

terminated by the Chairman to be in the national interest, of non-Federal lands;

(2) conduct regional surveys, based upon such a general plan, using innovative geological, geophysical, geochemical, and stratigraphic drilling techniques, which will lead to a national inventory of geothermal resources in the United States;

(3) publish and make available maps, reports, and other documents developed from such surveys to encourage and facilitate the commercial development of geothermal resources for beneficial use and consistent with the national interest;

(4) make such recommendations for legislation or administrative regulations as may from time to time appear to be necessary to make Federal leasing, environmental and taxing policy for geothermal resources consistent with known inventories of various resource types, with the current state of technologies for geothermal energy development, and with current evaluations of the environmental impacts of such development; and

(5) participate with appropriate Federal agencies and non-Federal entities in research to develop, improve, and test technologies for the discovery and evaluation of all forms of geothermal resources, and conduct research into the principles controlling the location, occurrence, size, temperature, energy content, producibility, and economic lifetimes of geothermal reservoirs.

(Pub. L. 93-410, title I, § 103, Sept. 3, 1974, 88 Stat. 1082; Pub. L. 95-238, title V, § 503, Feb. 25, 1978, 92 Stat. 86; Pub. L. 102-154, title I, Nov. 13, 1991, 105 Stat. 1000.)

AMENDMENTS

1978—Subsec. (b)(4). Pub. L. 95-238 inserted “or administrative regulations” after “legislation” and “, environmental and taxing” after “leasing”.

CHANGE OF NAME

“United States Geological Survey” substituted for “Geological Survey” in subsec. (b) pursuant to provision of title I of Pub. L. 102-154, set out as a note under section 31 of Title 43, Public Lands.

§ 1124. Research and development

(a) The Chairman, acting through the appropriate Federal agencies and in cooperation with non-Federal entities, shall initiate a research and development program for the purpose of resolving all major technical problems inhibiting the fullest possible commercial utilization of geothermal resources in the United States. The specific goals of such programs shall include—

(1) the development of effective and efficient drilling methods to operate at high temperatures in formations of geothermal interest;

(2) the development of reliable predictive methods and control techniques for the production of geothermal resources from reservoirs;

(3) the exploitation of new concepts for fracturing rock to permit recovery of contained heat reserves;

(4) the improvement of equipment and technology for the extraction of geothermal resources from reservoirs;

(5) the development of improved methods for converting geothermal resources and byproducts to useful forms;

(6) the development of improved methods for controlling emissions and wastes from geothermal utilization facilities, including new monitoring methods to any extent necessary;

(7) the development and evaluation of waste disposal control technologies and the evaluation of surface and subsurface environmental effects of geothermal development;

(8) the improvement of the technical capability to predict environmental impacts resulting from the development of geothermal resources, the preparation of environmental impact statements, and the assuring of compliance with applicable standards and criteria;

(9) the identification of social, legal, and economic problems associated with geothermal development (both locally and regionally) for the purpose of developing policy and providing a framework of policy alternatives for the commercial utilization of geothermal resources;

(10) the provision for an adequate supply of scientists to perform required geothermal research and development activities; and

(11) the establishment of a program to encourage States to establish and maintain geothermal resources clearinghouses, which shall serve to (A) provide geothermal resources developers with information with respect to applicable local, State, and Federal laws, rules, and regulations, (B) coordinate the processing of permit applications, impact statements, and other information which geothermal resources developers are required to provide, (C) encourage uniformity with respect to local and State laws, rules, and regulations with respect to geothermal resources development, and (D) encourage establishment of land use plans, which would include zoning for geothermal resources development and which would assure that geothermal resources developers will be able to carry out development programs to the production stage.

(b) The Chairman, acting through the appropriate Federal agencies and in cooperation with non-Federal entities, shall implement a coordinated program of research and development in order to demonstrate the technical means for the extraction and utilization of the resource base, including any by-products of such base, and in order to accomplish the goals established by subsection (a) of this section. Research authorized by this chapter having potential applications in matters other than geothermal energy may be pursued to the extent that the findings of such research can be published in a form for utilization by others.

(Pub. L. 93-410, title I, § 104, Sept. 3, 1974, 88 Stat. 1083.)

