

construction of the facility under this section—

- (A) \$295,000,000 for fiscal year 2021;
- (B) \$348,000,000 for fiscal year 2022;
- (C) \$525,000,000 for fiscal year 2023;
- (D) \$534,000,000 for fiscal year 2024; and
- (E) \$584,000,000 for fiscal year 2025.

(d) Gateway for Accelerated Innovation in Nuclear

(1) In general

In carrying out the programs under this part, the Secretary is authorized to establish a new initiative to be known as the Gateway for Accelerated Innovation in Nuclear (GAIN). The initiative shall, to the maximum extent practicable and consistent with national security, provide the nuclear energy industry with access to cutting edge research and development along with the technical, regulatory, and financial support necessary to move innovative nuclear energy technologies toward commercialization in an accelerated and cost-effective fashion. The Secretary shall make available, as a minimum—

- (A) experimental capabilities and testing facilities;
- (B) computational capabilities, modeling, and simulation tools;
- (C) access to existing datasets and data validation tools; and
- (D) technical assistance with guidance or processes as needed.

(2) Selection

(A) In general

The Secretary shall select industry partners for awards on a competitive merit-reviewed basis.

(B) Considerations

In selecting industry partners under subparagraph (A), the Secretary shall consider—

- (i) the information disclosed by the Department as described in paragraph (1); and
- (ii) any existing facilities the Department will provide for public private partnership activities.

(Pub. L. 109–58, title IX, §955, Aug. 8, 2005, 119 Stat. 887; Pub. L. 115–248, §2(e), Sept. 28, 2018, 132 Stat. 3156; Pub. L. 116–260, div. Z, title II, §2003(f), Dec. 27, 2020, 134 Stat. 2466.)

Editorial Notes

AMENDMENTS

2020—Subsec. (c)(1). Pub. L. 116–260, §2003(f)(1)(A), substituted “Authorization” for “Mission need” in heading.

Subsec. (c)(1)(A). Pub. L. 116–260, §2003(f)(1)(B), substituted “provide” for “determine the mission need”.

Subsec. (c)(4). Pub. L. 116–260, §2003(f)(3), substituted “2026” for “2025”.

Subsec. (c)(7). Pub. L. 116–260, §2003(f)(2), added par. (7).

Subsec. (d). Pub. L. 116–260, §2003(f)(4), added subsec. (d).

2018—Subsecs. (c), (d). Pub. L. 115–248 added subsec. (c) and struck out former subsecs. (c) and (d) which required development of a comprehensive plan for the fa-

cilities at the Idaho National Laboratory and transmittal of the plan to Congress.

§ 16276. Security of nuclear facilities

The Secretary shall conduct a research and development program on cost-effective technologies for increasing—

- (1) the safety of nuclear facilities from natural phenomena; and
- (2) the security of nuclear facilities from deliberate attacks.

(Pub. L. 109–58, title IX, §956, Aug. 8, 2005, 119 Stat. 888; Pub. L. 115–248, §2(f), Sept. 28, 2018, 132 Stat. 3157.)

Editorial Notes

AMENDMENTS

2018—Pub. L. 115–248 struck out “, acting through the Director of the Office of Nuclear Energy, Science and Technology,” after “The Secretary” in introductory provisions.

§ 16277. High-performance computation and supportive research

(a) Modeling and simulation

The Secretary shall carry out a program to enhance the capabilities of the United States to develop new reactor technologies through high-performance computation modeling and simulation techniques.

(b) Coordination

In carrying out the program under subsection (a), the Secretary shall coordinate with relevant Federal agencies as described by the National Strategic Computing Initiative established by Executive Order 13702 (80 Fed. Reg. 46177 (July 29, 2015)), while taking into account the following objectives:

- (1) Using expertise from the private sector, institutions of higher education, and the National Laboratories to develop computational software and capabilities that prospective users may access to accelerate research and development of advanced nuclear reactor systems and reactor systems for space exploration.

- (2) Developing computational tools to simulate and predict nuclear phenomena that may be validated through physical experimentation.

- (3) Increasing the utility of the research infrastructure of the Department by coordinating with the Advanced Scientific Computing Research program within the Office of Science.

- (4) Leveraging experience from the Energy Innovation Hub for Modeling and Simulation.

- (5) Ensuring that new experimental and computational tools are accessible to relevant research communities, including private sector entities engaged in nuclear energy technology development.

