

[DISCUSSION DRAFT]

SEPTEMBER 15, 2003

1 **TITLE ____—HYDROGEN**

2 **SEC. ____1. DEFINITIONS.**

3 In this title:

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

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

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

13 (4) The term “infrastructure” means the equip-
14 ment, systems, or facilities used to produce, dis-
15 tribute, deliver, or store hydrogen.

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

19 (6) The term “Secretary” means the Secretary
20 of Energy.

21 **SEC. ____2. PLAN.**

22 Not later than six months after the date of enactment
23 of this Act, the Secretary shall transmit to the Congress

1 a coordinated plan for the programs described in this title
2 and any other programs of the Department that are di-
3 rectly related to fuel cells or hydrogen. The plan shall de-
4 scribe, at a minimum—

5 (1) the agenda for the next five years for the
6 programs authorized under this title, including the
7 agenda for each activity enumerated in section
8 ____3(a);

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

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

14 (4) the most significant technical and nontech-
15 nical hurdles that stand in the way of achieving the
16 goals described in section ____3(b), and how the
17 programs will address those hurdles; and

18 (5) the policy assumptions that are implicit in
19 the plan, including any assumptions that would af-
20 fect the sources of hydrogen or the marketability of
21 hydrogen-related products.

22 **SEC. ____3. PROGRAM.**

23 (a) **ACTIVITIES.**—The Secretary, in partnership with
24 the private sector, shall conduct programs to address—

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

3 (A) fossil fuels, which may include carbon
4 capture and sequestration;

5 (B) hydrogen-carrier fuels (including eth-
6 anol and methanol);

7 (C) renewable energy resources, including
8 biomass; and

9 (D) nuclear energy;

10 (2) use of hydrogen for commercial, industrial,
11 and residential electric power generation;

12 (3) the safe delivery of hydrogen or hydrogen-
13 carrier fuels, including—

14 (A) transmission by pipeline and other dis-
15 tribution methods; and

16 (B) convenient and economic refueling of
17 vehicles either at central refueling stations or
18 through distributed on-site generation;

19 (4) advanced vehicle technologies, including—

20 (A) engine and emission control systems;

21 (B) energy storage, electric propulsion, and
22 hybrid systems;

23 (C) automotive materials; and

24 (D) other advanced vehicle technologies;

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

5 (6) development of safe, durable, affordable,
6 and efficient fuel cells, including fuel-flexible fuel cell
7 power systems, improved manufacturing processes,
8 high-temperature membranes, cost-effective fuel
9 processing for natural gas, fuel cell stack and system
10 reliability, low temperature operation, and cold start
11 capability;

12 (7) development of necessary codes and stand-
13 ards (including international codes and standards)
14 and safety practices for the production, distribution,
15 storage, and use of hydrogen, hydrogen-carrier fuels,
16 and related products;

17 (8) a public education program to develop im-
18 proved knowledge and acceptability of hydrogen-
19 based systems; and

20 (9) related research, development, and deploy-
21 ment.

22 (b) PROGRAM GOALS.—

23 (1) VEHICLES.—For vehicles, the goals of the
24 program are—

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

5 (B) to enable production, delivery, and ac-
6 ceptance by consumers of model year 2020 hy-
7 drogen fuel cell and other vehicles that will
8 have—

9 (i) a range of at least 300 miles;

10 (ii) improved performance and ease of
11 driving;

12 (iii) safety and performance com-
13 parable to vehicle technologies in the mar-
14 ket;

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

17 (I) a fuel economy that is sub-
18 stantially higher than the equivalent
19 fuel economy of comparable light duty
20 vehicles in model year 2003; and

21 (II) near zero emissions of air
22 pollutants; and

23 (v) vehicle fuel system crash integrity
24 and occupant protection.

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

6 (A) safe and convenient refueling;

7 (B) improved overall efficiency;

8 (C) widespread availability of hydrogen
9 from domestic energy sources through—

10 (i) production, with consideration of
11 emissions levels;

12 (ii) delivery, including transmission by
13 pipeline and other distribution methods for
14 hydrogen; and

15 (iii) storage, including storage in sur-
16 face transportation vehicles;

17 (D) hydrogen for fuel cells, internal com-
18 bustion engines, and other energy conversion
19 devices for portable, stationary, and transpor-
20 tation applications; and

21 (E) other technologies consistent with the
22 Department's plan.

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

1 (A) safe, economical, and environmentally
2 sound hydrogen fuel cells;

3 (B) fuel cells for light duty and other vehi-
4 cles; and

5 (C) other technologies consistent with the
6 Department's plan.

