

108TH CONGRESS
1ST SESSION

H. R. 1773

To amend the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990, 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

A BILL

To amend the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990, 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.**

4 This Act may be cited as the “George E. Brown, Jr.
5 and Robert S. Walker Hydrogen Future Act of 2003”.

6 **SEC. 2. MATSUNAGA ACT AMENDMENT.**

7 The Spark M. Matsunaga Hydrogen Research, Devel-
8 opment, and Demonstration Act of 1990 (42 U.S.C.
9 12401 et seq.) is amended by striking sections 102
10 through 109 and inserting the following:

1 **“SEC. 102. FINDINGS AND DEFINITIONS.**

2 “(a) FINDINGS.—Congress finds that—

3 “(1) the United States is currently dependent
4 on foreign sources for a majority of its petroleum
5 supply;

6 “(2) the Nation’s dependence on foreign petro-
7 leum is expected to increase in the decades ahead;

8 “(3) it is in the national interest to reduce de-
9 pendence on imported petroleum by accelerating
10 Federal efforts to partner with the private sector in
11 developing hydrogen and fuel cell technologies;

12 “(4) it is in the national interest to support in-
13 dustry’s efforts to develop a light duty vehicle fleet
14 that is free or near free of pollutant emissions and
15 greenhouse gas emissions, and that helps to reduce
16 the Nation’s dependence on petroleum in a manner
17 that maintains the freedom of consumers to pur-
18 chase the kinds of vehicles they wish to drive and
19 the freedom to refuel those vehicles safely and
20 affordably;

21 “(5) the development of hydrogen fuel cell vehi-
22 cles and supporting infrastructure will benefit from
23 and accelerate the parallel advancement of fuel cells
24 for stationary power that will enhance the resiliency,
25 reliability, and environmental performance of the
26 Nation’s electricity infrastructure;

1 “(6) fuel cell technology for consumer elec-
2 tronics and portable power will benefit from, and ad-
3 vance the development of, hydrogen fuel cell vehicles
4 and supporting infrastructure;

5 “(7) there is a need for deployment of bridging
6 technologies that can contribute to reducing petro-
7 leum demand and decreasing air emissions, includ-
8 ing—

9 “(A) gasoline-electric and diesel-electric hy-
10 brid drive systems;

11 “(B) advanced combustion engines (includ-
12 ing clean diesel), electric battery, and power
13 electronics; and

14 “(C) alternative fuels and other tech-
15 nologies;

16 “(8) low-cost hydrogen production, storage, and
17 delivery facilities are essential to the success of the
18 FreedomCAR program; and

19 “(9) vehicle technology development work
20 should be performed in a manner that is cognizant
21 of consumer acceptance and marketplace success.

22 “(b) DEFINITIONS.—In this Act:

23 “(1) The term ‘Advisory Committee’ means the
24 Hydrogen Technical and Fuel Cell Advisory Com-
25 mittee established under section 108 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 ‘FreedomCAR’ is the acronym
8 for a Department initiative in automotive research
9 and development entitled ‘Freedom Cooperative
10 Automotive Research’.

11 “(5) The term ‘infrastructure’ means the equip-
12 ment, systems, or facilities used to produce, dis-
13 tribute, deliver, or store hydrogen and other ad-
14 vanced clean fuels.

15 “(6) The term ‘light duty vehicle’ means a car
16 or truck classified by the Department of Transpor-
17 tation as a Class I or IIA vehicle.

18 “(7) The term ‘Secretary’ means the Secretary
19 of Energy.

