

One Hundred First Congress of the United States of America
AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the twenty-third day of January,
one thousand nine hundred and ninety

An Act

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

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

SEC. 101. SHORT TITLE.

This Act may be referred to as the `Spark M. Matsunaga Hydrogen Research,
Development, and Demonstration Act of 1990'.

SEC. 102. FINDING, PURPOSES, AND DEFINITION.

(a) FINDING- Congress finds that it is in the national interest to accelerate efforts to
develop a domestic capability to economically produce hydrogen in quantities that will
make a significant contribution toward reducing the Nation's dependence on conventional
fuels.

(b) PURPOSES- The purposes of this Act are--

(1) to direct the Secretary to prepare a comprehensive 5-year comprehensive
program management plan that will identify and resolve critical technical issues
necessary for the realization of a domestic capability to produce, distribute, and
use hydrogen economically within the shortest time practicable;

(2) to direct the Secretary to develop a technology assessment and information
transfer program among the Federal agencies and aerospace, transportation,
energy, and other entities; and

(3) to develop renewable energy resources as a primary source of energy for the
production of hydrogen.

(c) DEFINITION- As used in this Act, the term:

(1) `critical technology' (or `critical technical issue') means a technology (or issue)
that, in the opinion of the Secretary, requires understanding and development in
order to take the next needed step in the development of hydrogen as an economic
fuel or storage medium; and

(2) `Secretary' means the Secretary of Energy.

SEC. 103. COMPREHENSIVE MANAGEMENT PLAN.

(a) PLAN- The Secretary shall prepare a comprehensive 5-year program management plan for research and development activities, which shall be conducted over a period of no less than 5 years and shall be consistent with the provisions of sections 104 and 105. In the preparation of such plan, the Secretary shall consult with the Administrator of the National Aeronautics and Space Administration, the Secretary of Transportation, the Hydrogen Technical Advisory Panel established under section 108, and the heads of such other Federal agencies and such public and private organizations as he deems appropriate. The plan shall be structured to identify and address areas of research critical to the realization of a domestic hydrogen production capability within the shortest time practicable.

(b) CONTENTS OF PLAN- Within 180 days after the date of the enactment of this Act, the Secretary shall transmit the comprehensive program management plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate. Subsequent plans shall be incorporated in the management plan under this section. The plan shall include--

- (1) a prioritization of research areas critical to the economic use of hydrogen as a fuel and energy storage medium;
- (2) the program elements, management structure, and activities, including program responsibilities of individual agencies and individual institutional elements;
- (3) the program strategies including technical milestones to be achieved toward specific goals during each fiscal year for all major activities and projects;
- (4) the estimated costs of individual program items, including current as well as proposed funding levels for each of the 5 years of the plan for each of the participating agencies;
- (5) a description of the methodology of coordination and technology transfer; and
- (6) the proposed participation by industry and academia in the planning and implementation of the program.

(c) DEMONSTRATION PLAN- The Secretary shall, in consultation with the Secretary of Transportation, the Administrator of the National Aeronautics and Space Administration, and the Hydrogen Technical Advisory Panel established under section 108, also prepare a comprehensive large-scale hydrogen demonstration plan with respect to demonstrations carried out pursuant to section 105. Subsequent plans shall be incorporated in the management plan under this section. Such plan shall include--

- (1) a description of the necessary research and development activities that must be completed before initiation of a large-scale hydrogen production and storage demonstration program;
- (2) an assessment of the appropriateness of a large-scale demonstration immediately upon completion of the necessary research and development activities;
- (3) an implementation schedule with associated budget and program management resource requirements; and
- (4) a description of the role of the private sector in carrying out the demonstration program.

SEC. 104. RESEARCH AND DEVELOPMENT.

- (a) PROGRAM- The Secretary shall conduct a research and development program, consistent with the comprehensive 5-year program management plan under section 103, to ensure the development of a domestic hydrogen fuel production capability within the shortest time practicable consistent with market conditions.
- (b) RESEARCH- (1) Particular attention shall be given to developing an understanding and resolution of all critical technical issues preventing the introduction of hydrogen into the marketplace.
- (2) The Secretary shall initiate research or accelerate existing research in critical technical issues that will contribute to the development of more economic hydrogen production and use, including, but not limited to, critical technical issues with respect to production, liquefaction, transmission, distribution, storage, and use (including use of hydrogen in surface transportation).
- (c) RENEWABLE ENERGY PRIORITY- The Secretary shall give priority to those production techniques that use renewable energy resources as their primary source of energy for hydrogen production.
- (d) NEW TECHNOLOGIES- The Secretary shall, for the purpose of performing his responsibilities pursuant to this Act, solicit proposals for and evaluate any reasonable new or improved technology that could lead or contribute to the development of economic hydrogen production storage and utilization.
- (e) INFORMATION- The Secretary shall conduct evaluations, arrange for tests and demonstrations, and disseminate to developers information, data, and materials necessary to support efforts undertaken pursuant to this section, consistent with section 106.

