

**Excerpts from H.R. 6**  
**Energy Policy Act of 2005 (Engrossed as Agreed to or Passed by the House)**

Elements pertaining to [Hydrogen](#), [Fuel Cells](#), and [Fuel Cell Vehicles](#)

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**Title VI (Nuclear):**

**Subtitle C--Additional Hydrogen Production Provisions**

**SEC. 651. HYDROGEN PRODUCTION PROGRAMS.**

- (a) Advanced Reactor Hydrogen Cogeneration Project-
- (1) PROJECT ESTABLISHMENT- The Secretary is directed to establish an Advanced Reactor Hydrogen Cogeneration Project.
  - (2) PROJECT DEFINITION- The project shall consist of the research, development, design, construction, and operation of a hydrogen production cogeneration research facility that, relative to the current commercial reactors, enhances safety features, reduces waste production, enhances thermal efficiencies, increases proliferation resistance, and has the potential for improved economics and physical security in reactor siting. This facility shall be constructed so as to enable research and development on advanced reactors of the type selected and on alternative approaches for reactor-based production of hydrogen.
  - (3) PROJECT MANAGEMENT-
    - (A) MANAGEMENT- The project shall be managed within the Department by the Office of Nuclear Energy, Science, and Technology.
    - (B) LEAD LABORATORY- The lead laboratory for the project, providing the site for the reactor construction, shall be the Idaho National Laboratory (in this subsection referred to as 'INL').
    - (C) STEERING COMMITTEE- The Secretary shall establish a national steering committee with membership from the national laboratories, universities, and industry to provide advice to the Secretary and the Director of the Office of Nuclear Energy , Science, and Technology on technical and program management aspects of the project.
    - (D) COLLABORATION- Project activities shall be conducted at INL, other national laboratories, universities, domestic industry, and international partners.
  - (4) PROJECT REQUIREMENTS-
    - (A) RESEARCH AND DEVELOPMENT-
      - (i) IN GENERAL- The project shall include planning, research and development, design, and construction of an advanced, next-generation, nuclear energy system suitable for enabling further research and development on advanced reactor technologies and alternative approaches for reactor-based generation of hydrogen.

(ii) REACTOR TEST CAPABILITIES AT INL- The project shall utilize, where appropriate, extensive reactor test capabilities resident at INL.

(iii) ALTERNATIVES- The project shall be designed to explore technical, environmental, and economic feasibility of alternative approaches for reactor-based hydrogen production.

(iv) INDUSTRIAL LEAD- The industrial lead for the project shall be a company incorporated in the United States.

(B) INTERNATIONAL COLLABORATION-

(i) IN GENERAL- The Secretary shall seek international cooperation, participation, and financial contribution in this project.

(ii) ASSISTANCE FROM INTERNATIONAL PARTNERS- The Secretary may contract for assistance from specialists or facilities from member countries of the Generation IV International Forum, the Russian Federation, or other international partners where such specialists or facilities provide access to cost-effective and relevant skills or test capabilities.

(iii) GENERATION IV INTERNATIONAL FORUM- International activities shall be coordinated with the Generation IV International Forum.

(iv) GENERATION IV NUCLEAR Energy SYSTEMS PROGRAM- The Secretary may combine this project with the Generation IV Nuclear Energy Systems Program.

(C) DEMONSTRATION- The overall project, which may involve demonstration of selected project objectives in a partner nation, must demonstrate both electricity and hydrogen production and may provide flexibility, where technically and economically feasible in the design and construction, to enable tests of alternative reactor core and cooling configurations.

(D) PARTNERSHIPS- The Secretary shall establish cost-shared partnerships with domestic industry or international participants for the research, development, design, construction, and operation of the research facility, and preference in determining the final project structure shall be given to an overall project which retains United States leadership while maximizing cost sharing opportunities and minimizing Federal funding responsibilities.

(E) TARGET DATE- The Secretary shall select technologies and develop the project to provide initial testing of either hydrogen production or electricity generation by 2011, or provide a report to Congress explaining why this date is not feasible.

(F) WAIVER OF CONSTRUCTION TIMELINES- The Secretary is authorized to conduct the Advanced Reactor Hydrogen Cogeneration Project without the constraints of DOE Order 413.3, relating to program and project management for the acquisition of capital assets, as necessary to meet the specified operational date.

(G) COMPETITION- The Secretary may fund up to 2 teams for up to 1 year to develop detailed proposals for competitive evaluation and selection

of a single proposal and concept for further progress. The Secretary shall define the format of the competitive evaluation of proposals.

(H) USE OF FACILITIES- Research facilities in industry, national laboratories, or universities either within the United States or with cooperating international partners may be used to develop the enabling technologies for the research facility. Utilization of domestic university-based facilities shall be encouraged to provide educational opportunities for student development.

(I) ROLE OF NUCLEAR REGULATORY COMMISSION-

(i) IN GENERAL- The Nuclear Regulatory Commission shall have licensing and regulatory authority for any reactor authorized under this subsection, pursuant to section 202 of the Energy Reorganization Act of 1974 (42 U.S.C. 5842).

(ii) RISK-BASED CRITERIA- The Secretary shall seek active participation of the Nuclear Regulatory Commission throughout the project to develop risk-based criteria for any future commercial development of a similar reactor architecture.

(J) REPORT- The Secretary shall develop and transmit to Congress a comprehensive project plan not later than 3 months after the date of enactment of this Act. The project plan shall be updated annually with each annual budget submission.

(b) Advanced Nuclear Reactor Technologies- The Secretary shall--

(1) prepare a detailed roadmap for carrying out the provisions in this subtitle related to advanced nuclear reactor technologies and for implementing the recommendations related to advanced nuclear reactor technologies that are included in the report transmitted under subsection (d); and

(2) provide for the establishment of 5 projects in geographic areas that are regionally and climatically diverse to demonstrate the commercial production of hydrogen at existing nuclear power plants, including one demonstration project at a national laboratory or institution of higher education using an advanced gas-cooled reactor.

