

(4) to maintain the technological competitiveness of the United States and stimulate economic growth through the development of advanced materials and technologies;

(5) to foster international cooperation by developing international markets for domestically produced sustainable energy technologies, and by transferring environmentally sound, advanced energy systems and technologies to developing countries to promote sustainable development;

(6) to consider the comparative environmental and public health impacts of the energy to be produced or saved by the specific activities;

(7) to consider the obstacles inherent in private industry's development of new energy technologies and steps necessary for establishing or maintaining technological leadership in the area of energy and energy efficiency resource technologies; and

(8) to consider the contribution of a given activity to fundamental scientific knowledge.

(Pub. L. 102-486, title XX, §2001, Oct. 24, 1992, 106 Stat. 3057.)

PART A—OIL AND GAS SUPPLY ENHANCEMENT

§ 13411. Enhanced oil recovery

(a) Program direction

The Secretary shall conduct a 5-year program, in accordance with sections 13541 and 13542 of this title, on technologies to increase the recoverability of domestic oil resources to—

(1) improve reservoir characterization;

(2) improve analysis and field verification;

(3) field test and demonstrate enhanced oil recovery processes, including advanced processes, in reservoirs the Secretary considers to be of high priority, ranked primarily on the basis of oil recovery potential and risk of abandonment;

(4) transfer proven recovery technologies to producers and operators of wells, including stripper wells, that would otherwise be likely to be abandoned in the near term due to declining production;

(5) improve enhanced oil recovery process technology for more economic and efficient oil production;

(6) identify and develop new recovery technologies;

(7) study reservoir properties and how they affect oil recovery from porous media;

(8) improve techniques for meeting environmental requirements;

(9) improve data bases of reservoir and environmental conditions; and

(10) lower lifting costs on stripper wells by utilizing advanced renewable energy technologies such as small wind turbines and others.

(b) Program goals

(1) Near-term priorities

The near-term priorities of the program include preserving access to high potential reservoirs, identifying available technologies that can extend the lifetime of wells and of stripper well property, and developing envi-

ronmental field operations for waste disposal and injection practices.

(2) Mid-term priorities

The mid-term priorities of the program include developing and testing identified but unproven technologies, and transferring those technologies for widespread use.

(3) Long-term priorities

The long-term priorities of the program include developing advanced techniques to recover oil not recoverable by other techniques.

(c) Accelerated program plan

Within 180 days after October 24, 1992, the Secretary shall prepare and submit to the Congress a plan for carrying out under this section the accelerated field testing of technologies to achieve the priorities stated in subsection (b). In preparing the plan, the Secretary shall consult with appropriate representatives of industry, institutions of higher education, Federal agencies, including national laboratories, and professional and technical societies, and with the Advisory Board established under section 13522 of this title.

(d) Proposals

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

(e) Consultation

In carrying out the provisions of this section, the Secretary shall consult representatives of the oil and gas industry with respect to innovative research and development proposals to improve oil and gas recovery and shall consider relevant technical data from industry and other research and information centers and institutes.

(f) Authorization of appropriations

There are authorized to be appropriated to the Secretary for carrying out this section, including advanced extraction and process technology, \$57,250,000 for fiscal year 1993 and \$70,000,000 for fiscal year 1994.

(Pub. L. 102-486, title XX, §2011, Oct. 24, 1992, 106 Stat. 3057.)

§ 13412. Oil shale

(a) Program direction

The Secretary shall conduct a 5-year program, in accordance with sections 13541 and 13542 of this title, on oil shale extraction and conversion, including research and development on both eastern and western shales, as provided in this section.

(b) Program goals

The goals of the program established under this section include—

(1) supporting the development of economically competitive and environmentally acceptable technologies to produce domestic supplies of liquid fuels from oil shale;

(2) increasing knowledge of environmentally acceptable oil shale waste disposal technologies and practices;

(3) increasing knowledge of the chemistry and kinetics of oil shale retorting;

(4) increasing understanding of engineering issues concerning the design and scale-up of oil shale extraction and conversion technologies;

(5) improving techniques for oil shale mining systems; and

(6) providing for cooperation with universities and other private sector entities.

