and maintain an inventory and
2 assessment of hydrogen, fuel cells, and other
3 advanced technologies, including the commercial
4 capability of each technology for the economic
5 and environmentally safe production, distribu-
6 tion, delivery, storage, and use of hydrogen;

7 (C) integrate technical and other informa-
8 tion made available as a result of the programs
9 and activities under this Act;

10 (D) promote the marketplace introduction
11 of infrastructure for hydrogen and other clean
12 fuel vehicles; and

13 (E) conduct an education program to pro-
14 vide hydrogen and fuel cell information to po-
15 tential end-users.

16 (c) AGENCY COOPERATION.—The heads of all agen-
17 cies, including those whose agencies are not represented
18 on the interagency task force, shall cooperate with and
19 furnish information to the interagency task force, the Ad-
20 visory Committee, and the Department.

21 **SEC. 5. ADVISORY COMMITTEE.**

22 (a) ESTABLISHMENT.—The Hydrogen Technical and
23 Fuel Cell Advisory Committee is established to advise the
24 Secretary on the programs and activities under this Act.

25 (b) MEMBERSHIP.—

1 (1) MEMBERS.—The Advisory Committee is
2 comprised of not fewer than 12 nor more than 25
3 members. These members shall be appointed by the
4 Secretary to represent domestic industry, academia,
5 professional societies, government agencies, and fi-
6 nancial, environmental, and other appropriate orga-
7 nizations based on the Department’s assessment of
8 the technical and other qualifications of committee
9 members and the needs of the Advisory Committee.

10 (2) TERMS.—The term of a member of the Ad-
11 visory Committee shall not be more than 3 years.
12 The Secretary may appoint members of the Advisory
13 Committee in a manner that allows the terms of the
14 members serving at any time to expire at spaced in-
15 tervals so as to ensure continuity in the functioning
16 of the Advisory Committee. A member of the Advi-
17 sory Committee whose term is expiring may be re-
18 appointed.

19 (3) CHAIRPERSON.—The Advisory Committee
20 shall have a chairperson, who is elected by the mem-
21 bers from among their number.

22 (c) REVIEW.—The Advisory Committee shall review
23 and make recommendations to the Secretary on—

24 (1) the implementation of programs and activi-
25 ties under this Act;

1 (2) the safety, economical, and environmental
2 consequences of technologies for the production, dis-
3 tribution, delivery, storage, or use of hydrogen en-
4 ergy and fuel cells; and

5 (3) the plan under section 2.

6 (d) RESPONSE.—(1) The Secretary shall consider,
7 but need not adopt, any recommendations of the Advisory
8 Committee under subsection (c).

9 (2) The Secretary shall transmit a biennial report to
10 the Congress describing any recommendations made by
11 the Advisory Committee since the previous report. The re-
12 port shall include a description of how the Secretary has
13 implemented or plans to implement the recommendations,
14 or an explanation of the reasons that a recommendation
15 will not be implemented. The report shall be transmitted
16 along with the President’s budget proposal.

17 (e) SUPPORT.—The Secretary shall provide resources
18 necessary in the judgment of the Secretary for the Advi-
19 sory Committee to carry out its responsibilities under this
20 Act.

21 **SEC. 6. EXTERNAL REVIEW.**

22 (a) PLAN.—The Secretary shall enter into an ar-
23 rangement with a competitively selected nongovernmental
24 entity, such as the National Academy of Sciences, to re-
25 view the plan prepared under section 2, which shall be

1 completed not later than six months after the entity re-
2 ceives the plan. Not later than 45 days after receiving the
3 review, the Secretary shall transmit the review to the Con-
4 gress along with a plan to implement the review's rec-
5 ommendations or an explanation of the reasons that a rec-
6 ommendation will not be implemented.

7 (b) **ADDITIONAL REVIEW.**—The Secretary shall enter
8 into an arrangement with a competitively selected non-
9 governmental entity, such as the National Academy of
10 Sciences, under which the entity will review the program
11 under section 3 during the fourth year following the date
12 of enactment of this Act. The entity's review shall include
13 the research priorities and technical milestones, and evalu-
14 ate the progress toward achieving them. The review shall
15 be completed no later than five years after the date of
16 enactment of this Act. Not later than 45 days after receiv-
17 ing the review, the Secretary shall transmit the review to
18 the Congress along with a plan to implement the review's
19 recommendations or an explanation for the reasons that
20 a recommendation will not be implemented.

21 **SEC. 7. MISCELLANEOUS PROVISIONS.**

22 (a) **REPRESENTATION.**—The Secretary may rep-
23 resent the United States interests with respect to activities
24 and programs under this Act, in coordination with the De-
25 partment of Transportation, the National Institute of

1 Standards and Technology, and other relevant Federal
2 agencies, before governments and nongovernmental orga-
3 nizations including—

4 (1) other Federal, State, regional, and local
5 governments and their representatives;

6 (2) industry and its representatives, including
7 members of the energy and transportation indus-
8 tries; and

9 (3) in consultation with the Department of
10 State, foreign governments and their representatives
11 including international organizations.

12 (b) REGULATORY AUTHORITY.—Nothing in this Act
13 shall be construed to alter the regulatory authority of the
14 Department.

15 **SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

16 There are authorized to be appropriated to carry out
17 this Act, in addition to any amounts made available for
18 these purposes under other Acts—

19 (1) \$273,500,000 for fiscal year 2004;

20 (2) \$325,000,000 for fiscal year 2005;

21 (3) \$375,000,000 for fiscal year 2006;

22 (4) \$400,000,000 for fiscal year 2007; and

23 (5) \$425,000,000 for fiscal year 2008.”.

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