(c) Collocation With Hydrogen Production Facility- Section 103 of the Atomic Energy Act of 1954 (42 U.S.C. 2011) is amended by adding at the end the following new subsection:

‘g. The Commission shall give priority to the licensing of a utilization facility that is collocated with a hydrogen production facility. The Commission shall issue a final decision approving or disapproving the issuance of a license to construct and operate a utilization facility not later than the expiration of 3 years after the date of the submission of such application, if the application references a Commission-certified design and an early site permit, unless the Commission determines that the applicant has proposed material and substantial changes to the design or the site design parameters.’

(d) Report- The Secretary shall transmit to the Congress not later than 120 days after the date of enactment of this Act a report containing detailed summaries of the roadmaps prepared under subsection (b)(1), descriptions of the Secretary's progress in establishing the projects and other programs required under this section, and recommendations for promoting the availability of advanced nuclear reactor energy technologies for the production of hydrogen.

(e) Authorization of Appropriations- For the purpose of supporting research programs related to the development of advanced nuclear reactor technologies under this section, there are authorized to be appropriated to the Secretary--

- (1) \$65,000,000 for fiscal year 2006;
- (2) \$74,750,000 for fiscal year 2007;
- (3) \$85,962,500 for fiscal year 2008;
- (4) \$98,856,875 for fiscal year 2009;
- (5) \$113,685,406 for fiscal year 2010;
- (6) \$130,738,217 for fiscal year 2011;
- (7) \$150,348,950 for fiscal year 2012;
- (8) \$172,901,292 for fiscal year 2013;
- (9) \$198,836,486 for fiscal year 2014; and
- (10) \$228,661,959 for fiscal year 2015.

## **SEC. 652. DEFINITIONS.**

For purposes of this subtitle--

- (1) the term `advanced nuclear reactor technologies' means--
    - (A) technologies related to advanced light water reactors that may be commercially available in the near-term, including mid-sized reactors with passive safety features, for the generation of electric power from nuclear fission and the production of hydrogen; and
    - (B) technologies related to other nuclear reactors that may require prototype demonstration prior to availability in the mid-term or long-term, including high-temperature, gas-cooled reactors and liquid metal reactors, for the generation of electric power from nuclear fission and the production of hydrogen;
  - (2) the term `institution of higher education' has the meaning given to that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)); and
  - (3) the term `Secretary' means the Secretary of Energy .
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## PART 2--ADVANCED VEHICLES

### SEC. 721. DEFINITIONS.

In this part:

(1) ALTERNATIVE FUELED VEHICLE-

(A) IN GENERAL- The term `alternative fueled vehicle' means a vehicle propelled solely on an alternative fuel (as defined in section 301 of the Energy Policy Act of 1992 (42 U.S.C. 13211)).

(B) EXCLUSION- The term `alternative fueled vehicle' does not include a vehicle that the Secretary determines, by regulation, does not yield substantial environmental benefits over a vehicle operating solely on gasoline or diesel derived from fossil fuels.

(2) FUEL CELL VEHICLE- The term `fuel cell vehicle' means a vehicle propelled by an electric motor powered by a fuel cell system that converts chemical energy into electricity by combining oxygen (from air) with hydrogen fuel that is stored on the vehicle or is produced onboard by reformation of a hydrocarbon fuel. Such fuel cell system may or may not include the use of auxiliary energy storage systems to enhance vehicle performance.

(3) HYBRID VEHICLE- The term `hybrid vehicle' means a medium or heavy duty vehicle propelled by an internal combustion engine or heat engine using any combustible fuel and an onboard rechargeable energy storage device.

(4) NEIGHBORHOOD ELECTRIC VEHICLE- The term `neighborhood electric vehicle' means a motor vehicle that--

(A) meets the definition of a low-speed vehicle (as defined in part 571 of title 49, Code of Federal Regulations);

(B) meets the definition of a zero-emission vehicle (as defined in section 86.1702-99 of title 40, Code of Federal Regulations);

(C) meets the requirements of Federal Motor Vehicle Safety Standard No. 500; and

(D) has a maximum speed of not greater than 25 miles per hour.

(5) PILOT PROGRAM- The term `pilot program' means the competitive grant program established under section 722.

(6) SECRETARY- The term `Secretary' means the Secretary of Energy .

(7) ULTRA-LOW SULFUR DIESEL VEHICLE- The term `ultra-low sulfur diesel vehicle' means a vehicle manufactured in any of model years 2004 through 2006 powered by a heavy-duty diesel engine that--

(A) is fueled by diesel fuel that contains sulfur at not more than 15 parts per million; and

(B) emits not more than the lesser of--

(i) for vehicles manufactured in model years 2004 through 2006, 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons

- and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; or
- (ii) the quantity of emissions of nonmethane hydrocarbons, oxides of nitrogen, and particulate matter of the best-performing technology of ultra-low sulfur diesel vehicles of the same class and application that are commercially available.

## **SEC. 722. PILOT PROGRAM.**

(a) Establishment- The Secretary, in consultation with the Secretary of Transportation, shall establish a competitive grant pilot program, to be administered through the Clean Cities Program of the Department of Energy, to provide not more than 30 geographically dispersed project grants to State governments, local governments, or metropolitan transportation authorities to carry out a project or projects for the purposes described in subsection (b).

(b) Grant Purposes- A grant under this section may be used for the following purposes:

- (1) The acquisition of alternative fueled vehicles or fuel cell vehicles, including--
  - (A) passenger vehicles (including neighborhood electric vehicles); and
  - (B) motorized 2-wheel bicycles or other vehicles for use by law enforcement personnel or other State or local government or metropolitan transportation authority employees.
- (2) The acquisition of alternative fueled vehicles, hybrid vehicles, or fuel cell vehicles, including--
  - (A) buses used for public transportation or transportation to and from schools;
  - (B) delivery vehicles for goods or services; and
  - (C) ground support vehicles at public airports (including vehicles to carry baggage or push or pull airplanes toward or away from terminal gates).
- (3) The acquisition of ultra-low sulfur diesel vehicles.
- (4) Installation or acquisition of infrastructure necessary to directly support an alternative fueled vehicle, fuel cell vehicle, or hybrid vehicle project funded by the grant, including fueling and other support equipment.
- (5) Operation and maintenance of vehicles, infrastructure, and equipment acquired as part of a project funded by the grant.

