

by the Secretary and other heads of relevant Federal agencies would—

- (A) facilitate quicker development, deployment, and adoption of smart manufacturing technologies and processes;
- (B) result in greater energy efficiency and lower environmental impacts for all American manufacturers; and
- (C) enhance competitiveness and strengthen the manufacturing sectors of the United States.

(2) Inclusions

Agency actions identified under paragraph (1) shall include—

- (A) an assessment of previous and current actions of the Department relating to smart manufacturing;
- (B) the establishment of voluntary interconnection protocols and performance standards;
- (C) the use of smart manufacturing to improve energy efficiency and reduce emissions in supply chains across multiple companies;
- (D) actions to increase cybersecurity in smart manufacturing infrastructure;
- (E) deployment of existing research results;
- (F) the leveraging of existing high-performance computing infrastructure; and
- (G) consideration of the impact of smart manufacturing on existing manufacturing jobs and future manufacturing jobs.

(c) Biennial revisions

Not later than 2 years after the date on which the Secretary completes the plan under subsection (a), and not less frequently than once every 2 years thereafter, the Secretary shall revise the plan to account for advancements in information and communication technology and manufacturing needs.

(d) Report

Annually until the completion of the plan under subsection (a), the Secretary shall submit to Congress a report on the progress made in developing the plan.

(e) Definition

In this section, the term “smart manufacturing” means advanced technologies in information, automation, monitoring, computation, sensing, modeling, artificial intelligence, analytics, and networking that—

- (1) digitally—
 - (A) simulate manufacturing production lines;
 - (B) operate computer-controlled manufacturing equipment;
 - (C) monitor and communicate production line status; and
 - (D) manage and optimize energy productivity and cost throughout production;
- (2) model, simulate, and optimize the energy efficiency of a factory building;
- (3) monitor and optimize building energy performance;
- (4) model, simulate, and optimize the design of energy efficient and sustainable products, including the use of digital prototyping and additive manufacturing to enhance product design;

- (5) connect manufactured products in networks to monitor and optimize the performance of the networks, including automated network operations; and
- (6) digitally connect the supply chain network.

(Pub. L. 116-260, div. Z, title VI, §6006, Dec. 27, 2020, 134 Stat. 2560.)

Editorial Notes

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.

§ 17116. Industrial research and assessment centers

(a) Definitions

In this section:

(1) Covered project

The term “covered project” means a project—

- (A) that has been recommended in an energy assessment described in paragraph (2)(A) conducted for an eligible entity; and
- (B) with respect to which the plant site of that eligible entity—
 - (i) improves—
 - (I) energy efficiency;
 - (II) material efficiency;
 - (III) cybersecurity; or
 - (IV) productivity; or
 - (ii) reduces—
 - (I) waste production;
 - (II) greenhouse gas emissions; or
 - (III) nongreenhouse gas pollution.

(2) Eligible entity

The term “eligible entity” means a small- or medium-sized manufacturer that has had an energy assessment completed by—

- (A) an industrial research and assessment center;
- (B) a Department of Energy Combined Heat and Power Technical Assistance Partnership jointly with an industrial research and assessment center; or
- (C) a third-party assessor that provides an assessment equivalent to an assessment described in subparagraph (A) or (B), as determined by the Secretary.

(3) Energy service provider

The term “energy service provider” means—

- (A) any business providing technology or services to improve the energy efficiency, water efficiency, power factor, or load management of a manufacturing site or other industrial process in an energy-intensive industry (as defined in section 17111(a) of this title); and
- (B) any utility operating under a utility energy service project.

(4) Industrial research and assessment center

The term “industrial research and assessment center” means—

- (A) an institution of higher education-based industrial research and assessment

center that is funded by the Secretary under subsection (b); and

(B) an industrial research and assessment center at a trade school, community college, or union training program that is funded by the Secretary under subsection (f).

(5) Program

The term “Program” means the program for implementation grants established under subsection (i)(1).

(6) Small- or medium-sized manufacturer

The term “small- or medium-sized manufacturer” means a manufacturing firm—

(A) the gross annual sales of which are less than \$100,000,000;

(B) that has fewer than 500 employees at the plant site of the manufacturing firm; and

(C) the annual energy bills of which total more than \$100,000 but less than \$3,500,000.

(b) Institution of higher education-based industrial research and assessment centers

(1) In general

The Secretary shall provide funding to institution of higher education-based industrial research and assessment centers.

(2) Purpose

The purpose of each institution of higher education-based industrial research and assessment center shall be—

(A) to provide in-depth assessments of small- and medium-sized manufacturer plant sites to evaluate the facilities, services, and manufacturing operations of the plant sites;

(B) to identify opportunities for optimizing energy efficiency and environmental performance, including implementation of—

- (i) smart manufacturing;
- (ii) energy management systems;
- (iii) sustainable manufacturing;
- (iv) information technology advancements for supply chain analysis, logistics, system monitoring, industrial and manufacturing processes, and other purposes; and
- (v) waste management systems;

(C) to promote applications of emerging concepts and technologies in small- and medium-sized manufacturers (including water and wastewater treatment facilities and federally owned manufacturing facilities);

(D) to promote research and development for the use of alternative energy sources to supply heat, power, and new feedstocks for energy-intensive industries;

(E) to coordinate with appropriate Federal and State research offices;

(F) to provide a clearinghouse for industrial process and energy efficiency technical assistance resources; and

(G) to coordinate with State-accredited technical training centers and community colleges, while ensuring appropriate services to all regions of the United States.

