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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

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A BILL

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

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

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

SEC. 2. MATSUNAGA ACT AMENDMENT.

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

"SEC. 102. FINDINGS AND DEFINITIONS.

''(a) FINDINGS.—Congress finds that—

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

''(2) the Nation's dependence on foreign petroleum is expected to increase in the decades ahead;

''(3) it is in the national interest to reduce dependence on imported petroleum by accelerating Federal efforts to partner with the private sector in developing hydrogen and fuel cell technologies;

''(4) it is in the national interest to support industry's efforts to develop a light duty vehicle fleet that is free or near free of pollutant emissions and greenhouse gas emissions, and that helps to reduce the Nation's dependence on petroleum in a manner that maintains the freedom of consumers to purchase the kinds of vehicles they wish to drive and the freedom to refuel those vehicles safely and affordably;

''(5) the development of hydrogen fuel cell vehicles and supporting infrastructure will benefit from and accelerate the parallel advancement of fuel cells for stationary power that will enhance the resiliency, reliability, and environmental performance of the Nation's electricity infrastructure;

''(6) fuel cell technology for consumer electronics and portable power will benefit from, and advance the development of, hydrogen fuel cell vehicles and supporting infrastructure;

''(7) there is a need for deployment of bridging technologies that can contribute to reducing petroleum demand and decreasing air emissions, including—

''(A) gasoline-electric and diesel-electric hybrid drive systems;

''(B) advanced combustion engines (including clean diesel), electric battery, and power electronics; and

''(C) alternative fuels and other technologies;

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

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

''(b) DEFINITIONS.—In this Act:

''(1) The term 'Advisory Committee' means the Hydrogen Technical and Fuel Cell Advisory Committee established under section 108 of this Act.

''(2) The term 'Department' means the Department of Energy.

''(3) The term 'fuel cell' means a device that directly converts the chemical energy of a fuel and an oxidant into electricity by an electrochemical process taking place at separate electrodes in the device.

''(4) The term 'FreedomCAR' is the acronym for a Department initiative in automotive research and development entitled 'Freedom Cooperative Automotive Research'.

''(5) The term 'infrastructure' means the equipment, systems, or facilities used to produce, distribute, deliver, or store hydrogen and other advanced clean fuels.

''(6) The term 'light duty vehicle' means a car or truck classified by the Department of Transportation as a Class I or IIA vehicle.

''(7) The term 'Secretary' means the Secretary of Energy.

''SEC. 103. PROGRAM.

''(a) IN GENERAL.—The Secretary shall conduct a research, development, demonstration, and commercial application program designed to accelerate the use of hydrogen and related technologies in stationary and transpor-

tation applications. The goals of the program shall include—

"(1) to enable a decision by automakers not later than 2015 to offer affordable and technically viable hydrogen fuel cell vehicles in the mass consumer market;

"(2) to enable production and delivery to consumers of model year 2020 hydrogen fuel cell vehicles that will have—

"(A) a range of at least three hundred miles;

"(B) safety and performance comparable to vehicle technologies in the market; and

"(C) when compared to light duty vehicles in model year 2003—

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

"(ii) zero or near zero emissions of pollutants; and

"(D) vehicle fuel system crash integrity and occupant protection; and

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

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

''(B) safety and performance characteristics comparable to other fuels; and

''(C) improved overall efficiency and zero or near zero emissions when compared to fuels used in 2003.

''(b) ACTIVITIES.—The program authorized under this section shall address—

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

''(A) fossil fuels, in conjunction with carbon capture and sequestration;

''(B) hydrogen-carrier fuels (including ethanol and methanol);

''(C) renewable energy resources; and

''(D) nuclear energy;

''(2) delivery of hydrogen or hydrogen-carrier fuels, including—

''(A) transmission by pipeline and other distribution methods; and

''(B) safe, convenient, and economic refueling of vehicles either at central refueling stations or through distributed on-site generation;

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

''(4) development of safe, durable, affordable, and efficient fuel cells, including research and development on fuel-flexible fuel cell power systems, improved manufacturing processes, high-temperature membranes, cost-effective fuel processing for natural gas, fuel cell stack and system reliability, low temperature operation, and cold start capability; and

''(5) development, in conjunction with the National Institute of Standards and Technology, of necessary codes and standards (including international codes and standards) and safety practices for the production, distribution, storage, and use of hydrogen, hydrogen-carrier fuels and related products.