(c) Applications-

(1) REQUIREMENTS-

(A) IN GENERAL- The Secretary shall issue requirements for applying for grants under the pilot program.

(B) MINIMUM REQUIREMENTS- At a minimum, the Secretary shall require that an application for a grant--

- (i) be submitted by the head of a State or local government or a metropolitan transportation authority, or any combination thereof, and a registered participant in the Clean Cities Program of the Department of Energy; and
- (ii) include--

- (I) a description of the project proposed in the application, including how the project meets the requirements of this part;
- (II) an estimate of the ridership or degree of use of the project;
- (III) an estimate of the air pollution emissions reduced and fossil fuel displaced as a result of the project, and a plan to collect and disseminate environmental data, related to the project to be funded under the grant, over the life of the project;
- (IV) a description of how the project will be sustainable without Federal assistance after the completion of the term of the grant;
- (V) a complete description of the costs of the project, including acquisition, construction, operation, and maintenance costs over the expected life of the project;
- (VI) a description of which costs of the project will be supported by Federal assistance under this part; and
- (VII) documentation to the satisfaction of the Secretary that diesel fuel containing sulfur at not more than 15 parts per million is available for carrying out the project, and a commitment by the applicant to use such fuel in carrying out the project.

(2) PARTNERS- An applicant under paragraph (1) may carry out a project under the pilot program in partnership with public and private entities.

(d) Selection Criteria- In evaluating applications under the pilot program, the Secretary shall--

- (1) consider each applicant's previous experience with similar projects; and
- (2) give priority consideration to applications that--
  - (A) are most likely to maximize protection of the environment;
  - (B) demonstrate the greatest commitment on the part of the applicant to ensure funding for the proposed project and the greatest likelihood that the project will be maintained or expanded after Federal assistance under this part is completed; and
  - (C) exceed the minimum requirements of subsection (c)(1)(B)(ii).

(e) Pilot Project Requirements-

- (1) MAXIMUM AMOUNT- The Secretary shall not provide more than \$15,000,000 in Federal assistance under the pilot program to any applicant.
- (2) COST SHARING- The Secretary shall not provide more than 50 percent of the cost, incurred during the period of the grant, of any project under the pilot program.
- (3) MAXIMUM PERIOD OF GRANTS- The Secretary shall not fund any applicant under the pilot program for more than 5 years.
- (4) DEPLOYMENT AND DISTRIBUTION- The Secretary shall seek to the maximum extent practicable to ensure a broad geographic distribution of project sites.
- (5) TRANSFER OF INFORMATION AND KNOWLEDGE- The Secretary shall establish mechanisms to ensure that the information and knowledge gained by

participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(f) Schedule-

(1) PUBLICATION- Not later than 90 days after the date of enactment of this Act, the Secretary shall publish in the Federal Register, Commerce Business Daily, and elsewhere as appropriate, a request for applications to undertake projects under the pilot program. Applications shall be due not later than 180 days after the date of publication of the notice.

(2) SELECTION- Not later than 180 days after the date by which applications for grants are due, the Secretary shall select by competitive, peer reviewed proposal, all applications for projects to be awarded a grant under the pilot program.

(g) Limit on Funding- The Secretary shall provide not less than 20 nor more than 25 percent of the grant funding made available under this section for the acquisition of ultra-low sulfur diesel vehicles.

## **SEC. 723. REPORTS TO CONGRESS.**

(a) Initial Report- Not later than 60 days after the date on which grants are awarded under this part, the Secretary shall submit to Congress a report containing--

(1) an identification of the grant recipients and a description of the projects to be funded;

(2) an identification of other applicants that submitted applications for the pilot program; and

(3) a description of the mechanisms used by the Secretary to ensure that the information and knowledge gained by participants in the pilot program are transferred among the pilot program participants and to other interested parties, including other applicants that submitted applications.

(b) Evaluation- Not later than 3 years after the date of enactment of this Act, and annually thereafter until the pilot program ends, the Secretary shall submit to Congress a report containing an evaluation of the effectiveness of the pilot program, including--

(1) an assessment of the benefits to the environment derived from the projects included in the pilot program; and

(2) an estimate of the potential benefits to the environment to be derived from widespread application of alternative fueled vehicles and ultra-low sulfur diesel vehicles.

## **SEC. 724. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated to the Secretary to carry out this part \$200,000,000, to remain available until expended.

## **PART 3--FUEL CELL BUSES**

### **SEC. 731. FUEL CELL TRANSIT BUS DEMONSTRATION.**

- (a) In General- The Secretary of Energy, in consultation with the Secretary of Transportation, shall establish a transit bus demonstration program to make competitive, merit-based awards for 5-year projects to demonstrate not more than 25 fuel cell transit buses (and necessary infrastructure) in 5 geographically dispersed localities.
- (b) Preference- In selecting projects under this section, the Secretary of Energy shall give preference to projects that are most likely to mitigate congestion and improve air quality.
- (c) Authorization of Appropriations- There are authorized to be appropriated to the Secretary of Energy to carry out this section \$10,000,000 for each of fiscal years 2006 through 2010.

