

(A) heating and cooling to buildings, commercial districts, residential communities, and large municipal, or industrial projects; or

(B) heat required for industrial processes, agriculture, aquaculture, and other facilities.

**(2) Economically distressed area**

The term “economically distressed area” means an area described in section 3161(a) of this title.

**(3) Geothermal heat pump**

The term “geothermal heat pump” means a system that provides heating and cooling by exchanging heat from shallow geology, groundwater, or surface water using—

(A) a closed loop system, which transfers heat by way of buried or immersed pipes that contain a mix of water and working fluid; or

(B) an open loop system, which circulates ground or surface water directly into the building and returns the water to the same aquifer or surface water source.

**(c) Program**

**(1) In general**

The Secretary shall support within the Geothermal Technologies Office a program of research, development, and demonstration for geothermal heat pumps and the direct use of geothermal energy.

**(2) Areas**

The program under paragraph (1) may include research, development, demonstration, and commercial application of—

(A) geothermal ground loop efficiency improvements, cost reductions, and improved installation and operations methods;

(B) the use of geothermal energy for building-scale energy storage;

(C) the use of geothermal energy as a grid management resource or seasonal energy storage;

(D) geothermal heat pump efficiency improvements;

(E) the use of alternative fluids as a heat exchange medium, such as hot water found in mines and mine shafts, graywater, or other fluids that may improve the economics of geothermal heat pumps;

(F) heating of districts, neighborhoods, communities, large commercial or public buildings, and industrial and manufacturing facilities;

(G) the use of low temperature groundwater for direct use; and

(H) system integration of direct use with geothermal electricity production.

**(3) Environmental impacts**

In carrying out the program, the Secretary shall identify and mitigate potential environmental impacts in accordance with section 17193(b) of this title.

**(d) Financial assistance**

**(1) In general**

The Secretary shall carry out the program established in subsection (c) by making finan-

cial assistance available to State, local, and Tribal governments, institutions of higher education, nonprofit entities, National Laboratories, utilities, and for-profit companies.

**(2) Priority**

In providing financial assistance under this subsection, the Secretary may give priority to proposals that apply to large buildings, commercial districts, and residential communities that are located in economically distressed areas and areas that the Secretary determines to have high economic potential for geothermal district heating based on the report, “Geovision: Harnessing the Heat Beneath our Feet” published by the Department in 2019, or a successor report.

(Pub. L. 110-140, title VI, §616A, as added Pub. L. 116-260, div. Z, title III, §3002(e)(1), Dec. 27, 2020, 134 Stat. 2492.)

**§ 17196. Organization and administration of programs**

**(a) Federal share**

The Federal share of costs of projects funded under this part shall be in accordance with section 16352 of this title.

**(b) Organization and administration of programs**

Programs under this part shall incorporate the following elements:

(1) The Secretary shall coordinate with, and where appropriate may provide funds in furtherance of the purposes of this part to, other Department of Energy research and development programs focused on drilling, subsurface characterization, and other related technologies.

(2) The Secretary shall coordinate and consult with the appropriate Federal land management agencies in selecting proposals for funding under this part.

(3) Nothing in this part shall be construed to alter or affect any law relating to the management or protection of Federal lands.

**(c) Education and outreach**

In carrying out the activities described in this part, the Secretary shall support education and outreach activities to disseminate information on geothermal energy technologies and the geothermal energy workforce, including activities at the Frontier Observatory for Research in Geothermal Energy site or sites.

**(d) Technical assistance**

In carrying out this part, the Secretary shall also conduct technical assistance and analysis activities with eligible entities for the purpose of supporting the commercial application of advances in geothermal energy systems development and operations, which may include activities that support expanding access to advanced geothermal energy technologies for rural, Tribal, and low-income communities.

**(e) Report**

Every 5 years after December 27, 2020, the Secretary shall report to the Committee on Science and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate on advanced concepts and

technologies to maximize the geothermal resource potential of the United States.

**(f) Progress reports**

Not later than 1 year after December 27, 2020, and every 2 years thereafter, the Secretary shall submit to the Committee on Science and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report on the results of projects undertaken under this part and other such information the Secretary considers appropriate.

(Pub. L. 110–140, title VI, §617, Dec. 19, 2007, 121 Stat. 1682; Pub. L. 116–260, div. Z, title III, §3002(f)(1), Dec. 27, 2020, 134 Stat. 2493.)

