

**Editorial Notes****REFERENCES IN TEXT**

The Energy Policy and Conservation Act, referred to in subsec. (b)(2)(D)(ii), is Pub. L. 94–163, Dec. 22, 1975, 89 Stat. 871, which is classified principally to chapter 77 (§ 6201 et seq.) 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 1 of Public Law 109–431 (120 Stat. 2920), referred to in subsec. (e)(1), is section 1 of Pub. L. 109–431, Dec. 20, 2006, 120 Stat. 2920, which is not classified to the Code.

**AMENDMENTS**

2020—Subsec. (b)(2)(D)(iv). Pub. L. 116–260, § 1003(1)(A), substituted “proposed by the stakeholders” for “determined by the organization”.

Subsec. (b)(3). Pub. L. 116–260, § 1003(1)(B), struck out par. (3). Text read as follows: “The program described in paragraph (1) shall be developed in consultation with and coordinated by the organization described in subsection (c) according to commonly accepted procedures for the development of specifications, measurements, and benchmarks.”

Subsecs. (c) to (j). Pub. L. 116–260, § 1003(2), added subsecs. (c) to (j) and struck out former subsecs. (c) to (g) which related to consultation with a data center efficiency organization to coordinate the voluntary national information program, including the requirements of such coordination, measurements and specifications, monitoring, alternate systems, and protection of proprietary information.

**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.

**§ 17113. Industrial emissions reduction technology development program****(a) Definitions**

In this section:

**(1) Director**

The term “Director” means the Director of the Office of Science and Technology Policy.

**(2) Eligible entity**

The term “eligible entity” means—

(A) a scientist or other individual with knowledge and expertise in emissions reduction;

(B) an institution of higher education;

(C) a nongovernmental organization;

(D) a National Laboratory;

(E) a private entity; and

(F) a partnership or consortium of 2 or more entities described in subparagraphs (B) through (E).

**(3) Emissions reduction****(A) In general**

The term “emissions reduction” means the reduction, to the maximum extent practicable, of net nonwater greenhouse gas emissions to the atmosphere by energy services and industrial processes.

**(B) Exclusion**

The term “emissions reduction” does not include the elimination of carbon embodied in the principal products of industrial manufacturing.

**(4) Program**

The term “program” means the program established under subsection (b)(1).

**(5) Critical material or mineral**

The term “critical material or mineral” means a material or mineral that serves an essential function in the manufacturing of a product and has a high risk of a supply disruption, such that a shortage of such a material or mineral would have significant consequences for United States economic or national security.

**(b) Industrial emissions reduction technology development program****(1) In general**

Not later than 1 year after December 27, 2020, the Secretary, in consultation with the Director, the heads of relevant Federal agencies, National Laboratories, industry, and institutions of higher education, shall establish a crosscutting industrial emissions reduction technology development program of research, development, demonstration, and commercial application to advance innovative technologies that—

(A) increase the technological and economic competitiveness of industry and manufacturing in the United States;

(B) increase the viability and competitiveness of United States industrial technology exports; and

(C) achieve emissions reduction in nonpower industrial sectors.

**(2) Coordination**

In carrying out the program, the Secretary shall—

(A) coordinate with each relevant office in the Department and any other Federal agency;

(B) coordinate and collaborate with the Industrial Technology Innovation Advisory Committee established under section 17115 of this title; and

(C) coordinate and seek to avoid duplication with the Future of Industry<sup>1</sup> program established under section 17111 of this title.

**(3) Leverage of existing resources**

In carrying out the program, the Secretary shall leverage, to the maximum extent practicable—

(A) existing resources and programs of the Department and other relevant Federal agencies; and

(B) public-private partnerships.

**(c) Focus areas**

The program shall focus on—

(1) industrial production processes, including technologies and processes that—

(A) achieve emissions reduction in high emissions industrial materials production processes, including production processes for iron, steel, steel mill products, aluminum, cement, concrete, glass, pulp, paper, and industrial ceramics;

(B) achieve emissions reduction in medium- and high-temperature heat generation, including—

<sup>1</sup> So in original.

