

(2) to make critical public investments in building strong links to private industry, institutions of higher education, National Laboratories, and research institutions to expand innovation and industrial growth;

(3) to build a mature hydrogen economy that creates fuel diversity in the massive transportation sector of the United States;

(4) to sharply decrease the dependency of the United States on imported oil, eliminate most emissions from the transportation sector, and greatly enhance our energy security; and

(5) to create, strengthen, and protect a sustainable national energy economy.

(Pub. L. 109-58, title VIII, §802, Aug. 8, 2005, 119 Stat. 844.)

SHORT TITLE

For short title of title VIII of Pub. L. 109-58, which enacted this subchapter, as the “Spark M. Matsunaga Hydrogen Act of 2005”, see section 801 of Pub. L. 109-58, set out as a note under section 15801 of this title.

§ 16152. Definitions

In this subchapter:

(1) Fuel cell

The term “fuel cell” means a device that directly converts the chemical energy of a fuel, which is supplied from an external source, and an oxidant into electricity by electrochemical processes occurring at separate electrodes in the device.

(2) Heavy-duty vehicle

The term “heavy-duty vehicle” means a motor vehicle that—

(A) is rated at more than 8,500 pounds gross vehicle weight;

(B) has a curb weight of more than 6,000 pounds; or

(C) has a basic vehicle frontal area in excess of 45 square feet.

(3) Infrastructure

The term “infrastructure” means the equipment, systems, or facilities used to produce, distribute, deliver, or store hydrogen (except for onboard storage).

(4) Light-duty vehicle

The term “light-duty vehicle” means a motor vehicle that is rated at 8,500 or less pounds gross vehicle weight.

(5) Stationary; portable

The terms “stationary” and “portable”, when used in reference to a fuel cell, include—

(A) continuous electric power; and

(B) backup electric power.

(6) Task Force

The term “Task Force” means the Hydrogen and Fuel Cell Technical Task Force established under section 16155 of this title.

(7) Technical Advisory Committee

The term “Technical Advisory Committee” means the independent Technical Advisory Committee established under section 16156 of this title.

(Pub. L. 109-58, title VIII, §803, Aug. 8, 2005, 119 Stat. 844.)

§ 16153. Plan

Not later than 6 months after August 8, 2005, the Secretary shall transmit to Congress a coordinated plan for the programs described in this subchapter and any other programs of the Department that are directly related to fuel cells or hydrogen. The plan shall describe, at a minimum—

(1) the agenda for the next 5 years for the programs authorized under this subchapter, including the agenda for each activity enumerated in section 16154(e) of this title;

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

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

(4) the most significant technical and non-technical hurdles that stand in the way of achieving the goals described in section 16154 of this title, and how the programs will address those hurdles; and

(5) the policy assumptions that are implicit in the plan, including any assumptions that would affect the sources of hydrogen or the marketability of hydrogen-related products.

(Pub. L. 109-58, title VIII, §804, Aug. 8, 2005, 119 Stat. 845.)

§ 16154. Programs

(a) In general

The Secretary, in consultation with other Federal agencies and the private sector, shall conduct a research and development program on technologies relating to the production, purification, distribution, storage, and use of hydrogen energy, fuel cells, and related infrastructure.

(b) Goal

The goal of the program shall be to demonstrate and commercialize the use of hydrogen for transportation (in light-duty vehicles and heavy-duty vehicles), utility, industrial, commercial, and residential applications.

(c) Focus

In carrying out activities under this section, the Secretary shall focus on factors that are common to the development of hydrogen infrastructure and the supply of vehicle and electric power for critical consumer and commercial applications, and that achieve continuous technical evolution and cost reduction, particularly for hydrogen production, the supply of hydrogen, storage of hydrogen, and end uses of hydrogen that—

(1) steadily increase production, distribution, and end use efficiency and reduce life-cycle emissions;

(2) resolve critical problems relating to catalysts, membranes, storage, lightweight materials, electronic controls, manufacturability, and other problems that emerge from the program;

(3) enhance sources of renewable fuels and biofuels for hydrogen production; and

(4) enable widespread use of distributed electricity generation and storage.

