

**(3) Conflicts of interest**

Each Hub shall maintain conflict of interest procedures, consistent with the conflict of interest procedures of the Department.

**(4) Prohibition on construction****(A) In general**

Except as provided in subparagraph (B)—

(i) no funds provided under this section may be used for construction of new buildings or facilities for Hubs; and

(ii) construction of new buildings or facilities shall not be considered as part of the non-Federal share of a Hub cost-sharing agreement.

**(B) Test bed and renovation exception**

Nothing in this paragraph prohibits the use of funds provided under this section or non-Federal cost share funds for the construction of a test bed or renovations to existing buildings or facilities for the purposes of research if the Secretary determines that the test bed or renovations are limited to a scope and scale necessary for the research to be conducted.

(Pub. L. 115-246, title II, §206, Sept. 28, 2018, 132 Stat. 3137.)

SUBCHAPTER III—DEPARTMENT OF  
ENERGY OFFICE OF SCIENCE POLICY

**§ 18641. Basic energy sciences****(a) Energy Frontier Research Centers****(1) In general**

The Director shall carry out a program to provide awards, on a competitive, merit-reviewed basis, to multi-institutional collaborations or other appropriate entities to conduct fundamental and use-inspired energy research to accelerate scientific breakthroughs.

**(2) Collaborations**

A collaboration receiving an award under this subsection may include multiple types of institutions and private sector entities.

**(3) Selection and duration****(A) In general**

A collaboration under this subsection shall be selected for a period of 4 years.

**(B) Existing centers**

An Energy Frontier Research Center in existence and supported by the Director on September 28, 2018, may continue to receive support for a period of 4 years beginning on the date of establishment of that center.

**(C) Reapplication**

After the end of the period described in subparagraph (A) or (B), as applicable, a recipient of an award may reapply for selection on a competitive, merit-reviewed basis.

**(D) Termination**

Consistent with the existing authorities of the Department, the Director may terminate an underperforming center for cause during the performance period.

**(4) No funding for construction**

No funding provided pursuant to this subsection may be used for the construction of new buildings or facilities.

**(b) Basic energy sciences user facilities****(1) In general**

The Director shall carry out a program for the development, construction, operation, and maintenance of national user facilities.

**(2) Requirements**

To the maximum extent practicable, the national user facilities developed, constructed, operated, or maintained under paragraph (1) shall serve the needs of the Department, industry, the academic community, and other relevant entities to create and examine materials and chemical processes for the purpose of improving the competitiveness of the United States.

**(3) Included facilities**

The national user facilities developed, constructed, operated, or maintained under paragraph (1) shall include—

(A) x-ray light sources;

(B) neutron sources;

(C) nanoscale science research centers; and

(D) such other facilities as the Director considers appropriate, consistent with section 7139 of this title.

**(c) Accelerator research and development**

The Director shall carry out research and development on advanced accelerator and storage ring technologies relevant to the development of basic energy sciences user facilities, in consultation with the High Energy Physics and Nuclear Physics programs of the Office of Science.

(Pub. L. 115-246, title III, §303(a)–(c), Sept. 28, 2018, 132 Stat. 3140, 3141.)

**§ 18642. Advanced scientific computing research****(a) Omitted****(b) High-performance computing and networking research**

The Director shall support research in high-performance computing and networking relevant to energy applications, including modeling, simulation, and advanced data analytics for basic and applied energy research programs carried out by the Secretary.

**(c) Applied mathematics and software development for high-end computing systems**

The Director shall carry out activities to develop, test, and support—

(1) mathematics, models, and algorithms for complex systems and programming environments; and

(2) tools, languages, and operating systems for high-end computing systems (as defined in section 5541 of title 15).

(Pub. L. 115-246, title III, §304, Sept. 28, 2018, 132 Stat. 3145.)

