

to part A (§6291 et seq.) of subchapter III of chapter 77 of this title. For complete classification of this Act to the Code, see Short Title note set out under section 6201 of this title and Tables.

Section 2621(d)(17) of title 16, referred to in subsec. (c)(3), was redesignated section 2621(d)(19) by Pub. L. 111-5, div. A, title IV, § 408(a), Feb. 17, 2009, 123 Stat. 146.

#### AMENDMENTS

2009—Subsec. (a). Pub. L. 111-5, § 405(5), substituted “grants of up to one-half (50 percent)” for “reimbursement of one-fifth (20 percent)”.

Subsec. (b)(9). Pub. L. 111-5, § 405(6), struck out last sentence which read as follows: “In making such grants, the Secretary shall seek to reward innovation and early adaptation, even if success is not complete, rather than deployment of proven and commercially viable technologies.”

Subsec. (c)(1). Pub. L. 111-5, § 405(7), substituted “utilize” for “are eligible for”.

Subsec. (e). Pub. L. 111-5, § 405(8), amended subsec. (e) generally. Prior to amendment, text related to establishment of procedures by which applicants who have made qualifying Smart Grid investments can seek and obtain reimbursement of one-fifth of documented expenditures.

#### 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.

### § 17387. Integrated energy systems

#### (a) In general

Not later than 180 days after December 27, 2020, the Secretary shall establish a research, development, and demonstration program to develop cost-effective integrated energy systems, including—

(1) development of computer modeling to design different configurations of integrated energy systems and to optimize system operation;

(2) research on system integration needed to plan, design, build, and operate integrated energy systems, including interconnection requirements with the electric grid;

(3) development of integrated energy systems for various applications, including—

(A) thermal energy generation and storage for buildings and manufacturing;

(B) electricity storage coupled with energy generation;

(C) desalination;

(D) production of liquid and gaseous fuels; and

(E) production of chemicals such as ammonia and ethylene;

(4) development of testing facilities for integrated energy systems; and

(5) research on incorporation of various technologies for integrated energy systems, including nuclear energy, renewable energy, storage, and carbon capture, utilization, and sequestration technologies.

#### (b) Strategic plan

##### (1) In general

Not later than 1 year after December 27, 2020, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of

the Senate a strategic plan that identifies opportunities, challenges, and standards needed for the development and commercial application of integrated energy systems. The strategic plan shall include—

(A) analysis of the potential benefits of development of integrated electric systems on the electric grid;

(B) analysis of the potential contributions of integrated energy systems to different grid architecture scenarios;

(C) research and development goals for various integrated energy systems, including those identified in subsection (a);

(D) assessment of policy and market barriers to the adoption of integrated energy systems;

(E) analysis of the technical and economic feasibility of adoption of different integrated energy systems; and

(F) a 10-year roadmap to guide the program established under subsection (a).

#### (2) Updates

Not less than once every 3 years for the duration of this research program, the Secretary shall submit an updated version of the strategic plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

#### (c) Program implementation

In carrying out the research, development, demonstration, and commercial application aims of subsection (a), the Secretary shall—

(1) implement the recommendations set forth in the strategic plan in subsection (b);

(2) coordinate across all relevant program offices at the Department, including—

(A) the Office of Energy Efficiency and Renewable Energy;

(B) the Office of Nuclear Energy; and

(C) the Office of Fossil Energy;

(3) leverage existing programs and resources of the Department; and

(4) prioritize activities that accelerate the development of integrated electricity generation, storage, and distribution systems with net zero greenhouse gas emissions.

#### (d) Integrated energy system defined

The term “integrated energy system” means a system composed of 2 or more co-located or jointly operated sub-systems of energy generation, energy storage, or other energy technologies.

(Pub. L. 110-140, title XIII, § 1310, as added Pub. L. 116-260, div. Z, title VIII, § 8003, Dec. 27, 2020, 134 Stat. 2581.)

### § 17388. Advisory committee

#### (a) In general

Not later than 180 days after December 27, 2020, the Secretary shall designate an existing advisory committee to advise the Secretary on the authorization of research, development, and demonstration projects under sections 17384 and 17384a of this title.

#### (b) Responsibility

The Secretary shall annually solicit from the advisory committee—

- (1) comments to identify grid modernization technology needs;
- (2) an assessment of the progress of the research activities on grid modernization; and
- (3) assistance in annually updating grid modernization technology roadmaps.