#### **Subtitle C--Clean School Buses**

### **SEC. 741. DEFINITIONS.**

In this subtitle:

- (1) ADMINISTRATOR- The term `Administrator' means the Administrator of the Environmental Protection Agency.
- (2) ALTERNATIVE FUEL- The term `alternative fuel' means liquefied natural gas, compressed natural gas, liquefied petroleum gas, hydrogen, propane, or methanol or ethanol at no less than 85 percent by volume.
- (3) ALTERNATIVE FUEL SCHOOL BUS- The term `alternative fuel school bus' means a school bus that meets all of the requirements of this subtitle and is operated solely on an alternative fuel.
- (4) EMISSIONS CONTROL RETROFIT TECHNOLOGY- The term `emissions control retrofit technology' means a particulate filter or other emissions control equipment that is verified or certified by the Administrator or the California Air Resources Board as an effective emission reduction technology when installed on an existing school bus.
- (5) IDLING- The term `idling' means operating an engine while remaining stationary for more than approximately 15 minutes, except that the term does not apply to routine stoppages associated with traffic movement or congestion.
- (6) SECRETARY- The term `Secretary' means the Secretary of Energy.
- (7) ULTRA-LOW SULFUR DIESEL FUEL- The term `ultra-low sulfur diesel fuel' means diesel fuel that contains sulfur at not more than 15 parts per million.
- (8) ULTRA-LOW SULFUR DIESEL FUEL SCHOOL BUS- The term `ultra-low sulfur diesel fuel school bus' means a school bus that meets all of the requirements of this subtitle and is operated solely on ultra-low sulfur diesel fuel.

## **SEC. 742. PROGRAM FOR REPLACEMENT OF CERTAIN SCHOOL BUSES WITH CLEAN SCHOOL BUSES.**

- (a) Establishment- The Administrator, in consultation with the Secretary and other appropriate Federal departments and agencies, shall establish a program for awarding grants on a competitive basis to eligible entities for the replacement of existing school buses manufactured before model year 1991 with alternative fuel school buses and ultra-low sulfur diesel fuel school buses.
- (b) Requirements-
- (1) IN GENERAL- Not later than 90 days after the date of enactment of this Act, the Administrator shall establish and publish in the Federal Register grant requirements on eligibility for assistance, and on implementation of the program established under subsection (a), including instructions for the submission of grant applications and certification requirements to ensure compliance with this subtitle.
  - (2) APPLICATION DEADLINES- The requirements established under paragraph (1) shall require submission of grant applications not later than--
    - (A) in the case of the first year of program implementation, the date that is 180 days after the publication of the requirements in the Federal Register; and
    - (B) in the case of each subsequent year, June 1 of the year.
- (c) Eligible Recipients- A grant shall be awarded under this section only--
- (1) to 1 or more local or State governmental entities responsible for providing school bus service to 1 or more public school systems or responsible for the purchase of school buses;
  - (2) to 1 or more contracting entities that provide school bus service to 1 or more public school systems, if the grant application is submitted jointly with the 1 or more school systems to be served by the buses, except that the application may provide that buses purchased using funds awarded shall be owned, operated, and maintained exclusively by the 1 or more contracting entities; or
  - (3) to a nonprofit school transportation association representing private contracting entities, if the association has notified and received approval from the 1 or more school systems to be served by the buses.
- (d) Award Deadlines-
- (1) IN GENERAL- Subject to paragraph (2), the Administrator shall award a grant made to a qualified applicant for a fiscal year--
    - (A) in the case of the first fiscal year of program implementation, not later than the date that is 90 days after the application deadline established under subsection (b)(2); and
    - (B) in the case of each subsequent fiscal year, not later than August 1 of the fiscal year.
  - (2) INSUFFICIENT NUMBER OF QUALIFIED GRANT APPLICATIONS- If the Administrator does not receive a sufficient number of qualified grant applications to meet the requirements of subsection (i)(1) for a fiscal year, the Administrator shall award a grant made to a qualified applicant under subsection (i)(2) not later than September 30 of the fiscal year.

(e) Types of Grants-

(1) IN GENERAL- A grant under this section shall be used for the replacement of school buses manufactured before model year 1991 with alternative fuel school buses and ultra-low sulfur diesel fuel school buses.

(2) NO ECONOMIC BENEFIT- Other than the receipt of the grant, a recipient of a grant under this section may not receive any economic benefit in connection with the receipt of the grant.

(3) PRIORITY OF GRANT APPLICATIONS- The Administrator shall give priority to applicants that propose to replace school buses manufactured before model year 1977.

(f) Conditions of Grant- A grant provided under this section shall include the following conditions:

(1) SCHOOL BUS FLEET- All buses acquired with funds provided under the grant shall be operated as part of the school bus fleet for which the grant was made for a minimum of 5 years.

(2) USE OF FUNDS- Funds provided under the grant may only be used--

(A) to pay the cost, except as provided in paragraph (3), of new alternative fuel school buses or ultra-low sulfur diesel fuel school buses, including State taxes and contract fees associated with the acquisition of such buses; and

(B) to provide--

- (i) up to 20 percent of the price of the alternative fuel school buses acquired, for necessary alternative fuel infrastructure if the infrastructure will only be available to the grant recipient; and
- (ii) up to 25 percent of the price of the alternative fuel school buses acquired, for necessary alternative fuel infrastructure if the infrastructure will be available to the grant recipient and to other bus fleets.

(3) GRANT RECIPIENT FUNDS- The grant recipient shall be required to provide at least--

(A) in the case of a grant recipient described in paragraph (1) or (3) of subsection (c), the lesser of--

- (i) an amount equal to 15 percent of the total cost of each bus received; or
- (ii) \$15,000 per bus; and

(B) in the case of a grant recipient described in subsection (c)(2), the lesser of--

- (i) an amount equal to 20 percent of the total cost of each bus received; or
- (ii) \$20,000 per bus.

(4) ULTRA-LOW SULFUR DIESEL FUEL- In the case of a grant recipient receiving a grant for ultra-low sulfur diesel fuel school buses, the grant recipient shall be required to provide documentation to the satisfaction of the Administrator that diesel fuel containing sulfur at not more than 15 parts per million is available for carrying out the purposes of the grant, and a commitment by the applicant to use such fuel in carrying out the purposes of the grant.

(5) TIMING- All alternative fuel school buses, ultra-low sulfur diesel fuel school buses, or alternative fuel infrastructure acquired under a grant awarded under this section shall be purchased and placed in service as soon as practicable.