(c) Coordination

To increase the value and capabilities of the industrial research and assessment centers, the centers shall—

(1) coordinate with Manufacturing Extension Partnership Centers of the National Institute of Standards and Technology;

(2) coordinate with the Federal Energy Management Program and the Building Technologies Office of the Department of Energy to provide building assessment services to manufacturers;

(3) increase partnerships with the National Laboratories of the Department of Energy to leverage the expertise, technologies, and research and development capabilities of the National Laboratories for national industrial and manufacturing needs;

(4) increase partnerships with energy service providers and technology providers to leverage private sector expertise and accelerate deployment of new and existing technologies and processes for energy efficiency, power factor, and load management;

(5) identify opportunities for reducing greenhouse gas emissions and other air emissions; and

(6) promote sustainable manufacturing practices for small- and medium-sized manufacturers.

(d) Outreach

The Secretary shall provide funding for—

(1) outreach activities by the industrial research and assessment centers to inform small- and medium-sized manufacturers of the information, technologies, and services available; and

(2) coordination activities by each industrial research and assessment center to leverage efforts with—

- (A) Federal, State, and Tribal efforts;
- (B) the efforts of utilities and energy service providers;
- (C) the efforts of regional energy efficiency organizations; and
- (D) the efforts of other industrial research and assessment centers.

(e) Centers of Excellence

(1) Establishment

The Secretary shall establish a Center of Excellence at not more than 5 of the highest-performing industrial research and assessment centers, as determined by the Secretary.

(2) Duties

A Center of Excellence shall coordinate with and advise the industrial research and assessment centers located in the region of the Center of Excellence, including—

(A) by mentoring new directors and staff of the industrial research and assessment centers with respect to—

- (i) the availability of resources; and
- (ii) best practices for carrying out assessments, including through the participation of the staff of the Center of Excellence in assessments carried out by new industrial research and assessment centers;

(B) by providing training to staff and students at the industrial research and assessment centers on new technologies, practices, and tools to expand the scope and impact of the assessments carried out by the centers;

(C) by assisting the industrial research and assessment centers with specialized technical opportunities, including by providing a clearinghouse of available expertise and tools to assist the centers and clients of the centers in assessing and implementing those opportunities;

(D) by identifying and coordinating with regional, State, local, Tribal, and utility energy efficiency programs for the purpose of facilitating efforts by industrial research and assessment centers to connect industrial facilities receiving assessments from those centers with regional, State, local, and utility energy efficiency programs that could aid the industrial facilities in implementing any recommendations resulting from the assessments;

(E) by facilitating coordination between the industrial research and assessment centers and other Federal programs described in paragraphs (1) through (3) of subsection (c); and

(F) by coordinating the outreach activities of the industrial research and assessment centers under subsection (d)(1).

(3) Funding

For each fiscal year, out of any amounts made available to carry out this section under subsection (j), the Secretary shall use not less than \$500,000 to support each Center of Excellence.

(f) Expansion of industrial research and assessment centers

(1) In general

The Secretary shall provide funding to establish additional industrial research and assessment centers at trade schools, community colleges, and union training programs.

(2) Purpose

(A) In general

Subject to subparagraph (B), to the maximum extent practicable, an industrial research and assessment center established under paragraph (1) shall have the same purpose as an institution of higher education-based industrial research center that is funded by the Secretary under subsection (b)(1).

(B) Consideration of capabilities

In evaluating or establishing the purpose of an industrial research and assessment center established under paragraph (1), the Secretary shall take into consideration the varying capabilities of trade schools, community colleges, and union training programs.

(g) Workforce training

(1) Internships

The Secretary shall pay the Federal share of associated internship programs under which students work with or for industries, manufacturers, and energy service providers to implement the recommendations of industrial research and assessment centers.

(2) Apprenticeships

The Secretary shall pay the Federal share of associated apprenticeship programs under which—

(A) students work with or for industries, manufacturers, and energy service providers to implement the recommendations of industrial research and assessment centers; and

(B) employees of facilities that have received an assessment from an industrial research and assessment center work with or for an industrial research and assessment center to gain knowledge on engineering practices and processes to improve productivity and energy savings.

(3) Federal share

The Federal share of the cost of carrying out internship programs described in paragraph (1) and apprenticeship programs described in paragraph (2) shall be 50 percent.

(h) Small business loans

The Administrator of the Small Business Administration shall, to the maximum extent practicable, expedite consideration of applications from eligible small business concerns for loans under the Small Business Act (15 U.S.C. 631 et seq.) to implement recommendations developed by the industrial research and assessment centers.

