

- (5) \$1,053,266,107 for fiscal year 2025;
- (6) \$1,047,962,074 for fiscal year 2026; and
- (7) \$1,114,187,798 for fiscal year 2027.

(Pub. L. 115-246, title III, §307, Sept. 28, 2018, 132 Stat. 3148; Pub. L. 116-260, div. Z, title II, §2008(a), Dec. 27, 2020, 134 Stat. 2474; Pub. L. 117-167, div. B, title I, §10105(a), Aug. 9, 2022, 136 Stat. 1441.)

Editorial Notes

REFERENCES IN TEXT

Subsection (q), referred to in subssecs. (b)(2), (d)(3), (e)(4), and (i)(10), probably should be a reference to subsec. (r). Prior to amendment by Pub. L. 117-167, those references were to subsec. (o) of this section, which related to authorization of appropriations and was redesignated as subsec. (r) by Pub. L. 117-167, §10105(a)(6). See 2022 Amendment notes below.

The date of enactment of this section, referred to in subssecs. (i)(1) and (n)(1), probably means the date of enactment of Pub. L. 116-260, which enacted subssecs. (i) and (n) of this section and was approved Dec. 27, 2020.

The enactment of this section, referred to in subssecs. (i)(2) and (l), probably means the enactment of Pub. L. 116-260, which enacted subssecs. (i) and (l) of this section and made other amendments to this section.

CODIFICATION

Section is comprised of section 307 of Pub. L. 115-246. Subsec. (g) of section 307 of Pub. L. 115-246 amended section 2053 of this title.

AMENDMENTS

2022—Subsec. (b). Pub. L. 117-167, §10105(a)(1), designated existing provisions as par. (1), inserted heading, redesignated former pars. (1) and (2) as subpars. (A) and (B), respectively, of par. (1) and subpars. (A) and (B) of former par. (2) as cls. (i) and (ii), respectively, of subpar. (B) of par. (1), and added par. (2).

Subsec. (d)(3). Pub. L. 117-167, §10105(a)(2), substituted “subsection (q)” for “subsection (o)”, “this subsection” for “subsection (d)”, and “2027” for “2025”.

Subsec. (e)(4). Pub. L. 117-167, §10105(a)(3), substituted “subsection (q)” for “subsection (o)”, “this subsection” for “subsection (e)”, and “2027” for “2025”.

Subsec. (i)(10). Pub. L. 117-167, §10105(a)(4)(A), substituted, in introductory provisions, “subsection (q)” for “subsection (o)” and “this subsection” for “subsection (i)”.

Subsec. (i)(10)(F), (G). Pub. L. 117-167, §10105(a)(4)(B)-(D), added subpars. (F) and (G).

Subsec. (j). Pub. L. 117-167, §10105(a)(5), added subsec. (j) and struck out former subsec. (j). Prior to amendment, text read as follows: “The Director shall support research and development activities to design future fusion reactor systems and examine and address the technical drivers for the cost of these systems.”

Subsecs. (o) to (q). Pub. L. 117-167, §10105(a)(7), added subssecs. (o) to (q). Former subsec. (o) redesignated (r).

Subsec. (r). Pub. L. 117-167, §10105(a)(6), (8)(A), redesignated subsec. (o) as (r) and substituted “Out of funds authorized to be appropriated for the Office of Science in a fiscal year, there” for “There” in introductory provisions.

Subsec. (r)(3) to (7). Pub. L. 117-167, §10105(a)(8)(B), added pars. (3) to (7) and struck out former pars. (3) to (5) relating to appropriations for fiscal years 2023 to 2025, respectively.

2020—Subsec. (a). Pub. L. 116-260, §2008(a)(2), added subsec. (a). Former subsec. (a) redesignated (b).

Subsecs. (b), (c). Pub. L. 116-260, §2008(a)(1), redesignated subssecs. (a) and (b) as (b) and (c), respectively. Former subsec. (c) redesignated (d).

Subsec. (d). Pub. L. 116-260, §2008(a)(3), amended subsec. (d) generally. Prior to amendment, text read as follows: “The Director shall support research and develop-

ment activities for inertial fusion for energy applications.”

Pub. L. 116-260, §2008(a)(1), redesignated subsec. (c) as (d). Former subsec. (d) redesignated (e).

Subsec. (e). Pub. L. 116-260, §2008(a)(4), amended subsec. (e) generally. Prior to amendment, text read as follows: “The Director shall support research and development activities and facility operations at institutions of higher education, National Laboratories, and private facilities in the United States for a portfolio of alternative and enabling fusion energy concepts that may provide solutions to significant challenges to the establishment of a commercial magnetic fusion power plant, prioritized based on the ability of the United States to play a leadership role in the international fusion research community.”

Pub. L. 116-260, §2008(a)(1), redesignated subsec. (d) as (e). Former subsec. (e) redesignated (f).

Subsecs. (f) to (h). Pub. L. 116-260, §2008(a)(1), redesignated subssecs. (f) and (g) as (g) and (h), respectively.

Subsecs. (i) to (o). Pub. L. 116-260, §2008(a)(5), added subssecs. (i) to (o).

§ 18646. Nuclear physics

(a) Program

As part of the activities authorized under section 7139 of this title, the Director shall carry out a research program, and support relevant facilities, to discover and understand various forms of nuclear matter.

(b) Electron Ion Collider

(1) In general

The Secretary shall support construction of an Electron Ion Collider as described in the 2015 Long Range Plan of the Nuclear Science Advisory Committee and the report from the National Academies of Science, Engineering, and Medicine entitled “An Assessment of U.S.-Based Electron-Ion Collider Science”, in order to measure the internal structure of the proton and the nucleus and answer fundamental questions about the nature of visible matter.