(c) Eastern oil shale program

(1) As part of the program authorized by this section, the Secretary shall carry out a program on oil shale that includes applied research, in cooperation with universities and the private sector, on eastern oil shale that may have the potential to decrease United States dependence on energy imports.

(2) As part of the program authorized by this subsection, the Secretary shall consider the potential benefits of including in that program applied research carried out in cooperation with universities and other private sector entities that are, as of October 24, 1992, engaged in research on eastern oil shale retorting and associated processes.

(3) The program carried out under this subsection shall be cost-shared with universities and the private sector to the maximum extent possible.

(d) Western oil shale program

As part of the program authorized by this section, the Secretary shall carry out a program on extracting oil from western oil shales that includes, if appropriate, establishment and utilization of at least one field testing center for the purpose of testing, evaluating, and developing improvements in oil shale technology at the field test level. In establishing such a center, the Secretary shall consider sites with existing oil shale mining and processing infrastructure and facilities. Sixty days prior to establishing any such field testing center, the Secretary shall submit a report to Congress on the center to be established.

(e) Authorization of appropriations

There are authorized to be appropriated to the Secretary for carrying out this section \$5,250,000 for fiscal year 1993 and \$6,000,000 for fiscal year 1994.

(Pub. L. 102-486, title XX, §2012, Oct. 24, 1992, 106 Stat. 3058.)

§ 13413. Natural gas supply

(a) Program direction

The Secretary shall conduct a 5-year program, in accordance with sections 13541 and 13542 of this title, to increase the recoverable natural gas resource base including, but not limited to—

(1) more intensive recovery of natural gas from discovered conventional resources;

(2) the extraction of natural gas from tight gas sands and devonian shales or other unconventional sources;

(3) surface gasification of coal; and

(4) recovery of methane from biofuels including municipal solid waste.

(b) Proposals

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

(c) Cofiring of natural gas and coal

(1) Program

The Secretary shall establish and carry out a 5-year program, in accordance with sections 13541 and 13542 of this title, on cofiring natural gas with coal in utility and large industrial boilers in order to determine optimal natural gas injection levels for both environmental and operational benefits.

(2) Financial assistance

The Secretary shall enter into agreements with, and provide financial assistance to, appropriate parties for application of cofiring technologies to boilers to demonstrate this technology.

(3) Report to Congress

The Secretary shall, before December 31, 1995, submit to the Congress a report on the progress made in carrying out this subsection.

(d) Authorization of appropriations

There are authorized to be appropriated to the Secretary for carrying out this section and sections 13414 and 13415 of this title, \$29,745,000 for fiscal year 1993 and \$45,000,000 for fiscal year 1994.

(Pub. L. 102-486, title XX, §2013, Oct. 24, 1992, 106 Stat. 3059.)

§ 13414. Natural gas end-use technologies

The Secretary shall carry out a 5-year program, in accordance with sections 13541 and 13542 of this title, on new and advanced natural gas utilization technologies including, but not limited to—

(1) stationary source emissions control and efficiency improvements including combustion systems, industrial processes, cogeneration, and waste fuels; and

(2) natural gas storage including increased deliverability from existing gas storage facilities and new capabilities for storage near demand centers, and on-site storage at major energy consuming facilities.

(Pub. L. 102-486, title XX, §2014, Oct. 24, 1992, 106 Stat. 3060.)

§ 13415. Midcontinent Energy Research Center

(a) Finding

Congress finds that petroleum resources in the midcontinent region of the United States are very large but are being prematurely abandoned.

(b) Purposes

The purposes of this section are to—

(1) improve the efficiency of petroleum recovery;

(2) increase ultimate petroleum recovery; and

(3) delay the abandonment of resources.

(c) Establishment

The Secretary may establish the Midcontinent Energy Research Center (referred to in this section as the “Center”) to—

(1) conduct research in petroleum geology and engineering focused on improving the recovery of petroleum from existing fields and