''(c) DEMONSTRATION.—In carrying out the demonstration program under this section, the Secretary shall fund a limited number of projects and shall, to the extent practicable—

''(1) select only projects that—

''(A) involve using hydrogen and related products at facilities or installations that would exist without the demonstration program, such as existing office buildings, military bases, vehicle fleet centers, transit bus authorities, or parks; and

''(B) depend on reliable power from hydrogen to carry out essential activities; and

''(2) favor projects that—

''(A) lead to the replication of hydrogen technologies and draw such technologies into the marketplace;

''(B) integrate in a single project both mobile and stationary applications of hydrogen fuel cells;

''(C) address the interdependency of demand for hydrogen fuel cell applications and hydrogen fuel infrastructure; or

''(D) raise awareness of hydrogen technology among the public.

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

Federal laws and regulations governing awards of financial assistance, contracts, or other agreements.

''(e) COST SHARING.—(1) For projects carried out through grants, cooperative agreements, or contracts under this section, the Secretary shall require a commitment from non-Federal sources of at least—

''(A) 20 percent of the cost of a research and development project; and

''(B) 50 percent of the cost of a demonstration project.

''(2) The Secretary may reduce the cost-sharing requirement under paragraph (1)—

''(A) if the Secretary determines that the project involves research of a basic or fundamental nature;

''(B) if the Secretary determines that a demonstration or commercial application project involves unusual technological risks; or

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

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

"SEC. 104. FREEDOM CAR.

"(a) IN GENERAL.—In coordination with the program under section 103, the Secretary shall carry out a research, development, demonstration, and commercial application program on advanced vehicle technologies, to be known as the FreedomCAR program.

"(b) ACTIVITIES.—The FreedomCAR program shall address—

"(1) engine and emission control systems;

"(2) energy storage, electric propulsion, and hybrid systems;

"(3) automotive materials;

"(4) clean fuels in addition to hydrogen; and

"(5) other advanced vehicle technologies.

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

"(d) MERIT REVIEW AND COST SHARING.—The Secretary shall carry out the FreedomCAR program in compliance with sections 103(d) and (e).

"SEC. 105. PLAN.

"Not later than six months after the date of enactment of the George E. Brown, Jr. and Robert S. Walker Hydrogen Future Act of 2003, the Secretary shall transmit to the Congress a coordinated plan for the programs described in sections 103 and 104 and any other programs

of the Department that are directly related to fuel cells or hydrogen. The plan shall be consistent with the National Hydrogen Energy Roadmap published by the Department in October of 2002 and shall describe, at a minimum—

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

''(2) the role national laboratories, institutions of higher education, small businesses, and other private sector firms are expected to play in the programs;

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

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

''(5) the policy assumptions that are driving the research agenda, including any assumptions that would affect the sources of hydrogen or the marketability of hydrogen-related products.

"SEC. 106. EDUCATION, OUTREACH, AND TECHNOLOGY TRANSFER.

''(a) IN GENERAL.—The Secretary may carry out programs and activities for interagency, intergovernmental, and international education, information exchange, and cooperation related to hydrogen and hydrogen-related products.

''(b) TECHNOLOGY TRANSFER.—(1) The Secretary may conduct a program to transfer technology to the private sector under this Act. The purpose of the technology transfer program is to foster the exchange of generic, nonproprietary information and technology, developed under this Act, among industry, academia, and the Federal Government, to help the United States economy attain the economic benefits of this information and technology, among other purposes.

''(2) The Secretary shall direct the program authorized by this subsection with the advice and assistance of the Advisory Committee.

"SEC. 107. INTERAGENCY TASK FORCE.

