

(d) Research collaborations

In developing accelerator technologies under the program authorized under subsection (a), the Director shall—

(1) consider the requirements necessary to support translational research and development for medical, industrial, security, and defense applications; and

(2) leverage investments in accelerator technologies and fundamental research in particle physics by partnering with institutions of higher education, industry, and other Federal agencies to enable the commercial application of advanced accelerator technologies.

(e) 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) \$19,080,000 for fiscal year 2023;
- (2) \$20,224,800 for fiscal year 2024;
- (3) \$21,438,288 for fiscal year 2025;
- (4) \$22,724,585 for fiscal year 2026; and
- (5) \$24,088,060 for fiscal year 2027.

(Pub. L. 115–246, title III, §310, as added Pub. L. 117–167, div. B, title I, §10109, Aug. 9, 2022, 136 Stat. 1451.)

§ 18649. Isotope research, development, and production**(a) Definition of critical radioactive and stable isotope****(1) In general**

In this section, the term “critical radioactive and stable isotope” means a radioactive and stable isotope—

(A) the domestic commercial production of which is unavailable or inadequate to satisfy the demand of research, medical, industrial, or related industries in the United States; and

(B) the supply of which is augmented through—

- (i) Department production; or
- (ii) foreign suppliers.

(2) Exclusion

In this section, the term “critical radioactive and stable isotope” does not include the medical isotope molybdenum-99, the production and supply of which is addressed in the American Medical Isotopes Production Act of 2012 (Public Law 112–239; 126 Stat. 2211) (including the amendments made by that Act).

(b) Program

The Director shall—

(1) carry out, in coordination with other relevant programs across the Department, a program—

(A) for the production of critical radioactive and stable isotopes, including the development of techniques to produce isotopes, that the Secretary determines are needed and of sufficient quality and quantity for research, medical, industrial, or related purposes;

(B) for the production of critical radioactive and stable isotopes that are in short

supply or projected to be in short supply in the future, including byproducts, surplus materials, and related isotope services;

(C) to maintain and enhance the infrastructure required to produce and supply critical radioactive and stable isotope products and related services;

(D) to conduct research and development on new and improved isotope production and processing techniques that can make critical radioactive and stable isotopes available for research and application as soon as possible while assisting in workforce development;

(E) to reduce domestic dependency on the foreign supply of critical radioactive and stable isotopes to ensure national preparedness; and

(F) to the maximum extent practicable, in accordance with—

(i) evidence-based reports, such as the 2015 report of the Nuclear Science Advisory Committee entitled “Meeting Isotope Needs and Capturing Opportunities for the Future”; and

(ii) assessments of isotope supply chains, including the assessment described in paragraph (3), any reports submitted pursuant to subsection (d), and other current and future assessments;

(2) ensure that isotope production activities carried out under this subsection are consistent with the statement of policy entitled “Policies and Procedures for Transfer of Commercial Radioisotope Production and Distribution to Private Industry” (30 Fed. Reg. 3247 (March 9, 1965));

(3) assess the domestic requirements of current and emerging critical radioactive and stable isotopes and associated applications, including by consulting end-users, to identify areas that may require Federal investment for expedited development of domestic production capacity for those isotopes, including through public-private partnerships, as appropriate;

(4) ensure that actions taken by the Department do not interfere with, delay, compete with, or otherwise adversely affect efforts by the private sector to make available or otherwise facilitate the supply of critical radioactive and stable isotopes, including efforts under existing agreements between the Department or contractors of the Department and the private sector; and

(5) in coordination with the Assistant Secretary for Nuclear Energy, assess options for demonstrating the production of critical radioactive and stable isotopes in research, test, or commercial nuclear reactors and accelerators, including reactors and accelerators operated at universities.

(c) Advisory committee**(1) In general**

Not later than 90 days after August 9, 2022, the Secretary shall establish an advisory committee (referred to in this subsection as the “committee”) in alignment with the program established under subsection (b)—

(A) to carry out the activities previously executed as part of the Isotope Subcommittee of the Nuclear Science Advisory Committee; and

(B) to provide expert advice and assistance to the Director in carrying out that program.

(2) Report

(A) In general

Not later than 1 year after the committee is established, the committee shall—

- (i) update the 2015 Nuclear Science Advisory Committee Isotopes Subcommittee Report entitled “Meeting Isotope Needs and Capturing Opportunities for the Future”; and
- (ii) periodically update that report thereafter as needed.