7 (c) DEMONSTRATION.—In carrying out the program
8 under this section, the Secretary shall fund a limited num-
9 ber of demonstration projects, consistent with a deter-
10 mination of the maturity of technologies supporting each
11 project. In selecting projects under this subsection, the
12 Secretary shall, to the extent practicable and in the public
13 interest, select projects that—

14 (1) involve using hydrogen and related products
15 at facilities or installations that would exist without
16 the demonstration program, such as existing office
17 buildings, military bases, vehicle fleet centers, tran-
18 sit bus authorities, or units of the National Park
19 System;

20 (2) depend on reliable power from hydrogen to
21 carry out essential activities;

22 (3) lead to the replication of hydrogen tech-
23 nologies and draw such technologies into the market-
24 place;

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

3 (5) address the interdependency of demand for
4 hydrogen fuel cell applications and hydrogen fuel in-
5 frastructure;

6 (6) raise awareness of hydrogen technology
7 among the public;

8 (7) include both vehicle and stationary dem-
9 onstrations of fuel cell and hydrogen-based energy
10 technologies;

11 (8) facilitate identification of an optimum tech-
12 nology among competing alternatives;

13 (9) address distributed generation using renew-
14 able sources; and

15 (10) address applications specific to rural or re-
16 mote locations, including tribal entities.

17 (d) DEPLOYMENT.—In carrying out the program
18 under this section, the Secretary shall, in partnership with
19 the private sector, conduct activities to facilitate the de-
20 ployment of hydrogen energy and energy infrastructure,
21 fuel cells, and advanced vehicle technologies.

22 (e) FUNDING.—(1) The Secretary shall carry out the
23 program under this section using a competitive, merit-re-
24 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 or Fed-
5 eral laboratory research centers.

6 (3) The Secretary shall endeavor to avoid duplication
7 or displacement of other programs, including research and
8 development programs 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 (g) DISCLOSURE.—The Secretary may protect from
8 disclosure, for up to 5 years after the information was de-
9 veloped, any information developed pursuant to a cost-
10 shared transaction, or subagreement thereunder, entered
11 into under this title for research, development, or dem-
12 onstration, which developed information is of a character
13 that it would be protected from disclosure under section
14 552(b)(4) of title 5, United States Code, if this developed
15 information had been obtained from a person other than
16 a Federal agency. The Secretary shall, within 120 days
17 after the date of enactment of this Act, release guidelines
18 describing the types of data and extent to which such data
19 is protected under this subsection.

20 **SEC. ___ 4. INTERAGENCY TASK FORCE.**

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

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

3 (2) The Department of Transportation.

4 (3) The Department of Defense.

5 (4) The Department of Commerce (including
6 the National Institute of Standards and Tech-
7 nology).

8 (5) The Department of State.

9 (6) The Environmental Protection Agency.

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

12 (8) Other Federal agencies as the Secretary de-
13 termines appropriate.

14 (b) DUTIES.—

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

17 (A) a safe, economical, and environ-
18 mentally sound fuel infrastructure for hydrogen
19 and hydrogen-carrier fuels, including an infra-
20 structure that supports buses and other fleet
21 transportation;

22 (B) fuel cells in government and other ap-
23 plications, including portable, stationary, and
24 transportation applications;

1 (C) distributed power generation, including
2 the generation of combined heat, power, and
3 clean fuels including hydrogen;

4 (D) uniform hydrogen codes, standards,
5 and safety protocols; and

6 (E) vehicle hydrogen fuel system integrity
7 safety performance.

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

12 (A) foster the exchange of generic, non-
13 proprietary information and technology among
14 industry, academia, and government;

15 (B) develop and maintain an inventory and
16 assessment of hydrogen, fuel cells, and other
17 advanced technologies, including the commercial
18 capability of each technology for the economic
19 and environmentally safe production, distribu-
20 tion, delivery, storage, and use of hydrogen;

21 (C) integrate technical and other informa-
22 tion made available as a result of the programs
23 and activities under this title;

24 (D) promote the marketplace introduction
25 of infrastructure for hydrogen fuel vehicles; and

1 (E) conduct an education program to pro-
2 vide hydrogen and fuel cell information to po-
3 tential end-users.

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

9 **SEC. ___ 5. ADVISORY COMMITTEE.**

10 (a) ESTABLISHMENT.—The Hydrogen Technical and
11 Fuel Cell Advisory Committee is established to advise the
12 Secretary on the programs and activities under this title.

13 (b) MEMBERSHIP.—

14 (1) MEMBERS.—The Advisory Committee shall
15 be comprised of not fewer than 12 nor more than 25
16 members. The members shall be appointed by the
17 Secretary to represent domestic industry, academia,
18 professional societies, government agencies, Federal
19 laboratories, previous advisory panels, and financial,
20 environmental, and other appropriate organizations
21 based on the Department's assessment of the tech-
22 nical and other qualifications of committee members
23 and the needs of the Advisory Committee.