(i) Implementation grants

(1) In general

The Secretary shall establish a program under which the Secretary shall provide grants to eligible entities to implement covered projects.

(2) Application

An eligible entity seeking a grant under the Program shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require, including a demonstration of need for financial assistance to implement the proposed covered project.

(3) Priority

In awarding grants under the Program, the Secretary shall give priority to eligible entities that—

(A) have had an energy assessment completed by an industrial research and assessment center; and

(B) propose to carry out a covered project with a greater potential for—

(i) energy efficiency gains; or

(ii) greenhouse gas emissions reductions.

(4) Grant amount

(A) Maximum amount

The amount of a grant provided to an eligible entity under the Program shall not exceed \$300,000.

(B) Federal share

A grant awarded under the Program for a covered project shall be in an amount that is not more than 50 percent of the cost of the covered project.

(C) Supplement

A grant received by an eligible entity under the Program shall supplement, not supplant, any private or State funds available to the eligible entity to carry out the covered project.

(j) Authorization of appropriations

There are authorized to be appropriated to the Secretary for the period of fiscal years 2022 through 2026—

- (1) \$150,000,000 to carry out subsections (a) through (h); and
- (2) \$400,000,000 to carry out subsection (i).

(Pub. L. 110-140, title IV, § 457, as added Pub. L. 117-58, div. D, title V, § 40521(b), Nov. 15, 2021, 135 Stat. 1062.)

Editorial Notes

REFERENCES IN TEXT

The Small Business Act, referred to in subsec. (h), is Pub. L. 85-536, § 2(1 et seq.), July 18, 1958, 72 Stat. 384, which is classified generally to chapter 14A (§ 631 et seq.) of Title 15, Commerce and Trade. For complete classification of this Act to the Code, see Short Title note set out under section 631 of Title 15 and Tables.

Statutory Notes and Related Subsidiaries

WAGE RATE REQUIREMENTS

For provisions relating to rates of wages to be paid to laborers and mechanics on projects for construction, alteration, or repair work funded under div. D or an amendment by div. D of Pub. L. 117-58, including authority of Secretary of Labor, see section 18851 of this title.

PART E—GENERAL PROVISIONS

§ 17121. Demonstration project**(a) In general**

The Federal Director and the Commercial Director shall establish guidelines to implement a demonstration project to contribute to the research goals of the Office of Commercial High-Performance Green Buildings and the Office of Federal High-Performance Green Buildings.

(b) Projects

In accordance with guidelines established by the Federal Director and the Commercial Director under subsection (a) and the duties of the Federal Director and the Commercial Director described in this title,¹ the Federal Director or the Commercial Director shall carry out—

- (1) for each of fiscal years 2009 through 2014, 1 demonstration project per year of green features in a Federal building selected by the Federal Director in accordance with relevant agencies and described in subsection (c)(1), that—

(A) provides for instrumentation, monitoring, and data collection related to the green features, for study of the impact of the features on overall energy use and operational costs, and for the evaluation of the information obtained through the conduct of projects and activities under this title;¹ and

(B) achieves the highest rating offered by the high performance green building system identified pursuant to section 17092(h) of this title;

- (2) no fewer than 4 demonstration projects at 4 universities, that, as competitively selected by the Commercial Director in accordance with subsection (c)(2), have—

¹ See References in Text note below.

(A) appropriate research resources and relevant projects to meet the goals of the demonstration project established by the Office of Commercial High-Performance Green Buildings; and

(B) the ability—

(i) to serve as a model for high-performance green building initiatives, including research and education² by achieving the highest rating offered by the high performance green building system identified pursuant to section 17092(h) of this title;

(ii) to identify the most effective ways to use high-performance green building and landscape technologies to engage and educate undergraduate and graduate students;

(iii) to effectively implement a high-performance green building education program for students and occupants;

(iv) to demonstrate the effectiveness of various high-performance technologies, including their impacts on energy use and operational costs, in each of the 4 climatic regions of the United States described in subsection (c)(2)(B); and

(v) to explore quantifiable and nonquantifiable beneficial impacts on public health and employee and student performance;

(3) demonstration projects to evaluate replicable approaches of achieving high performance in actual building operation in various types of commercial buildings in various climates; and

(4) deployment activities to disseminate information on and encourage widespread adoption of technologies, practices, and policies to achieve zero-net-energy commercial buildings or low energy use and effective monitoring of energy use in commercial buildings.

(c) Criteria**(1) Federal facilities**

With respect to the existing or proposed Federal facility at which a demonstration project under this section is conducted, the Federal facility shall—

(A) be an appropriate model for a project relating to—

(i) the effectiveness of high-performance technologies;

(ii) analysis of materials, components, systems, and emergency operations in the building, and the impact of those materials, components, and systems, including the impact on the health of building occupants;

(iii) life-cycle costing and life-cycle assessment of building materials and systems; and

(iv) location and design that promote access to the Federal facility through walking, biking, and mass transit; and

(B) possess sufficient technological and organizational adaptability.

(2) Universities

With respect to the 4 universities at which a demonstration project under this section is conducted—

² So in original. A comma probably should appear.