(g) Buses-

(1) IN GENERAL- Except as provided in paragraph (2), funding under a grant made under this section for the acquisition of new alternative fuel school buses or ultra-low sulfur diesel fuel school buses shall only be used to acquire school buses--

(A) with a gross vehicle weight of greater than 14,000 pounds;

(B) that are powered by a heavy duty engine;

(C) in the case of alternative fuel school buses manufactured in model years 2004 through 2006, that emit not more than 1.8 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter; and

(D) in the case of ultra-low sulfur diesel fuel school buses manufactured in model years 2004 through 2006, that emit not more than 2.5 grams per brake horsepower-hour of nonmethane hydrocarbons and oxides of nitrogen and .01 grams per brake horsepower-hour of particulate matter.

(2) LIMITATIONS- A bus shall not be acquired under this section that emits nonmethane hydrocarbons, oxides of nitrogen, or particulate matter at a rate greater than the best performing technology of the same class of ultra-low sulfur diesel fuel school buses commercially available at the time the grant is made.

(h) Deployment and Distribution- The Administrator shall--

(1) seek, to the maximum extent practicable, to achieve nationwide deployment of alternative fuel school buses and ultra-low sulfur diesel fuel school buses through the program under this section; and

(2) ensure a broad geographic distribution of grant awards, with a goal of no State receiving more than 10 percent of the grant funding made available under this section for a fiscal year.

(i) Allocation of Funds-

(1) IN GENERAL- Subject to paragraph (2), of the amount of grant funding made available to carry out this section for any fiscal year, the Administrator shall use--

(A) 70 percent for the acquisition of alternative fuel school buses or supporting infrastructure; and

(B) 30 percent for the acquisition of ultra-low sulfur diesel fuel school buses.

(2) INSUFFICIENT NUMBER OF QUALIFIED GRANT APPLICATIONS- After the first fiscal year in which this program is in effect, if the Administrator does not receive a sufficient number of qualified grant applications to meet the requirements of subparagraph (A) or (B) of paragraph (1) for a fiscal year, effective beginning on August 1 of the fiscal year, the Administrator shall make the remaining funds available to other qualified grant applicants under this section.

(j) Reduction of School Bus Idling- Each local educational agency (as defined in section 9101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801)) that receives Federal funds under the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6301 et seq.) is encouraged to develop a policy, consistent with the health, safety, and welfare of students and the proper operation and maintenance of school buses, to

reduce the incidence of unnecessary school bus idling at schools when picking up and unloading students.

(k) Annual Report-

(1) IN GENERAL- Not later than January 31 of each year, the Administrator shall transmit to Congress a report evaluating implementation of the programs under this section and section 743.

(2) COMPONENTS- The reports shall include a description of--

(A) the total number of grant applications received;

(B) the number and types of alternative fuel school buses, ultra-low sulfur diesel fuel school buses, and retrofitted buses requested in grant applications;

(C) grants awarded and the criteria used to select the grant recipients;

(D) certified engine emission levels of all buses purchased or retrofitted under the programs under this section and section 743;

(E) an evaluation of the in-use emission level of buses purchased or retrofitted under the programs under this section and section 743; and

(F) any other information the Administrator considers appropriate.

(l) Authorization of Appropriations- There are authorized to be appropriated to the Administrator to carry out this section, to remain available until expended--

(1) \$45,000,000 for fiscal year 2005;

(2) \$65,000,000 for fiscal year 2006;

(3) \$90,000,000 for fiscal year 2007; and

(4) such sums as are necessary for each of fiscal years 2008 and 2009.

## **SEC. 744. FUEL CELL SCHOOL BUSES.**

(a) Establishment- The Secretary shall establish a program for entering into cooperative agreements--

(1) with private sector fuel cell bus developers for the development of fuel cell-powered school buses; and

(2) subsequently, with not less than 2 units of local government using natural gas-powered school buses and such private sector fuel cell bus developers to demonstrate the use of fuel cell-powered school buses.

(b) Cost Sharing- The non-Federal contribution for activities funded under this section shall be not less than--

(1) 20 percent for fuel infrastructure development activities; and

(2) 50 percent for demonstration activities and for development activities not described in paragraph (1).

(c) Reports to Congress- Not later than 3 years after the date of enactment of this Act, the Secretary shall transmit to Congress a report that--

(1) evaluates the process of converting natural gas infrastructure to accommodate fuel cell-powered school buses; and

(2) assesses the results of the development and demonstration program under this section.

(d) Authorization of Appropriations- There are authorized to be appropriated to the Secretary to carry out this section \$25,000,000 for the period of fiscal years 2005 through 2007.

## TITLE VIII--HYDROGEN

### SEC. 801. DEFINITIONS.

In this title:

- (1) ADVISORY COMMITTEE- The term `Advisory Committee' means the Hydrogen Technical and Fuel Cell Advisory Committee established under section 805.
- (2) DEPARTMENT- The term `Department' means the Department of Energy.
- (3) FUEL CELL- 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) INFRASTRUCTURE- The term `infrastructure' means the equipment, systems, or facilities used to produce, distribute, deliver, or store hydrogen.
- (5) LIGHT DUTY VEHICLE- The term `light duty vehicle' means a car or truck classified by the Department of Transportation as a Class I or IIA vehicle.
- (6) SECRETARY- The term `Secretary' means the Secretary of Energy.

### SEC. 802. PLAN.

Not later than 6 months after the date of enactment of this Act, the Secretary shall transmit to Congress a coordinated plan for the programs described in this title 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 title, including the agenda for each activity enumerated in section 803(a);
- (2) the types of entities that will carry out the activities under this title 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 nontechnical hurdles that stand in the way of achieving the goals described in section 803(b), 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.

### SEC. 803. PROGRAMS.

(a) 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 on-site 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 onboard 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;
- (7) development, after consultation with the private sector, of necessary codes and standards (including international codes and standards and voluntary consensus standards adopted in accordance with OMB Circular A-119) and safety practices for the production, distribution, storage, and use of hydrogen, hydrogen-carrier fuels, and related products;
- (8) a public education program to develop improved knowledge and acceptability of hydrogen-based systems; and
- (9) the ability of domestic automobile manufacturers to manufacture commercially available competitive hybrid vehicle technologies in the United States.
- (b) 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--
- (i) a range of at least 300 miles;
  - (ii) improved performance and ease of driving;
  - (iii) safety and performance comparable to vehicle technologies in the market; and
  - (iv) when compared to light duty vehicles in model year 2003--
- (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, 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.

