

established plays in the upper midcontinent region of the United States; and

(2) ensure that the results of the research described in paragraph (1) are transferred to users.

**(d) Research**

**(1) In general**

In conducting research under this section, the Center shall, to the extent practicable, cooperate with agencies of the Federal Government, the States in the midcontinent region of the United States, and the affected industry.

**(2) Programs**

Research programs conducted by the Center may include—

- (A) data base development and transfer of technology;
- (B) reservoir management;
- (C) reservoir characterization;
- (D) advanced recovery methods; and
- (E) development of new technology.

(Pub. L. 102-486, title XX, §2015, Oct. 24, 1992, 106 Stat. 3060.)

PART B—OIL AND GAS DEMAND REDUCTION AND SUBSTITUTION

**§ 13431. General transportation**

**(a) Program direction**

The Secretary shall conduct a 5-year program, in accordance with sections 13541 and 13542 of this title, on cost effective technologies to reduce the demand for oil in the transportation sector for all motor vehicles, including existing vehicles, through increased energy efficiency and the use of alternative fuels. Such program shall include a broad range of technological approaches, and shall include field demonstrations of sufficient scale and number in operating environments to prove technical and economic viability to meet the goals stated in section 13401 of this title. Such program shall include the activities required under sections 13432 through 13437 of this title, and ongoing activities of a similar nature at the Department of Energy.

**(b) Program plan**

Within 180 days after October 24, 1992, the Secretary shall prepare and submit to the Congress a 5-year program plan to guide activities under this part. In preparing the program plan, the Secretary shall consult with appropriate representatives of industry, utilities, institutions of higher education, Federal agencies, including national laboratories, and professional and technical societies.

**(c) Proposals**

Within 1 year after October 24, 1992, the Secretary shall solicit proposals for conducting activities under this section.

**(d) "Alternative fuels" defined**

For purposes of this part, the term "alternative fuels" includes natural gas, liquefied petroleum gas, hydrogen, fuels other than alcohol that are derived from biological materials, and any fuel the content of which is at least 85 percent by volume methanol, ethanol, or other alcohol.

**(e) Authorization of appropriations**

(1) There are authorized to be appropriated to the Secretary for carrying out this part, including all transportation sector energy conservation research and development (other than activities under section 13435 of this title) and all transportation sector biofuels energy systems under solar energy, \$119,144,000 for fiscal year 1993 and \$160,000,000 for fiscal year 1994.

(2) There are authorized to be appropriated to the Secretary for carrying out section 13435 of this title—

- (A) \$60,300,000 for fiscal year 1993;
- (B) \$75,000,000 for fiscal year 1994;
- (C) \$80,000,000 for fiscal year 1995;
- (D) \$80,000,000 for fiscal year 1996;
- (E) \$90,000,000 for fiscal year 1997; and
- (F) \$100,000,000 for fiscal year 1998.

(Pub. L. 102-486, title XX, §2021, Oct. 24, 1992, 106 Stat. 3061.)

**§ 13432. Advanced automotive fuel economy**

**(a) Program direction**

The Secretary shall conduct a program, in accordance with sections 13541 and 13542 of this title, to supplement ongoing research activities of a similar nature at the Department of Energy, to accelerate the near-term and mid-term development of advanced technologies to improve the fuel economy of light-duty passenger vehicles powered by a piston engine, and hybrid vehicles powered by a combination of piston engine and electric motor.

**(b) Program goal**

The goal of the program established under subsection (a) shall be to stimulate the development of emerging technologies with the potential to achieve significant improvements in fuel economy while reducing emissions of air pollutants.

**(c) Proposals**

Within 1 year after October 24, 1992, the Secretary shall solicit proposals for conducting activities under this section, making a special effort to involve small businesses in the program.

(Pub. L. 102-486, title XX, §2022, Oct. 24, 1992, 106 Stat. 3061.)

**§ 13433. Alternative fuel vehicle program**

**(a) Program direction**

The Secretary shall carry out a program, in accordance with sections 13541 and 13542 of this title, on techniques related to improving natural gas and other alternative fuel vehicle technology, including—

- (1) fuel injection;
- (2) carburetion;
- (3) manifolding;
- (4) combustion;
- (5) power optimization;
- (6) efficiency;
- (7) lubricants and detergents;
- (8) engine durability;
- (9) ignition, including fuel additives to assist ignition;
- (10) multifuel engines;
- (11) emissions control, including catalysts;

- (12) novel gas compression concepts;
- (13) advanced storage systems;
- (14) advanced gaseous fueling technologies;
- and
- (15) the incorporation of advanced materials in these areas.