(d) Public education and research

In carrying out this section, the Secretary shall support enhanced public education and re-

search conducted at institutions of higher education in fundamental sciences, application design, and systems concepts (including education and research relating to materials, subsystems, manufacturability, maintenance, and safety) relating to hydrogen and fuel cells.

(e) Activities

The Secretary, in partnership with the private sector, shall conduct programs to address—

- (1) production of hydrogen from diverse energy sources, including—
 - (A) fossil fuels, which may include carbon capture and sequestration;
 - (B) hydrogen-carrier fuels (including ethanol and methanol);
 - (C) renewable energy resources, including biomass; and
 - (D) nuclear energy;
- (2) use of hydrogen for commercial, industrial, and residential electric power generation;
- (3) safe delivery of hydrogen or hydrogen-carrier fuels, including—
 - (A) transmission by pipeline and other distribution methods; and
 - (B) convenient and economic refueling of vehicles either at central refueling stations or through distributed onsite generation;
- (4) advanced vehicle technologies, including—
 - (A) engine and emission control systems;
 - (B) energy storage, electric propulsion, and hybrid systems;
 - (C) automotive materials; and
 - (D) other advanced vehicle technologies;
- (5) 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 on-board vehicles;
- (6) development of safe, durable, affordable, and efficient fuel cells, including 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
- (7) the ability of domestic automobile manufacturers to manufacture commercially available competitive hybrid vehicle technologies in the United States.

(f) Program goals

(1) Vehicles

For vehicles, the goals of the program are—

- (A) to enable a commitment by automakers no later than year 2015 to offer safe, affordable, and technically viable hydrogen fuel cell vehicles in the mass consumer market; and
- (B) to enable production, delivery, and acceptance by consumers of model year 2020 hydrogen fuel cell and other hydrogen-powered vehicles that will have, when compared to light duty vehicles in model year 2005—
 - (i) fuel economy that is substantially higher;
 - (ii) substantially lower emissions of air pollutants; and

- (iii) equivalent or improved vehicle fuel system crash integrity and occupant protection.

(2) Hydrogen energy and energy infrastructure

For hydrogen energy and energy infrastructure, the goals of the program are to enable a commitment not later than 2015 that will lead to infrastructure by 2020 that will provide—

- (A) safe and convenient refueling;
- (B) improved overall efficiency;
- (C) widespread availability of hydrogen from domestic energy sources through—
 - (i) production, with consideration of emissions levels;
 - (ii) delivery, including transmission by pipeline and other distribution methods for hydrogen; and
 - (iii) storage, including storage in surface transportation vehicles;
- (D) hydrogen for fuel cells, internal combustion engines, and other energy conversion devices for portable, stationary, micro, critical needs facilities, and transportation applications; and
- (E) other technologies consistent with the Department's plan.

(3) Fuel cells

The goals for fuel cells and their portable, stationary, and transportation applications are to enable—

- (A) safe, economical, and environmentally sound hydrogen fuel cells;
- (B) fuel cells for light duty and other vehicles; and
- (C) other technologies consistent with the Department's plan.

(g) Funding

(1) In general

The Secretary shall carry out the programs under this section using a competitive, merit-based review process and consistent with the generally applicable Federal laws and regulations governing awards of financial assistance, contracts, or other agreements.

(2) Research centers

Activities under this section may be carried out by funding nationally recognized university-based or Federal laboratory research centers.

(h) Hydrogen supply

There are authorized to be appropriated to carry out projects and activities relating to hydrogen production, storage, distribution and dispensing, transport, education and coordination, and technology transfer under this section—

- (1) \$160,000,000 for fiscal year 2006;
- (2) \$200,000,000 for fiscal year 2007;
- (3) \$220,000,000 for fiscal year 2008;
- (4) \$230,000,000 for fiscal year 2009;
- (5) \$250,000,000 for fiscal year 2010; and
- (6) such sums as are necessary for each of fiscal years 2011 through 2020.