(Pub. L. 110-140, title XIII, §1311, as added Pub. L. 116-260, div. Z, title VIII, §8005, Dec. 27, 2020, 134 Stat. 2585.)

**§ 17389. Technology demonstration on the distribution grid**

**(a) In general**

The Secretary shall establish a grant program to carry out eligible projects related to the modernization of the electric grid, including the application of technologies to improve observability, advanced controls, and prediction of system performance on the distribution system.

**(b) Eligible projects**

To be eligible for a grant under subsection (a), a project shall—

- (1) be designed to improve the performance and efficiency of the future electric grid, while ensuring the continued provision of safe, secure, reliable, and affordable power; and
- (2) demonstrate—
  - (A) secure integration and management of two or more energy resources, including distributed energy generation, combined heat and power, micro-grids, energy storage, electric vehicles, energy efficiency, demand response, and intelligent loads; and
  - (B) secure integration and interoperability of communications and information technologies.

(Pub. L. 116-260, div. Z, title VIII, §8007, Dec. 27, 2020, 134 Stat. 2586.)

CODIFICATION

Section was enacted as part of the Energy Act of 2020, and not as part of the Energy Independence and Security Act of 2007 which comprises this chapter.

APPLICATION

Provisions of section 3212 of this title applicable to construction, alteration, or repair work of demonstration projects funded by grants or contracts authorized under this section, see section 9006(b) of div. Z of Pub. L. 116-260, set out as a note under section 16237 of this title.

**§ 17390. Voluntary model pathways**

**(a) Establishment of voluntary model pathways**

**(1) Establishment**

Not later than 90 days after December 27, 2020, the Secretary of Energy (in this section referred to as the “Secretary”), in consultation with the steering committee established under paragraph (3), shall initiate the development of voluntary model pathways for modernizing the electric grid through a collaborative, public-private effort that—

- (A) produces illustrative policy pathways encompassing a diverse range of technologies that can be adapted for State and regional applications by regulators and policymakers;
- (B) facilitates the modernization of the electric grid and associated communications

networks to achieve the objectives described in paragraph (2);

- (C) ensures a reliable, resilient, affordable, safe, and secure electric grid; and
- (D) acknowledges and accounts for different priorities, electric systems, and rate structures across States and regions.

**(2) Objectives**

The pathways established under paragraph (1) shall facilitate achievement of as many of the following objectives as practicable:

- (A) Near real-time situational awareness of the electric system.
- (B) Data visualization.
- (C) Advanced monitoring and control of the advanced electric grid.
- (D) Enhanced certainty of policies for investment in the electric grid.
- (E) Increased innovation.
- (F) Greater consumer empowerment.
- (G) Enhanced grid resilience, reliability, and robustness.
- (H) Improved—
  - (i) integration of distributed energy resources;
  - (ii) interoperability of the electric system; and
  - (iii) predictive modeling and capacity forecasting.
- (I) Reduced cost of service for consumers.
- (J) Diversification of generation sources.

**(3) Steering committee**

Not later than 90 days after December 27, 2020, the Secretary shall establish a steering committee to help develop the pathways under paragraph (1), to be composed of members appointed by the Secretary, consisting of persons with appropriate expertise representing a diverse range of interests in the public, private, and academic sectors, including representatives of—

- (A) the Federal Energy Regulatory Commission;
- (B) the National Laboratories;
- (C) States;
- (D) State regulatory authorities;
- (E) transmission organizations;
- (F) representatives of all sectors of the electric power industry;
- (G) institutions of higher education;
- (H) independent research institutes; and
- (I) other entities.

**(b) Technical assistance**

The Secretary may provide technical assistance to States, Indian Tribes, or units of local government to adopt or implement one or more elements of the pathways developed under subsection (a)(1), including on a pilot basis.

(Pub. L. 116-260, div. Z, title VIII, §8008, Dec. 27, 2020, 134 Stat. 2586.)

CODIFICATION

Section was enacted as part of the Energy Act of 2020, and not as part of the Energy Independence and Security Act of 2007 which comprises this chapter.

**§ 17391. Voluntary state, regional, and local electricity distribution planning**

**(a) In general**

On the request of a State, regional organization, or electric utility, the Secretary of Energy