**(b) Cooperative agreements and assistance**

The Secretary may enter into cooperative agreements with, and provide financial assistance to, public or private entities willing to provide 50 percent of the costs of a program to perform activities under subsection (a).

**(c) Definitions**

For purposes of this section—

- (1) the term “alternative fuel vehicle” means a motor vehicle that operates on alternative fuels; and
- (2) the term “motor vehicle” includes any automobile, truck, bus, van, or other on-road or off-road motor vehicle, including a boat.

(Pub. L. 102-486, title XX, §2023, Oct. 24, 1992, 106 Stat. 3062.)

**§ 13434. Biofuels user facility**

(a) The Secretary shall establish a biofuels user facility to expedite industry adoption of biofuels technologies, including production of alcohol fuels from biomass.

(b) The Secretary, through such universities and colleges as the Secretary determines are qualified, shall establish a program, in accordance with sections 13541 and 13542 of this title, with respect to the production and use of diesel fuels from vegetable oils or animal fats. The program shall investigate—

- (1) the economic feasibility of production of oilseed crops for biofuels purposes; and
- (2) the establishment of a mobile small-scale oilseed pressing and esterification unit and a stationary small-scale commercial oilseed pressing and esterification unit.

(Pub. L. 102-486, title XX, §2024, Oct. 24, 1992, 106 Stat. 3062.)

**§ 13435. Electric motor vehicles and associated equipment research and development**

**(a) General**

The Secretary shall conduct, pursuant to the Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C. 5901-5920), a research and development program on electric motor vehicles and associated equipment. Such program shall be conducted in cooperation with the electric utility industry, and automobile industry, battery manufacturers, and such other persons as the Secretary considers appropriate.

**(b) Comprehensive plan**

(1) The Secretary shall prepare a comprehensive 5-year program plan for carrying out the purposes of this section. Such comprehensive plan shall be updated biennially for a period of not less than 10 years after October 24, 1992.

(2) The comprehensive plan under paragraph (1) shall be prepared in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Transportation, the Secretary of Commerce, the heads of other ap-

propriate Federal agencies, representatives of the electric utility industry, electric motor vehicle manufacturers, the United States automobile industry, and such other persons as the Secretary considers appropriate.

(3) The comprehensive plan shall include—

- (A) a prioritization of research areas critical to the commercialization of electric motor vehicles, including advanced battery technology;
- (B) the program elements, management structure, and activities, including program responsibilities, of Federal agencies;
- (C) the program strategies, including technical milestones to be achieved toward specific goals during each fiscal year of the comprehensive plan for all major activities and projects;
- (D) the estimated costs of individual program elements, including estimated costs for each of the fiscal years of the comprehensive plan for each of the participating Federal agencies;
- (E) a description of the methods of technology transfer;
- (F) a proposal for participation by non-Federal entities in the implementation of the comprehensive plan; and
- (G) such other information as the Secretary considers appropriate.

(4) Not later than 180 days after October 24, 1992, the Secretary shall transmit the comprehensive plan to the Congress. Biennial updates shall be submitted to the Congress.

**(c) Cooperative agreements**

The Secretary, consistent with the comprehensive plan under subsection (b), may enter into cooperative agreements to conduct research and development projects with industry in such areas of technology development as—

- (1) high efficiency electric power trains, including advanced motors, motor controllers, and hybrid power trains for electric motor vehicle range improvement;
- (2) light-weight structures for electric motor vehicle weight reduction;
- (3) advanced batteries with high energy density and power density, and improved range or recharging cycles for a given unit weight, for electric motor vehicle application;
- (4) hybrid power trains incorporating an electric motor and recyclable battery charged by an onboard liquid fuel engine, designed to significantly improve fuel economies while maintaining acceleration characteristics comparable to a conventionally fueled vehicle;
- (5) batteries and fuel cells for electric-hybrid vehicle application;
- (6) fuel cells and fuel cell systems for primary electric motor vehicle power sources; and
- (7) photovoltaics for use with electric motor vehicles.

**(d) Solicitation of proposals**

(1) Within one year after October 24, 1992, the Secretary shall solicit proposals for cooperative agreements for research and development under subsection (c).

(2) Thereafter, the Secretary may solicit additional proposals for cooperative agreements