(c) Demonstration- In carrying out the programs under this section, the Secretary shall fund a limited number of demonstration projects, consistent with a determination of the maturity, cost-effectiveness, and environmental impacts of technologies supporting each project. In selecting projects under this subsection, the Secretary shall, to the extent practicable and in the public interest, select projects that--

- (1) involve using hydrogen and related products at existing facilities or installations, such as existing office buildings, military bases, vehicle fleet centers, transit bus authorities, or units of the National Park System;
- (2) depend on reliable power from hydrogen to carry out essential activities;
- (3) lead to the replication of hydrogen technologies and draw such technologies into the marketplace;
- (4) include vehicle, portable, and stationary demonstrations of fuel cell and hydrogen-based energy technologies;
- (5) address the interdependency of demand for hydrogen fuel cell applications and hydrogen fuel infrastructure;
- (6) raise awareness of hydrogen technology among the public;
- (7) facilitate identification of an optimum technology among competing alternatives;
- (8) address distributed generation using renewable sources; and
- (9) address applications specific to rural or remote locations, including isolated villages and islands, the National Park System, and tribal entities.

The Secretary shall give preference to projects which address multiple elements contained in paragraphs (1) through (9).

(d) Deployment- In carrying out the programs under this section, the Secretary shall, in partnership with the private sector, conduct activities to facilitate the deployment of hydrogen energy and energy infrastructure, fuel cells, and advanced vehicle technologies.

(e) 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.

(f) Cost Sharing-

(1) RESEARCH AND DEVELOPMENT- Except as otherwise provided in this title, for research and development programs carried out under this title the Secretary shall require a commitment from non-Federal sources of at least 20 percent of the cost of the project. The Secretary may reduce or eliminate the non-Federal requirement under this paragraph if the Secretary determines that the research and development is of a basic or fundamental nature or involves technical analyses or educational activities.

(2) DEMONSTRATION AND COMMERCIAL APPLICATION- Except as otherwise provided in this title, the Secretary shall require at least 50 percent of the costs directly and specifically related to any demonstration or commercial application project under this title to be provided from non-Federal sources. The Secretary may reduce the non-Federal requirement under this paragraph if the Secretary determines that the reduction is necessary and appropriate considering the technological risks involved in the project and is necessary to meet the objectives of this title.

(3) CALCULATION OF AMOUNT- In calculating the amount of the non-Federal commitment under paragraph (1) or (2), the Secretary may include personnel, services, equipment, and other resources.

(4) SIZE OF NON-FEDERAL SHARE- The Secretary may consider the size of the non-Federal share in selecting projects.

(g) Disclosure- Section 623 of the Energy Policy Act of 1992 (42 U.S.C. 13293) relating to the protection of information shall apply to projects carried out through grants, cooperative agreements, or contracts under this title.

## **SEC. 804. INTERAGENCY TASK FORCE.**

(a) Establishment- Not later than 120 days after the date of enactment of this Act, 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 interagency 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 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 title;
    - (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 interagency task force, shall cooperate with and furnish information to the interagency task force, the Advisory Committee, and the Department.

## **SEC. 805. 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 title.
- (b) Membership-
  - (1) MEMBERS- The 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 committee members and the needs of the Advisory Committee.

(2) TERMS- The term of a member of the Advisory Committee shall not be more than 3 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 Advisory Committee shall have a chairperson, who is elected by the members from among their number.

(c) Review- The Advisory Committee shall review and make recommendations to the Secretary on--

(1) the implementation of programs and activities under this title;

(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 802.

(d) Response-

(1) CONSIDERATION OF RECOMMENDATIONS- The Secretary shall consider, but need not adopt, any recommendations of the Advisory Committee under subsection (c).

(2) BIENNIAL REPORT- The Secretary shall transmit a biennial report to Congress describing any recommendations made by the Advisory Committee since the previous report. The report shall include 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.

(e) Support- The Secretary shall provide resources necessary in the judgment of the Secretary for the Advisory Committee to carry out its responsibilities under this title.

## **SEC. 806. EXTERNAL REVIEW.**

(a) Plan- The Secretary shall enter into an arrangement with the National Academy of Sciences to review the plan prepared under section 802, which shall be completed not later than 6 months after the Academy receives the plan. Not later than 45 days after receiving the review, the Secretary shall transmit the review to 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) Additional Review- The Secretary shall enter into an arrangement with the National Academy of Sciences under which the Academy will review the programs under section 803 during the fourth year following the date of enactment of this Act. The Academy's review shall include the research priorities and technical milestones, and evaluate the progress toward achieving them. The review shall be completed not later than 5 years after the date of enactment of this Act. Not later than 45 days after receiving the review, the Secretary shall transmit the review to 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. 807. MISCELLANEOUS PROVISIONS.**

- (a) Representation- The Secretary may represent the United States interests with respect to activities and programs under this title, 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.
- (b) Regulatory Authority- Nothing in this title shall be construed to alter the regulatory authority of the Department.

## **SEC. 808. SAVINGS CLAUSE.**

- Nothing in this title shall be construed to affect the authority of the Secretary of Transportation that may exist prior to the date of enactment of this Act with respect to--
- (1) research into, and regulation of, hydrogen-powered vehicles fuel systems integrity, standards, and safety under subtitle VI of title 49, United States Code;
  - (2) regulation of hazardous materials transportation under chapter 51 of title 49, United States Code;
  - (3) regulation of pipeline safety under chapter 601 of title 49, United States Code;
  - (4) encouragement and promotion of research, development, and deployment activities relating to advanced vehicle technologies under section 5506 of title 49, United States Code;
  - (5) regulation of motor vehicle safety under chapter 301 of title 49, United States Code;
  - (6) automobile fuel economy under chapter 329 of title 49, United States Code; or
  - (7) representation of the interests of the United States with respect to the activities and programs under the authority of title 49, United States Code.