**Editorial Notes**

## CODIFICATION

Section is comprised of section 304 of Pub. L. 115-246. Subsec. (a) of section 304 of Pub. L. 115-246 amended sections 16316 of this title, sections 5541 and 5542 of Title 15, Commerce and Trade, and provisions set out as a note under section 5501 of Title 15.

**§ 18643. High-energy physics****(a) Sense of Congress**

It is the sense of Congress that—

(1) the Director should incorporate the findings and recommendations of the report of the Particle Physics Project Prioritization Panel entitled “Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context” into the planning process of the Department; and

(2) the nations that lead in particle physics by hosting international teams dedicated to a common scientific goal attract the world’s best talent and inspire future generations of physicists and technologists.

**(b) International collaboration**

The Director, as practicable and in coordination with other appropriate Federal agencies as necessary, shall ensure the access of United States researchers to the most advanced accelerator facilities and research capabilities in the world, including the Large Hadron Collider.

**(c) Neutrino research**

The Director shall carry out research activities on rare decay processes and the nature of the neutrino, which may include collaborations with the National Science Foundation or international collaborations.

**(d) Dark energy and dark matter research**

The Director shall carry out research activities on the nature of dark energy and dark matter, which may include collaborations with the National Aeronautics and Space Administration or the National Science Foundation; or international collaborations.

(Pub. L. 115–246, title III, § 305, Sept. 28, 2018, 132 Stat. 3147.)

**§ 18644. Biological and environmental research****(a) Biological systems**

The Director shall carry out research and development activities in fundamental, structural, computational, and systems biology to increase systems-level understanding of the complex biological systems, which may include activities—

(1) to accelerate breakthroughs and new knowledge that would enable the cost-effective, sustainable production of—

(A) biomass-based liquid transportation fuels;

(B) bioenergy; and

(C) biobased materials;

(2) to improve understanding of the global carbon cycle, including processes for removing carbon dioxide from the atmosphere, through photosynthesis and other biological processes, for sequestration and storage; and

(3) to understand the biological mechanisms used to transform, immobilize, or remove contaminants from subsurface environments.

**(b) Limitation for research funds**

The Director shall not approve new climate science-related initiatives without making a determination that such work is well-coordinated with any relevant work carried out by other Federal agencies.

**(c) Low-dose radiation research program****(1) In general**

The Secretary shall carry out a research program on low-dose and low dose-rate radiation to—

(A) enhance the scientific understanding of, and reduce uncertainties associated with, the effects of exposure to low-dose and low dose-rate radiation; and

(B) inform improved risk-assessment and risk-management methods with respect to such radiation.

**(2) Program components**

In carrying out the program required under paragraph (1), the Secretary shall—

(A) support and carry out the directives under section 106(b) of the American Innovation and Competitiveness Act (42 U.S.C. 6601 note), except that such section shall be treated for purposes of this subsection as applying to low dose and low-dose rate radiation research, in coordination with the Physical Science Subcommittee of the National Science and Technology Council;

(B) identify and, to the extent possible, quantify, potential monetary and health-related impacts to Federal agencies, the general public, industry, research communities, and other users of information produced by such research program;

(C) leverage the collective body of knowledge from existing low-dose and low dose-rate radiation research;

(D) engage with other Federal agencies, research communities, and potential users of information produced under this section, including institutions performing or utilizing radiation research, medical physics, radiology, health physics, and emergency response measures; and

(E) support education and outreach activities to disseminate information and promote public understanding of low-dose radiation, with a focus on non-emergency situations such as medical physics, space exploration, and naturally occurring radiation.

**(3) Research plan**

(A) Not later than 90 days after December 27, 2020, the Secretary shall enter into an agreement with the National Academy of Sciences to develop a long-term strategic and prioritized research agenda for the program described in paragraph (2);

(B) Not later than one year after December 27, 2020, the Secretary shall transmit this research plan developed in subparagraph (A) to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

**(4) GAO study**

Not later than 3 years after December 27, 2020, the Comptroller General shall transmit 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:

(A) an evaluation of the program activities carried out under this section;