(i) Fuel cell technologies

There are authorized to be appropriated to carry out projects and activities relating to fuel cell technologies under this section—

- (1) \$150,000,000 for fiscal year 2006;
- (2) \$160,000,000 for fiscal year 2007;
- (3) \$170,000,000 for fiscal year 2008;
- (4) \$180,000,000 for fiscal year 2009;
- (5) \$200,000,000 for fiscal year 2010; and
- (6) such sums as are necessary for each of fiscal years 2011 through 2020.

(Pub. L. 109-58, title VIII, §805, Aug. 8, 2005, 119 Stat. 845.)

§ 16155. Hydrogen and Fuel Cell Technical Task Force

(a) Establishment

Not later than 120 days after August 8, 2005, the President shall establish an interagency task force chaired by the Secretary with representatives from each of the following:

- (1) The Office of Science and Technology Policy within the Executive Office of the President.
- (2) The Department of Transportation.
- (3) The Department of Defense.
- (4) The Department of Commerce (including the National Institute of Standards and Technology).
- (5) The Department of State.
- (6) The Environmental Protection Agency.
- (7) The National Aeronautics and Space Administration.
- (8) Other Federal agencies as the Secretary determines appropriate.

(b) Duties

(1) Planning

The Task Force shall work toward—

- (A) a safe, economical, and environmentally sound fuel infrastructure for hydrogen and hydrogen-carrier fuels, including an infrastructure that supports buses and other fleet transportation;
- (B) fuel cells in government and other applications, including portable, stationary, and transportation applications;
- (C) distributed power generation, including the generation of combined heat, power, and clean fuels including hydrogen;
- (D) uniform hydrogen codes, standards, and safety protocols; and
- (E) vehicle hydrogen fuel system integrity safety performance.

(2) Activities

The Task Force may organize workshops and conferences, may issue publications, and may create databases to carry out its duties. The Task Force shall—

- (A) foster the exchange of generic, non-proprietary 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 subchapter;
- (D) promote the marketplace introduction of infrastructure for hydrogen fuel vehicles; and

- (E) conduct an education program to provide hydrogen and fuel cell information to potential end-users.

(c) Agency cooperation

The heads of all agencies, including those whose agencies are not represented on the Task Force, shall cooperate with and furnish information to the Task Force, the Technical Advisory Committee, and the Department.

(Pub. L. 109-58, title VIII, §806, Aug. 8, 2005, 119 Stat. 848.)

§ 16156. Technical Advisory Committee

(a) Establishment

The Hydrogen Technical and Fuel Cell Advisory Committee is established to advise the Secretary on the programs and activities under this subchapter.

(b) Membership

(1) Members

The Technical Advisory Committee shall be comprised of not fewer than 12 nor more than 25 members. The members shall be appointed by the Secretary to represent domestic industry, academia, professional societies, government agencies, Federal laboratories, previous advisory panels, and financial, environmental, and other appropriate organizations based on the Department's assessment of the technical and other qualifications of Technical Advisory Committee members and the needs of the Technical Advisory Committee.

(2) Terms

The term of a member of the Technical Advisory Committee shall not be more than 3 years. The Secretary may appoint members of the Technical 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 Technical Advisory Committee. A member of the Technical Advisory Committee whose term is expiring may be reappointed.

(3) Chairperson

The Technical Advisory Committee shall have a chairperson, who shall be elected by the members from among their number.

(c) Review

The Technical Advisory Committee shall review and make recommendations to the Secretary on—

- (1) the implementation of programs and activities under this subchapter;
- (2) the safety, economical, and environmental consequences of technologies for the production, distribution, delivery, storage, or use of hydrogen energy and fuel cells; and
- (3) the plan under section 16153 of this title.

(d) Response

(1) Consideration of recommendations

The Secretary shall consider, but need not adopt, any recommendations of the Technical Advisory Committee under subsection (c).

(2) Biennial report

The Secretary shall transmit a biennial report to Congress describing any recommenda-