§ 1125. Geothermal demonstration plants and projects

(a) Design and construction

The Chairman, acting through the appropriate Federal agencies and in cooperation with non-Federal entities, shall initiate a program to de-

sign and construct geothermal demonstration plants. The specific goals of such program shall include—

(1) the development of economical geothermal resources production systems and components which meet environmental standards;

(2) the design of plants to produce electric power and, where appropriate, the large-scale production and utilization of any useful by-products;

(3) the involvement of engineers, analysts, technicians, and managers from industry field and powerplant development, which shall lead to the early industrial exploitation of advanced geothermal resources;

(4) the provision for an adequate supply of trained geothermal engineers and technicians;

(5) the provision of experimental test beds for component testing an evaluation by laboratories operated by the Federal Government, industry, or institutions of higher education;

(6) the construction and operation of pilot plants; and

(7) the construction and operation of demonstration plants.

(b) Establishment of demonstration projects

In carrying out his responsibilities under this section, the Chairman, acting through the appropriate Federal agencies, and in cooperation with non-Federal entities, may provide for the establishment of one or more demonstration projects utilizing each geothermal resource base involved, which shall include, as appropriate, all of the exploration, siting, drilling, pilot plant construction and operation, demonstration plant construction and operation, and other facilities and activities which may be necessary for the generation of electric energy and the utilization of geothermal resource byproducts.

(c) Agreements for the cooperative development of facilities for demonstration

The Chairman, acting through the appropriate Federal agencies, is authorized to investigate and enter into agreements for the cooperative development of facilities to demonstrate the production of energy from geothermal resources. The responsible Federal agency may consider—

(1) cooperative agreements with utilities and non-Federal governmental entities for construction of facilities to produce energy for commercial disposition; and

(2) cooperative agreements with other Federal agencies for the construction and operation of facilities to produce energy for direct Federal consumption.

(d) Construction of demonstration projects without entering into agreements

The responsible Federal agency is authorized to investigate the feasibility of, construct, and operate, demonstration projects without entering into cooperative agreements with respect to such projects, if the Chairman finds that—

(1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or any other significant factor of the proposal offers opportunities to make important con-

tributions to the general knowledge of geothermal resources, the techniques of its development, or public confidence in the technology; and

(2) there is no opportunity for cooperative agreements with any utility or non-Federal governmental entity willing and able to cooperate in the demonstration project under subsection (c)(1) of this section, and there is no opportunity for cooperative agreements with other Federal agencies under subsection (c)(2) of this section.

(e) Factors considered for entry into agreements

Before favorably considering proposals under subsection (c) of this section, the responsible Federal agency must find that—

(1) the nature of the resource, the geographical location, the scale and engineering design of the facilities, the techniques of production, or any other significant factor of the proposal offers opportunities to make important contributions to the general knowledge of geothermal resources, the techniques of its development, or public confidence in the technology;

(2) the development of the practical benefits as set forth in paragraph (1) of this subsection are unlikely to be accomplished without such cooperative development; and

(3) where non-Federal participants are involved, the proposal is not eligible for adequate Federal assistance under the loan guaranty provisions of subchapter II of this chapter or such assistance would not be adequate to satisfy the goals and requirements of the demonstration program under this section.

(f) Limits on project costs

If the estimate of the Federal investment with respect to construction and operation costs of any demonstration project proposed to be established under this section exceeds \$10,000,000, no amount may be appropriated for such project except as specifically authorized by legislation hereafter enacted by the Congress.

(g) Disposal of Federal property interests and resource byproducts

(1) At the conclusion of the program under this section or as soon thereafter as may be practicable, the responsible Federal agencies shall, by sale, lease, or otherwise, dispose of all Federal property interests which they have acquired pursuant to this section (including mineral rights) in accordance with existing law and the terms of the cooperative agreements involved.

(2) The agency involved shall, under appropriate agreements or other arrangements, provide for the disposition of geothermal resource byproducts of the project administered by such agency.

(Pub. L. 93-410, title I, §105, Sept. 3, 1974, 88 Stat. 1084; Pub. L. 95-238, title V, §504, Feb. 25, 1978, 92 Stat. 86.)

AMENDMENTS

1978—Subsec. (e)(3). Pub. L. 95-238 inserted provisions relating to goals and requirements of the demonstration program.