24 (2) TERMS.—The term of a member of the Ad-
25 visory Committee shall not be more than 3 years.

1 The Secretary may appoint members of the Advisory
2 Committee in a manner that allows the terms of the
3 members serving at any time to expire at spaced in-
4 tervals so as to ensure continuity in the functioning
5 of the Advisory Committee. A member of the Advi-
6 sory Committee whose term is expiring may be re-
7 appointed.

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

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

13 (1) the implementation of programs and activi-
14 ties under this title;

15 (2) the safety, economical, and environmental
16 consequences of technologies for the production, dis-
17 tribution, delivery, storage, or use of hydrogen en-
18 ergy and fuel cells; and

19 (3) the plan under section ____2.

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

23 (2) The Secretary shall transmit a biennial report to
24 the Congress describing any recommendations made by
25 the Advisory Committee since the previous report. The re-

1 port shall include a description of how the Secretary has
2 implemented or plans to implement the recommendations,
3 or an explanation of the reasons that a recommendation
4 will not be implemented. The report shall be transmitted
5 along with the President's budget proposal.

6 (e) SUPPORT.—The Secretary shall provide resources
7 necessary in the judgment of the Secretary for the Advi-
8 sory Committee to carry out its responsibilities under this
9 title.

10 **SEC. ____6. EXTERNAL REVIEW.**

11 (a) PLAN.—The Secretary shall enter into an ar-
12 rangement with a competitively selected nongovernmental
13 entity, such as the National Academy of Sciences, to re-
14 view the plan prepared under section ____2, which shall
15 be completed not later than six months after the entity
16 receives the plan. Not later than 45 days after receiving
17 the review, the Secretary shall transmit the review to the
18 Congress along with a plan to implement the review's rec-
19 ommendations or an explanation of the reasons that a rec-
20 ommendation will not be implemented.

21 (b) ADDITIONAL REVIEW.—The Secretary shall enter
22 into an arrangement with a competitively selected non-
23 governmental entity, such as the National Academy of
24 Sciences, under which the entity will review the program
25 under section ____3 during the fourth year following the

1 date of enactment of this Act. The entity's review shall
2 include the research priorities and technical milestones,
3 and evaluate the progress toward achieving them. The re-
4 view shall be completed no later than five years after the
5 date of enactment of this Act. Not later than 45 days after
6 receiving the review, the Secretary shall transmit the re-
7 view to the Congress along with a plan to implement the
8 review's recommendations or an explanation for the rea-
9 sons that a recommendation will not be implemented.

10 **SEC. ___ 7. MISCELLANEOUS PROVISIONS.**

11 (a) REPRESENTATION.—The Secretary may rep-
12 resent the United States interests with respect to activities
13 and programs under this title, in coordination with the
14 Department of Transportation, the National Institute of
15 Standards and Technology, and other relevant Federal
16 agencies, before governments and nongovernmental orga-
17 nizations including—

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

20 (2) industry and its representatives, including
21 members of the energy and transportation indus-
22 tries; and

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

1 (b) REGULATORY AUTHORITY.—Nothing in this title
2 shall be construed to alter the regulatory authority of the
3 Department.

4 **SEC. ___8. SAVINGS CLAUSE.**

5 Nothing in this title shall be construed to affect the
6 authority of the Secretary of Transportation that may
7 exist prior to the date of enactment of this Act with re-
8 spect to—

9 (1) research into, and regulation of, hydrogen-
10 powered vehicles fuel systems integrity, standards,
11 and safety under subtitle VI of title 49, United
12 States Code;

13 (2) regulation of hazardous materials transpor-
14 tation under chapter 51 of title 49, United States
15 Code;

16 (3) regulation of pipeline safety under chapter
17 601 of title 49, United States Code;

18 (4) encouragement and promotion of research,
19 development, and deployment activities relating to
20 advanced vehicle technologies under section 5506 of
21 title 49, United States Code;

22 (5) regulation of motor vehicle safety under
23 chapter 301 of title 49, United States Code; or

24 (6) automobile fuel economy under chapter 329
25 of title 49, United States Code.

1 **SEC. ___9. AUTHORIZATION OF APPROPRIATIONS.**

2 There are authorized to be appropriated to carry out
3 this title, in addition to any amounts made available for
4 these purposes under other Acts—

5 (1) \$273,500,000 for fiscal year 2004;

6 (2) \$375,000,000 for fiscal year 2005;

7 (3) \$450,000,000 for fiscal year 2006;

8 (4) \$500,000,000 for fiscal year 2007; and

9 (5) \$550,000,000 for fiscal year 2008.