20 **“SEC. 103. PROGRAM.**

21 “(a) IN GENERAL.—The Secretary shall conduct a
22 research, development, demonstration, and commercial ap-
23 plication program designed to accelerate the use of hydro-
24 gen and related technologies in stationary and transpor-

1 tation applications. The goals of the program shall in-
2 clude—

3 “(1) to enable a decision by automakers not
4 later than 2015 to offer affordable and technically
5 viable hydrogen fuel cell vehicles in the mass con-
6 sumer market;

7 “(2) to enable production and delivery to con-
8 sumers of model year 2020 hydrogen fuel cell vehi-
9 cles that will have—

10 “(A) a range of at least three hundred
11 miles;

12 “(B) safety and performance comparable
13 to vehicle technologies in the market; and

14 “(C) when compared to light duty vehicles
15 in model year 2003—

16 “(i) a fuel economy that is two and
17 one half times the equivalent fuel economy
18 of comparable light duty vehicles in model
19 year 2003; and

20 “(ii) zero or near zero emissions of
21 pollutants; and

22 “(D) vehicle fuel system crash integrity
23 and occupant protection; and

1 “(3) to enable by 2020 the safe and convenient
2 commercial production and delivery of hydrogen that
3 will have—

4 “(A) the capacity to meet the demand for
5 stationary and mobile hydrogen fuel cells;

6 “(B) safety and performance characteris-
7 tics comparable to other fuels; and

8 “(C) improved overall efficiency and zero
9 or near zero emissions when compared to fuels
10 used in 2003.

11 “(b) ACTIVITIES.—The program authorized under
12 this section shall address—

13 “(1) production of hydrogen from diverse en-
14 ergy sources, including—

15 “(A) fossil fuels, in conjunction with car-
16 bon capture and sequestration;

17 “(B) hydrogen-carrier fuels (including eth-
18 anol and methanol);

19 “(C) renewable energy resources; and

20 “(D) nuclear energy;

21 “(2) delivery of hydrogen or hydrogen-carrier
22 fuels, including—

23 “(A) transmission by pipeline and other
24 distribution methods; and

1 “(B) safe, convenient, and economic refuel-
2 ing of vehicles either at central refueling sta-
3 tions or through distributed on-site generation;

4 “(3) storage of hydrogen or hydrogen-carrier
5 fuels, including development of materials for safe
6 and economic storage in gaseous, liquid, or solid
7 form at refueling facilities and onboard vehicles;

8 “(4) development of safe, durable, affordable,
9 and efficient fuel cells, including research and devel-
10 opment on fuel-flexible fuel cell power systems, im-
11 proved manufacturing processes, high-temperature
12 membranes, cost-effective fuel processing for natural
13 gas, fuel cell stack and system reliability, low tem-
14 perature operation, and cold start capability; and

15 “(5) development, in conjunction with the Na-
16 tional Institute of Standards and Technology, of
17 necessary codes and standards (including inter-
18 national codes and standards) and safety practices
19 for the production, distribution, storage, and use of
20 hydrogen, hydrogen-carrier fuels and related prod-
21 ucts.

22 “(c) DEMONSTRATION.—In carrying out the dem-
23 onstration program under this section, the Secretary shall
24 fund a limited number of projects and shall, to the extent
25 practicable—

1 “(1) select only projects that—

2 “(A) involve using hydrogen and related
3 products at facilities or installations that would
4 exist without the demonstration program, such
5 as existing office buildings, military bases, vehi-
6 cle fleet centers, transit bus authorities, or
7 parks; and

8 “(B) depend on reliable power from hydro-
9 gen to carry out essential activities; and

10 “(2) favor projects that—

11 “(A) lead to the replication of hydrogen
12 technologies and draw such technologies into
13 the marketplace;

14 “(B) integrate in a single project both mo-
15 bile and stationary applications of hydrogen fuel
16 cells;

17 “(C) address the interdependency of de-
18 mand for hydrogen fuel cell applications and
19 hydrogen fuel infrastructure; or

20 “(D) raise awareness of hydrogen tech-
21 nology among the public.

22 “(d) MERIT REVIEW.—The Secretary shall carry out
23 the program under this section using a competitive, merit-
24 review process and consistent with the generally applicable

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

3 “(e) COST SHARING.—(1) For projects carried out
4 through grants, cooperative agreements, or contracts
5 under this section, the Secretary shall require a commit-
6 ment from non-Federal sources of at least—

7 “(A) 20 percent of the cost of a research and
8 development project; and

9 “(B) 50 percent of the cost of a demonstration
10 project.