## **SEC. 809. AUTHORIZATION OF APPROPRIATIONS.**

- There are authorized to be appropriated to the Secretary to carry out this title, in addition to any amounts made available for these purposes under other Acts--
- (1) \$546,000,000 for fiscal year 2006;
  - (2) \$750,000,000 for fiscal year 2007;
  - (3) \$850,000,000 for fiscal year 2008;
  - (4) \$900,000,000 for fiscal year 2009; and
  - (5) \$1,000,000,000 for fiscal year 2010.

## **SEC. 810. SOLAR AND WIND TECHNOLOGIES.**

- (a) Solar Energy Technologies- The Secretary shall--

- (1) prepare a detailed roadmap for carrying out the provisions in this subtitle related to solar energy technologies and for implementing the recommendations related to solar energy technologies that are included in the report transmitted under subsection (c);
  - (2) provide for the establishment of 5 projects in geographic areas that are regionally and climatically diverse to demonstrate the production of hydrogen at solar energy facilities, including one demonstration project at a national laboratory or institution of higher education;
  - (3) establish a research and development program--
    - (A) to develop optimized concentrating solar power devices that may be used for the production of both electricity and hydrogen; and
    - (B) to evaluate the use of thermochemical cycles for hydrogen production at the temperatures attainable with concentrating solar power devices;
  - (4) coordinate with activities sponsored by the Department of Energy's Office of Nuclear Energy, Science, and Technology on high-temperature materials, thermochemical cycles, and economic issues related to solar energy;
  - (5) provide for the construction and operation of new concentrating solar power devices or solar power cogeneration facilities that produce hydrogen either concurrently with, or independently of, the production of electricity;
  - (6) support existing facilities and research programs dedicated to the development and advancement of concentrating solar power devices; and
  - (7) establish a program--
    - (A) to research and develop methods that use electricity from photovoltaic devices for the onsite production of hydrogen, such that no intermediate transmission or distribution infrastructure is required or used and future demand growth may be accommodated;
    - (B) to evaluate the economics of small-scale electrolysis for hydrogen production; and
    - (C) to research the potential of modular photovoltaic devices for the development of a hydrogen infrastructure, the security implications of a hydrogen infrastructure, and the benefits potentially derived from a hydrogen infrastructure.
- (b) Wind Energy Technologies- The Secretary shall--
- (1) prepare a detailed roadmap for carrying out the provisions in this subtitle related to wind energy technologies and for implementing the recommendations related to wind energy technologies that are included in the report transmitted under subsection (c); and
  - (2) provide for the establishment of 5 projects in geographic areas that are regionally and climatically diverse to demonstrate the production of hydrogen at existing wind energy facilities, including one demonstration project at a national laboratory or institution of higher education.
- (c) Program Support- The Secretary shall support research programs at institutions of higher education for the development of solar energy technologies and wind energy technologies for the production of hydrogen. The research programs supported under this subsection shall--
- (1) enhance fellowship and faculty assistance programs;
  - (2) provide support for fundamental research;

- (3) encourage collaborative research among industry, national laboratories, and institutions of higher education;
- (4) support communication and outreach; and
- (5) to the greatest extent possible--
  - (A) be located in geographic areas that are regionally and climatically diverse; and
  - (B) be located at part B institutions, minority institutions, and institutions of higher education located in States participating in the Experimental Program to Stimulate Competitive Research of the Department of Energy.
- (d) Institutions of Higher Education and National Laboratory Interactions- In conjunction with the programs supported under this section, the Secretary shall develop sabbatical, fellowship, and visiting scientist programs to encourage national laboratories and institutions of higher education to share and exchange personnel.
- (e) Definitions- For purposes of this section--
  - (1) the term `concentrating solar power devices' means devices that concentrate the power of the sun by reflection or refraction to improve the efficiency of a photovoltaic or thermal generation process;
  - (2) the term `institution of higher education' has the meaning given to that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a));
  - (3) the term `minority institution' has the meaning given to that term in section 365 of the Higher Education Act of 1965 (20 U.S.C. 1067k);
  - (4) the term `part B institution' has the meaning given to that term in section 322 of the Higher Education Act of 1965 (20 U.S.C. 1061); and
  - (5) the term `photovoltaic devices' means devices that convert light directly into electricity through a solid-state, semiconductor process.

## **SEC. 811. HYDROGEN FUEL CELL BUSES.**

The Secretary of Energy, through the advanced vehicle technologies program, in coordination with the Secretary of Transportation, shall advance the development of fuel cell bus technologies by providing funding for 4 demonstration sites that--

- (1) have or will soon have hydrogen infrastructure for fuel cell bus operation; and
- (2) are operated by entities with experience in the development of fuel cell bus technologies, to enable the widespread utilization of fuel cell buses.

Such demonstrations shall address the reliability of fuel cell heavy-duty vehicles, expense, infrastructure, containment, storage, safety, training, and other issues.

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## SEC. 904. HYDROGEN.

The Secretary shall conduct a program of fundamental research and development in support of programs authorized in title VIII.

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## SEC. 966. FUEL CELLS.

- (a) Program- The Secretary shall conduct a program of research, development, demonstration, and commercial application of fuel cells for low-cost, high-efficiency, fuel-flexible, modular power systems.
- (b) Demonstration- The program under this section shall include demonstration of fuel cell proton exchange membrane technology for commercial, residential, and transportation applications, and distributed generation systems, utilizing improved manufacturing production and processes.
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## SEC. 1312. CREDIT FOR BUSINESS INSTALLATION OF QUALIFIED FUEL CELLS.