- (i) through electrification of heating processes;
- (ii) through renewable heat generation technology;
- (iii) through combined heat and power; and
- (iv) by switching to alternative fuels, including hydrogen and nuclear energy;

(C) achieve emissions reduction in chemical production processes, including by incorporating, if appropriate and practicable, principles, practices, and methodologies of sustainable chemistry and engineering;

(D) leverage smart manufacturing technologies and principles, digital manufacturing technologies, and advanced data analytics to develop advanced technologies and practices in information, automation, monitoring, computation, sensing, modeling, and networking to—

- (i) model and simulate manufacturing production lines;
- (ii) monitor and communicate production line status;
- (iii) manage and optimize energy productivity and cost throughout production; and
- (iv) model, simulate, and optimize the energy efficiency of manufacturing processes;

(E) leverage the principles of sustainable manufacturing to minimize the potential negative environmental impacts of manufacturing while conserving energy and resources, including—

- (i) by designing products that enable reuse, refurbishment, remanufacturing, and recycling;
- (ii) by minimizing waste from industrial processes, including through the reuse of waste as other resources in other industrial processes for mutual benefit; and
- (iii) by increasing resource efficiency; and

(F) increase the energy efficiency of industrial processes;

(2) alternative materials that produce fewer emissions during production and result in fewer emissions during use, including—

- (A) high-performance lightweight materials; and
- (B) substitutions for critical materials and minerals;

(3) development of net-zero emissions liquid and gaseous fuels;

(4) emissions reduction in shipping, aviation, and long distance transportation;

(5) carbon capture technologies for industrial processes;

(6) other technologies that achieve net-zero emissions in nonpower industrial sectors, as determined by the Secretary, in consultation with the Director; and

(7) high-performance computing to develop advanced materials and manufacturing processes contributing to the focus areas described in paragraphs (1) through (6), including—

- (A) modeling, simulation, and optimization of the design of energy efficient and sustainable products; and

(B) the use of digital prototyping and additive manufacturing to enhance product design.

(8) incorporation of sustainable chemistry and engineering principles, practices, and methodologies, as the Secretary determines appropriate; and

(9) other research or technology areas identified in the Strategic Plan authorized in section 17114 of this title.

**(d) Grants, contracts, cooperative agreements, and demonstration projects**

**(1) Grants**

In carrying out the program, the Secretary shall award grants on a competitive basis to eligible entities for projects that the Secretary determines would best achieve the goals of the program.

**(2) Contracts and cooperative agreements**

In carrying out the program, the Secretary may enter into contracts and cooperative agreements with eligible entities and Federal agencies for projects that the Secretary determines would further the purposes of the program.

**(3) Demonstration projects**

In supporting technologies developed under this section, the Secretary shall fund demonstration projects that test and validate technologies described in subsection (c).

**(4) Application**

An entity seeking funding or a contract or agreement under this subsection shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

**(5) Cost sharing**

In awarding funds under this section, the Secretary shall require cost sharing in accordance with section 16352 of this title.

**(e) Authorization of appropriations**

There are authorized to be appropriated to the Secretary to carry out the demonstration projects authorized in subsection (d)(3)—

- (1) \$20,000,000 for fiscal year 2021;
- (2) \$80,000,000 for fiscal year 2022;
- (3) \$100,000,000 for fiscal year 2023;
- (4) \$150,000,000 for fiscal year 2024; and
- (5) \$150,000,000 for fiscal year 2025.

**(f) Coordination**

The Secretary shall carry out the activities authorized in this section in accordance with section 18631 of this title.

(Pub. L. 110-140, title IV, § 454, as added Pub. L. 116-260, div. Z, title VI, § 6003(a), Dec. 27, 2020, 134 Stat. 2553; amended Pub. L. 117-58, div. D, title V, § 40521(a)(2), Nov. 15, 2021, 135 Stat. 1062.)