11 “(2) The Secretary may reduce the cost-sharing re-
12 quirement under paragraph (1)—

13 “(A) if the Secretary determines that the
14 project involves research of a basic or fundamental
15 nature;

16 “(B) if the Secretary determines that a dem-
17 onstration or commercial application project involves
18 unusual technological risks; or

19 “(C) for technical analyses or other activities
20 that the Secretary does not expect to result in a
21 marketable product.

22 “(3) The Secretary may consider the size of the non-
23 Federal share in selecting projects.

1 **“SEC. 104. FREEDOM CAR.**

2 “(a) IN GENERAL.—In coordination with the pro-
3 gram under section 103, the Secretary shall carry out a
4 research, development, demonstration, and commercial ap-
5 plication program on advanced vehicle technologies, to be
6 known as the FreedomCAR program.

7 “(b) ACTIVITIES.—The FreedomCAR program shall
8 address—

9 “(1) engine and emission control systems;

10 “(2) energy storage, electric propulsion, and hy-
11 brid systems;

12 “(3) automotive materials;

13 “(4) clean fuels in addition to hydrogen; and

14 “(5) other advanced vehicle technologies.

15 “(c) DEMONSTRATION.—Demonstrations involving
16 hydrogen shall be conducted as part of the program under
17 section 103.

18 “(d) MERIT REVIEW AND COST SHARING.—The Sec-
19 retary shall carry out the FreedomCAR program in com-
20 pliance with sections 103(d) and (e).

21 **“SEC. 105. PLAN.**

22 “Not later than six months after the date of enact-
23 ment of the George E. Brown, Jr. and Robert S. Walker
24 Hydrogen Future Act of 2003, the Secretary shall trans-
25 mit to the Congress a coordinated plan for the programs
26 described in sections 103 and 104 and any other programs

1 of the Department that are directly related to fuel cells
2 or hydrogen. The plan shall be consistent with the Na-
3 tional Hydrogen Energy Roadmap published by the De-
4 partment in October of 2002 and shall describe, at a min-
5 imum—

6 “(1) the agenda for the programs for the next
7 five years, including what research, development,
8 demonstration, and commercial application will be
9 conducted to carry out each activity enumerated in
10 sections 103(b) and 104(b);

11 “(2) the role national laboratories, institutions
12 of higher education, small businesses, and other pri-
13 vate sector firms are expected to play in the pro-
14 grams;

15 “(3) the technical milestones that will be used
16 to evaluate the programs for the next five years;

17 “(4) the most significant technical hurdles that
18 stand in the way of achieving the goals described in
19 section 103(a), and how the programs will address
20 those hurdles; and

21 “(5) the policy assumptions that are driving the
22 research agenda, including any assumptions that
23 would affect the sources of hydrogen or the market-
24 ability of hydrogen-related products.

1 **“SEC. 106. EDUCATION, OUTREACH, AND TECHNOLOGY**
2 **TRANSFER.**

3 “(a) IN GENERAL.—The Secretary may carry out
4 programs and activities for interagency, intergovern-
5 mental, and international education, information ex-
6 change, and cooperation related to hydrogen and hydro-
7 gen-related products.

8 “(b) TECHNOLOGY TRANSFER.—(1) The Secretary
9 may conduct a program to transfer technology to the pri-
10 vate sector under this Act. The purpose of the technology
11 transfer program is to foster the exchange of generic, non-
12 proprietary information and technology, developed under
13 this Act, among industry, academia, and the Federal Gov-
14 ernment, to help the United States economy attain the
15 economic benefits of this information and technology,
16 among other purposes.

17 “(2) The Secretary shall direct the program author-
18 ized by this subsection with the advice and assistance of
19 the Advisory Committee.