- (a) In General- Section 48(a)(3)(A) (defining energy property) is amended by striking `or' at the end of clause (i), by adding `or' at the end of clause (ii), and by inserting after clause (ii) the following new clause:
- `(iii) qualified fuel cell property,'.
- (b) Energy Percentage- Subparagraph (A) of section 48(a)(2) (relating to energy percentage) is amended to read as follows:
- `(A) IN GENERAL- The energy percentage is--
- `(i) in the case of qualified fuel cell property, 15 percent, and
- `(ii) in the case of any other energy property, 10 percent.'.
- (c) Qualified Fuel Cell Property- Section 48 (relating to energy credit) is amended--
- (1) by redesignating subsection (b) as paragraph (5) of subsection (a),
- (2) by striking `subsection (a)' in paragraph (5) of subsection (a), as redesignated by paragraph (1), and inserting `this subsection', and
- (3) by adding at the end the following new subsection:
- `(b) Qualified Fuel Cell Property- For purposes of subsection (a)(3)(A)(iii)--

`(1) IN GENERAL- The term `qualified fuel cell property' means a fuel cell power plant which--

`(A) generates at least 0.5 kilowatt of electricity using an electrochemical process, and

`(B) has an electricity-only generation efficiency greater than 30 percent.

`(2) LIMITATION- The energy credit with respect to any qualified fuel cell property shall not exceed an amount equal to \$500 for each 0.5 kilowatt of capacity of such property.

`(3) FUEL CELL POWER PLANT- The term `fuel cell power plant' means an integrated system, comprised of a fuel cell stack assembly and associated balance of plant components, which converts a fuel into electricity using electrochemical means.

`(4) TERMINATION- The term `qualified fuel cell property' shall not include any property placed in service after December 31, 2007.'.

(d) Conforming Amendment- Section 48(a)(1) is amended by inserting `except as provided in subsection (b)(2),' before `the energy' the first place it appears.

(e) Effective Date- The amendments made by this section shall apply to property placed in service after April 11, 2005, under rules similar to the rules of section 48(m) of the Internal Revenue Code of 1986 (as in effect on the day before the date of the enactment of the Revenue Reconciliation Act of 1990).

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## SEC. 1451. CARBON-BASED FUEL CELL DEVELOPMENT.

(a) Grant Authority- The Secretary of Energy is authorized to make a single grant to a qualified institution to design and fabricate a 5-kilowatt prototype coal-based fuel cell with the following performance objectives:

(1) A current density of 600 milliamps per square centimeter at a cell voltage of 0.8 volts.

(2) An operating temperature range not to exceed 900 degrees celsius.

(b) Qualified Institution- For the purposes of subsection (a), a qualified institution is a research-intensive institution of higher education with demonstrated expertise in the development of carbon-based fuel cells allowing the direct use of high sulfur content coal as fuel, and which has produced a laboratory-scale carbon-based fuel cell with a proven current density of 100 milliamps per square centimeter at a voltage of 0.6 volts.

(c) Authorization of Appropriations- There are authorized to be appropriated to the Secretary of Energy for carrying out this section \$850,000 for fiscal year 2006.

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## **TITLE XXIV--GRAND CANYON HYDROGEN-POWERED TRANSPORTATION DEMONSTRATION**

### **SEC. 2401. SHORT TITLE.**

This title may be cited as the 'Grand Canyon Hydrogen-Powered Transportation Demonstration Act of 2005'.

### **SEC. 2402. DEFINITIONS.**

For purposes of this title, the term--

- (1) 'Departments' means the Department of Energy jointly with the Department of the Interior; and
- (2) 'Secretaries' means the Secretary of Energy jointly with the Secretary of the Interior.

### **SEC. 2403. FINDINGS.**

The Congress finds that--

- (1) there is a need for a research and development program to support and foster the development, demonstration, and deployment of emerging hydrogen-based transportation technologies suitable for use in sensitive resource areas;
- (2) partnerships between the Department of Energy, the Department of the Interior, Native American Tribes, and United States industry to develop hydrogen-based energy technologies can provide significant benefits to our Nation, including enhancing our environmental stewardship, reducing our dependence on foreign oil, increasing our energy security, as well as creating jobs for United States workers and improving the competitive position of the United States in the global economy; and
- (3) when technologically and economically feasible, the implementation of clean, silent or nearly silent, hydrogen-based transportation technologies would further resource stewardship and experiential goals in sensitive resource areas including units of the National Park System, such as Grand Canyon National Park.

## **SEC. 2404. RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROGRAM.**

(a) In General- The Secretaries shall jointly establish and carry out a research and development program, in partnership with the private sector, relating to hydrogen-based transportation technologies suitable for operations in sensitive resource areas such as national parks. The Secretaries, in partnership with the private sector, shall conduct a demonstration of hydrogen-based public transportation technology at Grand Canyon National Park within three years after the date of enactment of this Act. At his discretion, the Secretary of Energy may choose to extend existing Department of Energy hydrogen-related vehicle research and development programs in order to meet the objectives and requirements of this title. The Secretaries shall provide preference to tribal entities in the establishment of the research and development program.

(b) Objective- The objective of the program shall be to research, develop, and demonstrate, in cooperation with affected and related industries, a hydrogen-based alternative public transportation system suitable for operations within Grand Canyon National Park, that meets the following standards:

- (1) Silent or near-silent operation.
- (2) Low, ultra low, or zero emission of pollutants.
- (3) Reliability.
- (4) Safe conveyance of passengers and operator.

(c) Partnership- In order to accomplish the objective set forth in subsection (b), the Secretaries shall establish a partnership among the Departments, manufacturers, other affected or related industries, Native American Tribes, and the National Park Service shuttle operators and tour operators authorized to provide services in Grand Canyon National Park.

## **SEC. 2405. REPORTS TO CONGRESS.**

One year after the date of enactment of this Act, and annually thereafter for the duration of the program, the Secretaries shall submit a report to the Committees on Appropriations, Resources, and Energy and Commerce of the House of Representatives and the Committees on Appropriations and Energy and Natural Resources of the Senate describing the ongoing activities of the Secretaries and the Departments relating to the program authorized under this title and, to the extent practicable, the activities planned for the coming fiscal year.

## **SEC. 2406. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated to the Secretaries to carry out this title, in addition to any amounts made available for these or related purposes under other Acts, \$400,000 per year for three consecutive fiscal years beginning with the full fiscal year following the date of enactment of this Act.