(c) Supportive research activities

The Secretary shall consider support for additional research activities to maximize the utility of the research facilities of the Department, including physical processes—

- (1) to simulate degradation of materials and behavior of fuel forms; and

(2) for validation of computational tools.

(d) Duplication

The Secretary shall ensure the coordination of, and avoid unnecessary duplication of, the activities of the program under subsection (a) with the activities of—

- (1) other research entities of the Department, including the National Laboratories, the Advanced Research Projects Agency–Energy, and the Advanced Scientific Computing Research program; and
- (2) industry.

(Pub. L. 109–58, title IX, §957, Aug. 8, 2005, 119 Stat. 888; Pub. L. 115–248, §2(g), Sept. 28, 2018, 132 Stat. 3157; Pub. L. 116–260, div. Z, title II, §2004, Dec. 27, 2020, 134 Stat. 2470.)

Editorial Notes

REFERENCES IN TEXT

Executive Order 13702, referred to in subsec. (b), is set out as a note under section 5501 of Title 15, Commerce and Trade.

AMENDMENTS

2020—Subsec. (d). Pub. L. 116–260 added subsec. (d).
2018—Pub. L. 115–248 amended section generally. Prior to amendment, section related to survey and plan regarding alternatives to industrial radioactive sources.

§ 16278. Enabling nuclear energy innovation

(a) National Reactor Innovation Center

There is authorized a program to enable the testing and demonstration of reactor concepts to be proposed and funded, in whole or in part, by the private sector.

(b) Technical expertise

In carrying out the program under subsection (a), the Secretary shall leverage the technical expertise of relevant Federal agencies and the National Laboratories in order to minimize the time required to enable construction and operation of privately funded experimental reactors at National Laboratories or other Department-owned sites.

(c) Objectives

The reactors described in subsection (b) shall operate to meet the following objectives:

- (1) Enabling physical validation of advanced nuclear reactor concepts.
- (2) Resolving technical uncertainty and increasing practical knowledge relevant to safety, resilience, security, and functionality of advanced nuclear reactor concepts.
- (3) General research and development to improve nascent technologies.

(d) Sharing technical expertise

In carrying out the program under subsection (a), the Secretary may enter into a memorandum of understanding with the Chairman of the Commission in order to share technical expertise and knowledge through—

- (1) enabling the testing and demonstration of advanced nuclear reactor concepts to be proposed and funded, in whole or in part, by the private sector;
- (2) operating a database to store and share data and knowledge relevant to nuclear

science and engineering between Federal agencies and the private sector;

(3) developing and testing electric and non-electric integration and energy conversion systems relevant to advanced nuclear reactors;

(4) leveraging expertise from the Commission with respect to safety analysis; and

(5) enabling technical staff of the Commission to actively observe and learn about technologies developed under the program.

(e) Agency coordination

The Chairman of the Commission and the Secretary shall enter into a memorandum of understanding regarding the following:

(1) Ensuring that—

(A) the Department has sufficient technical expertise to support the timely research, development, demonstration, and commercial application by the civilian nuclear industry of safe and innovative advanced nuclear reactor technology; and

(B) the Commission has sufficient technical expertise to support the evaluation of applications for licenses, permits, and design certifications and other requests for regulatory approval for advanced nuclear reactors.

(2) The use of computers and software codes to calculate the behavior and performance of advanced nuclear reactors based on mathematical models of the physical behavior of advanced nuclear reactors.

(3) Ensuring that—

(A) the Department maintains and develops the facilities necessary to enable the timely research, development, demonstration, and commercial application by the civilian nuclear industry of safe and innovative reactor technology; and

(B) the Commission has access to the facilities described in subparagraph (A), as needed.

(f) Reporting requirements

(1) In general

Not later than 180 days after September 28, 2018, the Secretary, in consultation with the National Laboratories, relevant Federal agencies, and other stakeholders, shall submit to the appropriate committees of Congress a report assessing the capabilities of the Department to authorize, host, and oversee privately funded experimental advanced nuclear reactors as described in subsection (b).

(2) Contents

The report submitted under paragraph (1) shall address—

(A) the safety review and oversight capabilities of the Department, including options to leverage expertise from the Commission and the National Laboratories;

(B) options to regulate privately proposed and funded experimental reactors hosted by the Department;

(C) potential sites capable of hosting privately funded experimental advanced nuclear reactors;

(D) the efficacy of the available contractual mechanisms of the Department to part-