20 **“SEC. 107. INTERAGENCY TASK FORCE.**

21 “(a) ESTABLISHMENT.—Not later than 120 days
22 after the date of enactment of the George E. Brown, Jr.
23 and Robert S. Walker Hydrogen Future Act of 2003, the
24 President shall establish an interagency task force, chaired
25 by the Director of the Office of Science and Technology

1 Policy or his designee, with representatives from each of
2 the following:

3 “(1) The Department of Energy.

4 “(2) The Department of Transportation.

5 “(3) The Department of State.

6 “(4) The Department of Defense.

7 “(5) The Department of Commerce (including
8 the National Institute of Standards and Tech-
9 nology).

10 “(6) The Environmental Protection Agency.

11 “(7) The National Aeronautics and Space Ad-
12 ministration.

13 “(8) Other Federal agencies as the Director de-
14 termines appropriate.

15 “(b) DUTIES.—

16 “(1) IMPLEMENTATION.—The interagency task
17 force shall work toward development of—

18 “(A) a safe, economical, and environ-
19 mentally sound hydrogen infrastructure;

20 “(B) uniform hydrogen codes, standards,
21 and safety protocols;

22 “(C) fuel cells in government applications,
23 including portable, stationary, and transpor-
24 tation applications; and

1 “(D) vehicle hydrogen fuel system integrity
2 safety performance.

3 “(2) ACTIVITIES.—The interagency task force
4 may organize workshops and conferences, may issue
5 publications, and may create databases to carry out
6 its duties. The interagency task force shall—

7 “(A) foster the exchange of generic, non-
8 proprietary information and technology among
9 industry, academia, and government;

10 “(B) develop and maintain an inventory
11 and assessment of hydrogen, fuel cells, and
12 other advanced technologies, including the com-
13 mercial capability of each technology for the
14 economic and environmentally safe production,
15 distribution, delivery, storage, and use of hydro-
16 gen;

17 “(C) integrate technical and other informa-
18 tion made available as a result of the programs
19 and activities under this Act;

20 “(D) promote the marketplace introduction
21 of infrastructure for hydrogen-powered fuel cell
22 vehicles; and

23 “(E) conduct an education program to pro-
24 vide hydrogen and fuel cell information to po-

1 tential end-users in coordination with the pro-
2 gram under section 106.

3 “(c) AGENCY COOPERATION.—The heads of all agen-
4 cies, including those whose agencies are not represented
5 on the interagency task force, shall cooperate with and
6 furnish information to the interagency task force and the
7 Department.

8 **“SEC. 108. ADVISORY COMMITTEE.**

9 “(a) ESTABLISHMENT.—The Hydrogen Technical
10 and Fuel Cell Advisory Committee shall be established to
11 advise the Secretary on the programs and activities under
12 this Act.

13 “(b) MEMBERSHIP.—

14 “(1) MEMBERS.—The Secretary shall appoint
15 not fewer than 12 nor more than 25 members. The
16 Secretary shall appoint members to represent domes-
17 tic industry, academia, professional societies, govern-
18 ment agencies, and financial, environmental, and
19 other appropriate organizations based on the Sec-
20 retary’s assessment of the technical and other quali-
21 fications of committee members and the needs of the
22 Advisory Committee.

23 “(2) TERMS.—The term of a member of the
24 Advisory Committee shall be not more than three
25 years. The Secretary may appoint members of the

1 Advisory Committee in a manner that allows the
2 terms of the members serving at any time to expire
3 at spaced intervals so as to ensure continuity in the
4 functioning of the Advisory Committee. A member of
5 the Advisory Committee whose term is expiring may
6 be reappointed.

7 “(3) CHAIRPERSON.—The Chair of the Advi-
8 sory Committee shall be a member of the Advisory
9 Committee, elected by the members from among
10 their number.