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

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

''(1) The Department of Energy.

''(2) The Department of Transportation.

''(3) The Department of State.

''(4) The Department of Defense.

''(5) The Department of Commerce (including the National Institute of Standards and Technology).

''(6) The Environmental Protection Agency.

''(7) The National Aeronautics and Space Administration.

''(8) Other Federal agencies as the Director determines appropriate.

''(b) DUTIES.—

''(1) IMPLEMENTATION.—The interagency task force shall work toward development of—

''(A) a safe, economical, and environmentally sound hydrogen infrastructure;

''(B) uniform hydrogen codes, standards, and safety protocols;

''(C) fuel cells in government applications, including portable, stationary, and transportation applications; and

''(D) vehicle hydrogen fuel system integrity safety performance.

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

''(A) foster the exchange of generic, nonproprietary information and technology among industry, academia, and government;

''(B) develop and maintain an inventory and assessment of hydrogen, fuel cells, and other advanced technologies, including the commercial capability of each technology for the economic and environmentally safe production, distribution, delivery, storage, and use of hydrogen;

''(C) integrate technical and other information made available as a result of the programs and activities under this Act;

''(D) promote the marketplace introduction of infrastructure for hydrogen-powered fuel cell vehicles; and

''(E) conduct an education program to provide hydrogen and fuel cell information to po-

tential end-users in coordination with the program under section 106.

''(c) AGENCY COOPERATION.—The heads of all agencies, including those whose agencies are not represented on the interagency task force, shall cooperate with and furnish information to the interagency task force and the Department.

''SEC. 108. ADVISORY COMMITTEE.

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

''(b) MEMBERSHIP.—

''(1) MEMBERS.—The Secretary shall appoint not fewer than 12 nor more than 25 members. The Secretary shall appoint members to represent domestic industry, academia, professional societies, government agencies, and financial, environmental, and other appropriate organizations based on the Secretary's assessment of the technical and other qualifications of committee members and the needs of the Advisory Committee.

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

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

''(3) CHAIRPERSON.—The Chair of the Advisory Committee shall be a member of the Advisory Committee, elected by the members from among their number.

''(c) REVIEW.—(1) The Advisory Committee shall review and make recommendations to the Secretary in a biennial report on—

''(A) the implementation of programs and activities under this Act; and

''(B) the safety, economical, environmental, and other consequences of technologies for the production, distribution, delivery, storage, or use of hydrogen and fuel cells.

''(2) The Secretary shall transmit the report under this subsection to the Congress along with a description of how the Secretary has implemented or plans to implement the recommendations, or an explanation of the reasons that a recommendation will not be implemented. The

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

''(d) ADVISORY COMMITTEE SUPPORT.—The Secretary shall provide resources necessary in the judgment of the Secretary for the Advisory Committee to carry out its responsibilities under this Act.

''SEC. 109. EXTERNAL REVIEW.

''(a) PLAN.—The Secretary shall enter into an arrangement with a competitively selected nongovernmental entity, such as the National Academy of Sciences, to review the plan prepared under section 105. The Secretary shall transmit the review to the Congress along with a plan to implement the review's recommendations or an explanation of the reasons that a recommendation will not be implemented.

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

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

"SEC. 110. MISCELLANEOUS PROVISIONS.

"(a) DUPLICATION.—The Secretary shall carry out the activities of this Act in a manner that avoids unnecessary duplication or displacement of, or competition with private sector activities.

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

"(c) REPRESENTATION.—The Department may represent the United States interests with respect to activities and programs under this Act, in coordination with the Department of Transportation, the National Institute of Standards and Technology, and other relevant Federal agencies, before governments and nongovernmental organizations including—

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

"(2) industry and its representatives, including members of the energy and transportation industries; and

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

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

''SEC. 111. AUTHORIZATION OF APPROPRIATIONS.

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

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

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

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

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

''(5) $425,000,000 for fiscal year 2008.''.

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

The Hydrogen Future Act of 1996 is repealed.

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