(2) Facility capability

The Secretary shall ensure that the facility described in paragraph (1) meets the requirements in the 2015 Long Range Plan described in that paragraph, including—

(A) at least 70 percent polarized beams of electrons and light ions;

(B) ion beams from deuterium to the heaviest stable nuclei;

(C) variable center of mass energy from 20 to 140 GeV;

(D) high collision luminosity of $10^{33-34} \text{cm}^{-2}\text{s}^{-1}$; and

(E) the possibility of more than 1 interaction region.

(3) Start of operations

The Secretary shall, subject to the availability of appropriations, ensure that the start of full operations of the facility under this subsection occurs before December 31, 2030.

(4) Funding

Out of funds authorized to be appropriated under subsection (c), there are authorized to be appropriated to the Secretary to carry out construction of the facility under this subsection—

(A) \$90,000,000 for fiscal year 2023;

(B) \$181,000,000 for fiscal year 2024;

- (C) \$219,000,000 for fiscal year 2025;
- (D) \$297,000,000 for fiscal year 2026; and
- (E) \$301,000,000 for fiscal year 2027.

(c) Authorization of appropriations

Out of funds authorized to be appropriated for the Office of Science in a fiscal year, there are authorized to be appropriated to the Secretary to carry out the activities described in this section—

- (1) \$840,480,000 for fiscal year 2023;
- (2) \$976,508,800 for fiscal year 2024;
- (3) \$1,062,239,328 for fiscal year 2025;
- (4) \$1,190,833,688 for fiscal year 2026; and
- (5) \$1,248,463,709 for fiscal year 2027.

(Pub. L. 115–246, title III, § 308, Sept. 28, 2018, 132 Stat. 3150; Pub. L. 117–167, div. B, title I, § 10107, Aug. 9, 2022, 136 Stat. 1449.)

Editorial Notes

AMENDMENTS

2022—Pub. L. 117–167 amended section generally. Prior to amendment, text was comprised of subsec. (a) of section 308 of Pub. L. 115–246 which read as follows: “The Director—

“(1) may carry out a program for the production of isotopes, including the development of techniques to produce isotopes, that the Secretary determines are needed for research, medical, industrial, or related purposes; and

“(2) shall ensure that isotope production activities carried out under the program under this paragraph do not compete with private industry unless the Director determines that critical national interests require the involvement of the Federal Government.”

Prior to amendment, section 308 of Pub. L. 115–246 also contained subsec. (b) which amended section 16321 of this title.

§ 18647. Science laboratories infrastructure program

(a) In general

The Director shall carry out a program to improve the safety, efficiency, and mission readiness of infrastructure at laboratories of the Office of Science.

(b) Inclusions

The program under subsection (a) shall include projects—

- (1) to renovate or replace space that does not meet research needs;
- (2) to replace facilities that are no longer cost effective to renovate or operate;
- (3) to modernize utility systems to prevent failures and ensure efficiency;
- (4) to remove excess facilities to allow safe and efficient operations; and
- (5) to construct modern facilities to conduct advanced research in controlled environmental conditions.

(c) Approach

In carrying out the program under subsection (a), the Director shall use all available approaches and mechanisms, as the Secretary determines to be appropriate, including—

- (1) capital line items;
- (2) minor construction projects;
- (3) energy savings performance contracts;
- (4) utility energy service contracts;
- (5) alternative financing; and

(6) expense funding.

(d) Submission to Congress

For each fiscal year through fiscal year 2027, at the same time as the annual budget submission of the President, the Secretary shall submit to the Committee on Appropriations and the Committee on Energy and Natural Resources of the Senate and the Committee on Appropriations and the Committee on Science, Space, and Technology of the House of Representatives a list of projects for which the Secretary will provide funding under this section, including a description of each project and the funding profile for the project.

(e) Authorization of appropriations

Out of funds authorized to be appropriated for the Office of Science in a fiscal year, there is authorized to be appropriated to the Secretary to carry out the activities described in this section \$550,000,000 for each of fiscal years 2023 through 2027.

(Pub. L. 115–246, title III, § 309, Sept. 28, 2018, 132 Stat. 3150; Pub. L. 117–167, div. B, title I, § 10108, Aug. 9, 2022, 136 Stat. 1450.)

Editorial Notes

AMENDMENTS

2022—Subsecs. (c) to (e). Pub. L. 117–167 added subsecs. (c) to (e).

§ 18648. Accelerator research and development

(a) Program

As part of the activities authorized under section 7139 of this title, the Director shall carry out a research program—

- (1) to advance accelerator science and technology relevant to the Department, other Federal agencies, and United States industry;
- (2) to foster partnerships to develop, demonstrate, and enable the commercial application of accelerator technologies;
- (3) to support the development of a skilled, diverse, and inclusive accelerator workforce; and
- (4) to provide access to accelerator design and engineering resources.

(b) Accelerator research

In carrying out the program authorized under subsection (a), the Director shall support—

- (1) research activities in cross-cutting accelerator technologies including superconducting magnets and accelerators, beam physics, data analytics-based accelerator controls, simulation software, new particle sources, advanced laser technology, and transformative research; and
- (2) optimal operation of the Accelerator Test Facility.

(c) Accelerator development

In carrying out the program authorized under subsection (a), the Director shall support partnerships to foster the development, demonstration, and commercial application of accelerator technologies, including advanced superconducting wire and cable, superconducting RF cavities, and high efficiency radiofrequency power sources for accelerators.