(B) Inclusions

An updated report under subparagraph (A) shall include an assessment of—

- (i) current demand in the United States for critical radioactive and stable isotopes;
- (ii) the impact of continued reliance on foreign supply of critical radioactive and stable isotopes;
- (iii) proposed mitigation strategies, including increasing domestic production sources for critical radioactive and stable isotopes, that—
 - (I) are not commercially available; or
 - (II) are commercially produced in quantities that are not sufficient—
 - (aa) to satisfy domestic demand; and
 - (bb) to minimize production constraints and supply disruptions to the United States healthcare and industrial isotope industries;
 - (iv) current facilities, including upgrades to those facilities, and new facilities needed to meet domestic critical isotope needs; and
 - (v) workforce development needs.

(3) Nonduplication

The committee shall work in alignment with, and shall not duplicate the efforts of, preexisting advisory committees that are advising the program established under subsection (b).

(4) FACA

The committee shall be subject to the Federal Advisory Committee Act (5 U.S.C. App.).¹

(d) Report

(1) In general

Not later than the end of the first fiscal year beginning after August 9, 2022, and biennially thereafter, the Secretary of Energy Advisory Board shall submit to the Committees on Energy and Natural Resources and Environment and Public Works of the Senate and the Committees on Science, Space, and Technology and Energy and Commerce of the House of Representatives a report describing the progress made under the program established under subsection (b) during the preceding 2 fiscal years.

(2) Inclusions

Each report under paragraph (1) shall include—

(A) an updated assessment of any critical radioactive and stable isotope shortages in the United States;

(B) a description of—

- (i) any disruptions in the international supply of critical radioactive and stable isotopes during the preceding 2 fiscal years; and
- (ii) the impact of those disruptions on related activities; and

(C)(i) a projection of anticipated disruptions in the international supply, or supply constraints, of critical radioactive and stable isotopes during the next 2 fiscal years; and

(ii) the anticipated impact of those disruptions or constraints, as applicable, on related domestic activities.

(e) 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 this section—

- (1) \$175,708,000 for fiscal year 2023;
- (2) \$196,056,480 for fiscal year 2024;
- (3) \$215,759,869 for fiscal year 2025;
- (4) \$200,633,461 for fiscal year 2026; and
- (5) \$146,293,469 for fiscal year 2027.

(Pub. L. 115–246, title III, §311, as added Pub. L. 117–167, div. B, title I, §10110(a), Aug. 9, 2022, 136 Stat. 1452.)

Editorial Notes

REFERENCES IN TEXT

The American Medical Isotopes Production Act of 2012, referred to in subsec. (a)(2), is subtitle F (§§3171–3178) of title XXXI of div. C of Pub. L. 112–239, which enacted sections 2065 and 2142 of this title, amended section 2160d of this title, and enacted provisions set out as a note under section 2065 of this title. For complete classification of this Act to the Code, see Short Title of 2013 Amendment note set out under section 2011 of this title and Tables.

The Federal Advisory Committee Act, referred to in subsec. (c)(4), is Pub. L. 92–463, Oct. 6, 1972, 86 Stat. 770, which was set out in the Appendix to Title 5, Government Organization and Employees, and was substantially repealed and restated in chapter 10 (§1001 et seq.) of Title 5 by Pub. L. 117–286, §§3(a), 7, Dec. 27, 2022, 136 Stat. 4197, 4361. For disposition of sections of the Act into chapter 10 of Title 5, see Disposition Table preceding section 101 of Title 5.

Statutory Notes and Related Subsidiaries

RADIOISOTOPE PROCESSING FACILITY AND STABLE ISOTOPE PRODUCTION AND RESEARCH CENTER

Pub. L. 117–167, div. B, title I, §10110(c), (d), Aug. 9, 2022, 136 Stat. 1455, provided that:

“(c) Radioisotope Processing Facility.—

“(1) IN GENERAL.—The Secretary of Energy (referred to in this subsection as “the Secretary”) shall construct a radioisotope processing facility to provide for the growing radiochemical processing capability needs associated with the production of critical radioactive isotopes authorized under section 311 of the Department of Energy Research and Innovation Act [42 U.S.C. 18649].

“(2) FUNDING.—Out of funds authorized to be appropriated under section 311(e) of the Department of Energy Research and Innovation Act, there are authorized to be appropriated to the Secretary to carry out this subsection—

¹ See References in Text note below.