**Editorial Notes**

**AMENDMENTS**

2021—Subsec. (b)(2)(C). Pub. L. 117-58 substituted “Future of Industry” for “energy-intensive industries”.

**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.

#### PURPOSE

Pub. L. 116-260, div. Z, title VI, § 6001, Dec. 27, 2020, 134 Stat. 2552, provided that: “The purpose of this title [enacting this section and sections 17114 to 17115a of this title and amending section 6351 of this title] and the amendments made by this title is to encourage the development and evaluation of innovative technologies aimed at increasing—

“(1) the technological and economic competitiveness of industry and manufacturing in the United States; and

“(2) the emissions reduction of nonpower industrial sectors.”

### § 17113a. Low-emissions steel manufacturing research program

#### (a) Purpose

The purpose of this section is to encourage the research and development of innovative technologies aimed at—

(1) increasing the technological and economic competitiveness of industry and manufacturing in the United States; and

(2) achieving significant net nonwater greenhouse emissions reductions in the production processes for iron, steel, and steel mill products.

#### (b) Definitions

In this section:

##### (1) Commercially available steelmaking

The term “commercially available steelmaking” means the current production method of iron, steel, and steel mill products.

##### (2) Critical material

The term “critical material” has the meaning given such term in section 1606 of title 30.

##### (3) Critical mineral

The term “critical mineral” has the meaning given such term in section 1606 of title 30.

##### (4) Eligible entity

The term “eligible entity” means—

(A) an institution of higher education;

(B) an appropriate State or Federal entity, including a federally funded research and development center of the Department;

(C) a nonprofit research institution;

(D) a private entity;

(E) any other relevant entity the Secretary determines appropriate; and

(F) a partnership or consortium of two or more entities described in subparagraphs (A) through (E).

##### (5) Institution of higher education

The term “institution of higher education” has the meaning given the term in section 1001 of title 20.

##### (6) Low-emissions steel manufacturing

The term “low-emissions steel manufacturing” means advanced or commercially available steelmaking with the reduction, to the maximum extent practicable, of net nonwater greenhouse gas emissions to the at-

mosphere from the production of iron, steel, and steel mill products.

#### (c) In general

Not later than 180 days after August 9, 2022, the Secretary shall establish a program of research, development, demonstration, and commercial application of advanced tools, technologies, and methods for low-emissions steel manufacturing.

#### (d) Requirements

In carrying out the program under subsection (c), the Secretary shall—

(1) coordinate this program with the programs and activities authorized in title VI of division Z of the Consolidated Appropriations Act, 2021;

(2) coordinate across all relevant program offices of the Department, including the Office of Science, Office of Energy Efficiency and Renewable Energy, the Office of Fossil Energy, and the Office of Nuclear Energy;

(3) leverage, to the extent practicable, the research infrastructure of the Department, including scientific computing user facilities, x-ray light sources, neutron scattering facilities, and nanoscale science research centers; and

(4) conduct research, development, and demonstration of low-emissions steel manufacturing technologies that have the potential to increase domestic production and employment in advanced and commercially available steelmaking.

#### (e) Strategic plan

##### (1) In general

Not later than 180 days after August 9, 2022, the Secretary shall develop a 5-year strategic plan identifying research, development, demonstration, and commercial application goals for the program established in subsection (c). The Secretary shall submit this 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.

##### (2) Contents

The strategic plan submitted under paragraph (1) shall—

(A) identify programs at the Department related to low-emissions steel manufacturing that support the research, development, demonstration, and commercial application activities described in this section, and the demonstration projects under subsection (h);

(B) establish technological and programmatic goals to achieve the requirements of subsection (d); and

(C) include timelines for the accomplishment of goals developed under the plan.

##### (3) Updates to plan

Not less than once every two years, 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 an updated version of the plan under paragraph (1).