SEC. 105. DEMONSTRATIONS.

- (a) REQUIREMENT- The Secretary shall conduct demonstrations of critical technologies, preferably in self-contained locations, so that technical and non-technical parameters can be evaluated to best determine commercial applicability of the technology.
- (b) SMALL-SCALE DEMONSTRATIONS- Concurrently with activities conducted pursuant to section 104, the Secretary shall conduct small-scale demonstrations of hydrogen technology at self-contained sites.

SEC. 106. TECHNOLOGY TRANSFER PROGRAM.

- (a) PROGRAM- The Secretary shall conduct a program designed to accelerate wider application of hydrogen production, storage, utilization, and other technologies available in near term as a result of aerospace experience as well as other research progress by transferring critical technologies to the private sector. The Secretary shall direct the program with the advice and assistance of the Hydrogen Technical Advisory Panel established under section 108. The objective in seeking this advice is to increase participation of private industry in the demonstration of near commercial applications through cooperative research and development arrangements, joint ventures or other appropriate arrangements involving the private sector.
- (b) INFORMATION- The Secretary, in carrying out the program authorized by subsection (a), shall--

(1) undertake an inventory and assessment of hydrogen technologies and their commercial capability to economically produce, store, or utilize hydrogen in aerospace, transportation, electric utilities, petrochemical, chemical, merchant hydrogen, and other industrial sectors; and

(2) develop a National Aeronautics Space Administration, Department of Energy, and industry information exchange program to improve technology transfer for--

(A) application of aerospace experience by industry;

(B) application of research progress by industry and aerospace;

(C) application of commercial capability of industry by aerospace; and

(D) expression of industrial needs to research organizations.

The information exchange program may consist of workshops, publications, conferences, and a data base for the use by the public and private sectors.

SEC. 107. COORDINATION AND CONSULTATION.

(a) SECRETARY'S RESPONSIBILITY- The Secretary shall have overall management responsibility for carrying out programs under this Act. In carrying out such programs, the Secretary, consistent with such overall management responsibility--

(1) shall use the expertise of the National Aeronautics and Space Administration and the Department of Transportation; and

(2) may use the expertise of any other Federal agency in accordance with subsection (b) in carrying out any activities under this title, to the extent that the Secretary determines that any such agency has capabilities which would allow such agency to contribute to the purpose of this Act.

(b) ASSISTANCE- The Secretary may, in accordance with subsection (a), obtain the assistance of any department, agency, or instrumentality of the Executive branch of the Federal Government upon written request, on a reimbursable basis or otherwise and with the consent of such department, agency, or instrumentality. Each such request shall identify the assistance the Secretary deems necessary to carry out any duty under this Act.

(c) CONSULTATION- The Secretary shall consult with the Administrator of the National Aeronautics and Space Administration, the Administrator of the Environmental Protection Agency, the Secretary of Transportation, and the Hydrogen Technical Advisory Panel established under section 108 in carrying out his authorities pursuant to this Act.

SEC. 108. TECHNICAL PANEL.

(a) ESTABLISHMENT- There is hereby established the Hydrogen Technical Advisory Panel (the 'technical panel'), to advise the Secretary on the programs under this Act.

(b) MEMBERSHIP- The technical panel shall be appointed by the Secretary and shall be comprised of such representatives from domestic industry, universities, professional societies, Government laboratories, financial, environmental, and other organizations as the Secretary deems appropriate based on his assessment of the technical and other qualifications of such representatives. Appointments to the technical panel shall be made

within 90 days after the enactment of this Act. The technical panel shall have a chairman, who shall be elected by the members from among their number.

(c) COOPERATION- The heads of the departments, agencies, and instrumentalities of the Executive branch of the Federal Government shall cooperate with the technical panel in carrying out the requirements of this section and shall furnish to the technical panel such information as the technical panel deems necessary to carry out this section.

(d) REVIEW- The technical panel shall review and make any necessary recommendations to the Secretary on the following items--

- (1) the implementation and conduct of programs under this Act;
- (2) the economic, technological, and environmental consequences of the deployment of hydrogen production and use systems; and
- (3) comments on and recommendations for improvements in the comprehensive 5-year program management plan required under section 103.

(e) SUPPORT- The Secretary shall provide such staff, funds and other support as may be necessary to enable the technical panel to carry out the functions described in this section.

SEC. 109. AUTHORIZATION OF APPROPRIATIONS.

There is hereby authorized to be appropriated to carry out the purposes of this Act (in addition to any amounts made available for such purposes to other Acts)--

- (1) \$3,000,000 for the fiscal year 1992;
- (2) \$7,000,000 for the fiscal year 1993; and
- (3) \$10,000,000 for the fiscal year 1994.

Passed the Senate October 16 (legislative day, October 2), 1990.

Speaker of the House of Representatives.

Vice President of the United States and

President of the Senate.