**Editorial Notes**

REFERENCES IN TEXT

This part, referred to in subsec. (f), probably should be a reference to “this subtitle”, meaning subtitle B of title VI of Pub. L. 110–140, which is classified to this part.

AMENDMENTS

2020—Pub. L. 116–260, §3002(f)(1)(A), substituted “Organization and administration of programs” for “Cost sharing and proposal evaluation” in section catchline.

Subsec. (b)(2) to (4). Pub. L. 116–260, §3002(f)(1)(B), redesignated pars. (3) and (4) as (2) and (3), respectively, and struck out former par. (2) which read as follows: “In evaluating proposals, the Secretary shall give priority to proposals that demonstrate clear evidence of employing a systems approach.”

Subsecs. (c) to (f). Pub. L. 116–260, §3002(f)(1)(C), added subsecs. (c) to (f).

**Statutory Notes and Related Subsidiaries**

EFFECTIVE DATE

Section effective on the date that is 1 day after Dec. 19, 2007, see section 1601 of Pub. L. 110–140, set out as a note under section 1824 of Title 2, The Congress.

**§ 17197. Advanced geothermal computing and data science research and development**

**(a) In general**

The Secretary shall carry out a program of research and development of advanced computing and data science tools for geothermal energy.

**(b) Programs**

The program authorized in subsection (a) shall include the following:

**(1) Advanced computing for geothermal systems technologies**

Research, development, and demonstration of technologies to develop advanced data, machine learning, artificial intelligence, and related computing tools to assist in locating geothermal resources, to increase the reliability of site characterization, to increase the rate and efficiency of drilling, to improve induced seismicity mitigation, and to support enhanced geothermal systems technologies.

**(2) Geothermal systems reservoir modeling**

Research, development, and demonstration of models of geothermal reservoir performance and enhanced geothermal systems reservoir stimulation technologies and techniques, with an emphasis on accurately modeling fluid and

heat flow, permeability evolution, geomechanics, geochemistry, seismicity, and operational performance over time, including collaboration with industry and field validation.

**(c) Coordination**

In carrying out these programs, the Secretary shall ensure coordination and consultation with the Department of Energy’s Office of Science. The Secretary shall ensure, to the maximum extent practicable, coordination of these activities with the Department of Energy National Laboratories, institutes of higher education, and the private sector.

(Pub. L. 110–140, title VI, §618, Dec. 19, 2007, 121 Stat. 1683; Pub. L. 116–260, div. Z, title III, §3002(g)(1), Dec. 27, 2020, 134 Stat. 2494.)

**Editorial Notes**

AMENDMENTS

2020—Pub. L. 116–260 amended section generally. Prior to amendment, section related to Center for Geothermal Technology Transfer.

**Statutory Notes and Related Subsidiaries**

EFFECTIVE DATE

Section effective on the date that is 1 day after Dec. 19, 2007, see section 1601 of Pub. L. 110–140, set out as a note under section 1824 of Title 2, The Congress.

**§ 17198. Geothermal workforce development**

The Secretary shall support the development of a geothermal energy workforce through a program that—

(1) facilitates collaboration between university students and researchers at the National Laboratories; and

(2) prioritizes science in areas relevant to the mission of the Department through the application of geothermal energy tools and technologies.

(Pub. L. 110–140, title VI, §619, Dec. 19, 2007, 121 Stat. 1683; Pub. L. 116–260, div. Z, title III, §3002(h)(1), Dec. 27, 2020, 134 Stat. 2495.)

**Editorial Notes**

AMENDMENTS

2020—Pub. L. 116–260 amended section generally. Prior to amendment, section read as follows: “The Secretary shall expand the Department of Energy’s GeoPowering the West program to extend its geothermal technology transfer activities throughout the entire United States. The program shall be renamed ‘GeoPowering America’. The program shall continue to be based in the Department of Energy office in Golden, Colorado.”

**Statutory Notes and Related Subsidiaries**

EFFECTIVE DATE

Section effective on the date that is 1 day after Dec. 19, 2007, see section 1601 of Pub. L. 110–140, set out as a note under section 1824 of Title 2, The Congress.

**§§ 17199, 17200. Repealed. Pub. L. 116–260, div. Z, title III, §3002(i)(1), Dec. 27, 2020, 134 Stat. 2495**

Section 17199, Pub. L. 110–140, title VI, §620, Dec. 19, 2007, 121 Stat. 1683, related to educational pilot program.