§ 1126. Scientific and technical education**(a) Congressional declaration of policy**

It is the policy of the Congress to encourage the development and maintenance of programs through which there may be provided the necessary trained personnel to perform required geothermal research, development, and demonstration activities under sections 1123, 1124, and 1125 of this title.

(b) Support of educational programs in science and engineering

The National Science Foundation is authorized to support programs of education in the sciences and engineering to carry out the policy of subsection (a) of this section. Such support may include fellowships, traineeships, technical training programs, technologist training programs, and summer institute programs.

(c) Selection of programs of education; coordination with National Science Foundation

The National Science Foundation is authorized and directed to coordinate its actions, to the maximum extent practicable, with the Project or any permanent Federal organization or agency having jurisdiction over the energy research and development functions of the United States, in determining the optimal selection of programs of education to carry out the policy of subsection (a) of this section.

(d) International participation and cooperation

The National Science Foundation is authorized to encourage, to the maximum extent practicable international participation and cooperation in the development and maintenance of programs of education to carrying out the policy of subsection (a) of this section.

(Pub. L. 93-410, title I, § 106, Sept. 3, 1974, 88 Stat. 1085.)

TRANSFER OF FUNCTIONS

Functions of National Science Foundation relating to geothermal power development transferred to Administrator of Energy Research and Development Administration (unless otherwise specifically provided) by section 5814 of Title 42, The Public Health and Welfare. Energy Research and Development Administration terminated and functions vested by law in Administrator thereof transferred to Secretary of Energy (unless otherwise specifically provided) by sections 7151(a) and 7293 of Title 42.

SUBCHAPTER II—LOAN GUARANTIES

§ 1141. Establishment of loan guaranty program**(a) Congressional declaration of policy**

It is the policy of the Congress to encourage and assist in the commercial development of practicable means to produce useful energy from geothermal resources with environmentally acceptable processes. Accordingly, it is the policy of the Congress to facilitate such commercial development by authorizing the Chairman of the Project to designate an appropriate Federal agency to guarantee loans for such purposes.

(b) Authorization of heads of designated agencies to guarantee loans

In order to encourage the commercial production of energy from geothermal resources, the

head of the designated agency is authorized to, in consultation with the Secretary of the Treasury, guarantee, and to enter into commitments to guarantee, lenders against loss of principal or interest on loans made by such lenders to qualified borrowers for the purposes of—

(1) the determination and evaluation of the resource base;

(2) research and development with respect to extraction and utilization technologies;

(3) acquiring rights in geothermal resources;

(4) development, construction, and operation of facilities for the demonstration or commercial production of energy using geothermal resources; or

(5) construction and operation of a new commercial, agricultural, or industrial structure or facility or modification and operation of an existing commercial, agricultural, or industrial structure or facility, when geothermal hot water or steam is to be used within or by such structure or facility, or modification thereto, for the purposes of space heating or cooling, industrial or agricultural processes, onsite generation of electricity for use other than for sale or resale in commerce, other commercial applications, or combinations of applications separately eligible under this subchapter for loan guarantee assistance.

(c) Extent of guarantee

Any guaranty under this subchapter shall apply only to so much of the principal amount of any loan as does not exceed 75 percent of the aggregate cost of the project with respect to which the loan is made, except that any guarantee made for a loan to an electric, housing, or other cooperative, or to a municipality (as defined in section 796(7) of title 16), may apply to so much of the principal amount of the loan as does not exceed 90 percent of the aggregate cost of the project. In determining the aggregate cost of a project for purposes of the preceding sentence, there shall be excluded the cost of constructing electrical transmission lines to the extent that the cost of constructing such lines exceeds 25 percent of the aggregate cost of the project (as determined without regard to this sentence); except that the Secretary may waive or limit the application of this sentence with respect to any project located in the State of Hawaii upon a finding that such project is remote from the area of primary consumption, that a transmission line is required before the geothermal reservoir can be developed, and that the particular transmission line involved will be used for more than the plant which is the subject of the loan guarantee. In the case of a guaranty for the purposes specified in subsection (b)(5) of this section, the aggregate cost of the project shall be deemed to be that portion of the total cost of construction and operation which is directly related to the utilization of geothermal energy within the structure or facility in question, except that the aggregate cost of the project with respect to which the loan is made may be the total cost including construction and operation in cases where the facility or structure has been located near a geothermal energy resource predominantly for the purpose of utilizing geothermal energy, or as determined