11 “(c) REVIEW.—(1) The Advisory Committee shall re-
12 view and make recommendations to the Secretary in a bi-
13 ennial report on—

14 “(A) the implementation of programs and ac-
15 tivities under this Act; and

16 “(B) the safety, economical, environmental, and
17 other consequences of technologies for the produc-
18 tion, distribution, delivery, storage, or use of hydro-
19 gen and fuel cells.

20 “(2) The Secretary shall transmit the report under
21 this subsection to the Congress along with a description
22 of how the Secretary has implemented or plans to imple-
23 ment the recommendations, or an explanation of the rea-
24 sons that a recommendation will not be implemented. The

1 report shall be transmitted along with the President's
2 budget proposal.

3 “(d) **ADVISORY COMMITTEE SUPPORT.**—The Sec-
4 retary shall provide resources necessary in the judgment
5 of the Secretary for the Advisory Committee to carry out
6 its responsibilities under this Act.

7 **“SEC. 109. EXTERNAL REVIEW.**

8 “(a) **PLAN.**—The Secretary shall enter into an ar-
9 rangement with a competitively selected nongovernmental
10 entity, such as the National Academy of Sciences, to re-
11 view the plan prepared under section 105. The Secretary
12 shall transmit the review to the Congress along with a plan
13 to implement the review's recommendations or an expla-
14 nation of the reasons that a recommendation will not be
15 implemented.

16 “(b) **BIENNIAL REVIEW.**—The Secretary shall enter
17 into an arrangement with a competitively selected non-
18 governmental entity, such as the National Academy of
19 Sciences, under which the entity will review the program
20 under sections 103 and 104 every other year, beginning
21 two years after the date of enactment of the George E.
22 Brown, Jr. and Robert S. Walker Hydrogen Future Act
23 of 2003. The entity shall review the research priorities,
24 technical milestones, and plans for technology transfer and
25 evaluate the progress toward achieving them. The Sec-

1 retary shall transmit each review to the Congress along
2 with a plan to implement the review’s recommendations
3 or an explanation for the reasons that a recommendation
4 will not be implemented.

5 **“SEC. 110. MISCELLANEOUS PROVISIONS.**

6 “(a) DUPLICATION.—The Secretary shall carry out
7 the activities of this Act in a manner that avoids unneces-
8 sary duplication or displacement of, or competition with
9 private sector activities.

10 “(b) OTHER GOVERNMENTS.—In carrying out this
11 Act, the Secretary may enter into cost-sharing agreements
12 with Federal, State, or local governments to demonstrate
13 applications using hydrogen and fuel cells.

14 “(c) REPRESENTATION.—The Department may rep-
15 resent the United States interests with respect to activities
16 and programs under this Act, in coordination with the De-
17 partment of Transportation, the National Institute of
18 Standards and Technology, and other relevant Federal
19 agencies, before governments and nongovernmental orga-
20 nizations including—

21 “(1) other Federal, State, regional, and local
22 governments and their representatives;

23 “(2) industry and its representatives, including
24 members of the energy and transportation indus-
25 tries; and

1 “(3) in consultation with the Department of
2 State, foreign governments and their representatives
3 including international organizations.

4 “(d) REGULATORY AUTHORITY.—Nothing in this Act
5 shall be construed to alter the regulatory authority of the
6 Department.

7 **“SEC. 111. AUTHORIZATION OF APPROPRIATIONS.**

8 ““There are authorized to be appropriated to carry out
9 this Act, in addition to any amounts made available for
10 these purposes under other Acts—

11 “(1) \$273,500,000 for fiscal year 2004;

12 “(2) \$325,000,000 for fiscal year 2005;

13 “(3) \$375,000,000 for fiscal year 2006;

14 “(4) \$400,000,000 for fiscal year 2007; and

15 “(5) \$425,000,000 for fiscal year 2008.”.

16 **SEC. 3. REPEAL OF HYDROGEN FUTURE ACT OF 1996.**

17 The Hydrogen Future Act of 1996 is repealed.

○