- “(A) \$30,500,000 for fiscal year 2023;
- “(B) \$75,000,000 for fiscal year 2024;
- “(C) \$105,000,000 for fiscal year 2025;
- “(D) \$83,000,000 for fiscal year 2026; and
- “(E) \$43,000,000 for fiscal year 2027.

“(d) STABLE ISOTOPE PRODUCTION AND RESEARCH CENTER.—

“(1) IN GENERAL.—The Secretary of Energy (referred to in this subsection as “the Secretary”) shall establish a stable isotope production and research center—

“(A) to expand the ability of the United States to perform multiple stable isotope production campaigns at large-scale production, as authorized under section 311 of the Department of Energy Research and Innovation Act;

“(B) to mitigate the dependence of the United States on foreign-produced stable isotopes;

“(C) to promote economic resilience; and

“(D) to conduct research and development on stable isotope production and associated methods and technology.

“(2) FUNDING.—Out of funds authorized to be appropriated under section 311(e) of the Department of Energy Research and Innovation Act, there are authorized to be appropriated to the Secretary to carry out this subsection—

“(A) \$74,400,000 for fiscal year 2023;

“(B) \$46,000,000 for fiscal year 2024;

“(C) \$31,200,000 for fiscal year 2025;

“(D) \$33,300,000 for fiscal year 2026; and

“(E) \$13,900,000 for fiscal year 2027.”

§ 18650. Increased collaboration with teachers and scientists

The Director shall support the development of a scientific workforce through programs that facilitate collaboration between and among teachers at elementary schools and secondary schools served by local educational agencies, students at institutions of higher education, early-career researchers, faculty at institutions of higher education, and the National Laboratories, including through the use of proven techniques to expand the number of individuals from underrepresented groups pursuing and attaining skills or undergraduate and graduate degrees relevant to the mission of the Office of Science.

(Pub. L. 115–246, title III, §312, as added Pub. L. 117–167, div. B, title I, §10111(a), Aug. 9, 2022, 136 Stat. 1456.)

§ 18651. High intensity laser research initiative

(a) In general

The Director shall establish a high intensity laser research initiative consistent with the recommendations of the National Academies report entitled “Opportunities in Intense Ultrafast Lasers: Reaching for the Brightest Light” and the report from the Brightest Light Initiative workshop entitled “The Future of Intense Ultrafast Lasers in the U.S.”. The initiative should include research and development of petawatt-scale and of high average power laser technologies necessary for future facility needs in discovery science and to advance energy technologies, as well as support for a user network of academic and National Laboratory high intensity laser facilities.

(b) Leverage

The Director shall leverage new laser technologies for more compact, less complex, and low-cost accelerator systems needed for science applications.

(c) Coordination

(1) Director

The Director shall coordinate the initiative established under subsection (a) among all relevant programs within the Office of Science.

(2) Under Secretary

The Under Secretary for Science shall coordinate the initiative established under subsection (a) with other relevant programs within the Department and other Federal agencies.

(d) 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) \$50,000,000 for fiscal year 2023;
- (2) \$100,000,000 for fiscal year 2024;
- (3) \$150,000,000 for fiscal year 2025;
- (4) \$200,000,000 for fiscal year 2026; and
- (5) \$250,000,000 for fiscal year 2027.

(Pub. L. 115–246, title III, §313, as added Pub. L. 117–167, div. B, title I, §10112(a), Aug. 9, 2022, 136 Stat. 1459.)

§ 18652. Helium conservation program

(a) In general

The Secretary shall establish a program to reduce the consumption of helium for Department grant recipients and facilities and encourage helium recycling and reuse. The program shall competitively award grants for—

- (1) the purchase of equipment to capture, reuse, and recycle helium;
- (2) the installation, maintenance, and repair of new and existing helium capture, reuse, and recycling equipment; and
- (3) helium alternatives research and development activities.

(b) Report

Not later than 2 years after August 9, 2022, and every 3 years thereafter, the Director 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 report on the purchase of helium as part of research projects and facilities supported by the Department. The report shall include—

- (1) the quantity of helium purchased for projects and facilities supported by Department grants;
- (2) a cost-analysis for such helium;
- (3) to the maximum extent practicable, information on whether such helium was imported from outside the United States, and if available, the country or region of the world from which the helium was imported;
- (4) expected or experienced impacts of helium supply shortages or prices on the research projects and facilities supported by the Department; and
- (5) recommendations for reducing Department grant recipients’ exposure to volatile helium prices and supply shortages.

(c) Coordination

In carrying out the program under this section, the Director shall coordinate with the Na-