

118TH CONGRESS
2D SESSION

S. 5476

To provide for Department of Energy and National Science Foundation
research and development coordination, and for other purposes.

IN THE SENATE OF THE UNITED STATES

DECEMBER 11, 2024

Ms. CORTEZ MASTO introduced the following bill; which was read twice and
referred to the Committee on Commerce, Science, and Transportation

A BILL

To provide for Department of Energy and National Science
Foundation research and development coordination, and
for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “DOE and NSF Inter-
5 agency Research Act”.

6 **SEC. 2. DEPARTMENT OF ENERGY AND NATIONAL SCIENCE**
7 **FOUNDATION RESEARCH AND DEVELOPMENT**
8 **COORDINATION.**

9 (a) IN GENERAL.—The Secretary of Energy (in this
10 section referred to as the “Secretary”) and the Director

1 of the National Science Foundation (in this section re-
2 ferred to as the “Director”) shall carry out cross-cutting
3 and collaborative research and development activities fo-
4 cused on the joint advancement of Department of Energy
5 and National Science Foundation mission requirements
6 and priorities.

7 (b) MEMORANDUM OF UNDERSTANDING.—

8 (1) IN GENERAL.—The Secretary and the Di-
9 rector shall carry out and coordinate the activities
10 under subsection (a) through the establishment of a
11 memorandum of understanding, or other appropriate
12 interagency agreement.

13 (2) PROCESS.—A memorandum or agreement
14 established under paragraph (1) shall require the
15 use of a competitive, merit-reviewed process, which
16 considers applications from Federal agencies, Na-
17 tional Laboratories, institutions of higher education,
18 nonprofit institutions, and other appropriate entities.

19 (c) COORDINATION.—In carrying out the activities
20 under subsection (a), the Secretary and the Director
21 may—

22 (1) conduct collaborative research in a variety
23 of focus areas, such as—

1 (A) basic plasma science and engineering,
2 including applications in astrophysics, materials
3 science, fusion science, and accelerator science;

4 (B) fundamental biological and computa-
5 tional science and engineering, including com-
6 putational neuroscience and neuromorphic com-
7 puting, including in collaboration with the pro-
8 gram authorized under section 306 of the De-
9 partment of Energy Research and Innovation
10 Act (42 U.S.C. 18644);

11 (C) modeling and simulation, machine
12 learning, artificial intelligence, data assimila-
13 tion, large-scale data analytics, predictive anal-
14 ysis, and advanced computational, storage, and
15 networking capabilities in order to optimize al-
16 gorithms for purposes relating to energy and
17 climate;

18 (D) quantum information sciences, includ-
19 ing quantum computing and quantum network
20 infrastructure, including in collaboration with
21 the programs authorized under sections 403
22 and 404 of the National Quantum Initiative Act
23 (15 U.S.C. 8853, 8854);

24 (E) energy and materials science and engi-
25 neering, including artificial photosynthesis,

1 plasma, solar fuels, and fusion, including in col-
2 laboration with the programs authorized
3 under—

4 (i) sections 303 and 307 of the De-
5 partment of Energy Research and Innova-
6 tion Act (42 U.S.C. 18641, 18645); and

7 (ii) section 973 of the Energy Policy
8 Act of 2005 (42 U.S.C. 16313);

9 (F) advanced manufacturing technologies,
10 including efficient storage systems and alter-
11 natives to high-temperature processing, for the
12 purposes of optimizing energy consumption, in-
13 cluding in collaboration with the program au-
14 thorized under section 975 of the Energy Policy
15 Act of 2005 (42 U.S.C. 16315);

16 (G) microelectronics, including novel chip
17 architectures, memory systems, and intercon-
18 nects; and

19 (H) advanced physics, including high en-
20 ergy and particle physics, accelerator research
21 and development, and high-performance com-
22 putational tools, including in collaboration with
23 the programs authorized under section 303 of
24 the Department of Energy Research and Innova-
25 tion Act (42 U.S.C. 18641);

1 (2) promote collaboration, open community-
2 based development, and data and information shar-
3 ing between Federal agencies, National Labora-
4 tories, institutions of higher education, nonprofit in-
5 stitutions, and other appropriate entities by pro-
6 viding necessary access and secure data and infor-
7 mation transfer;

8 (3) support research infrastructure, including
9 new facilities and equipment, as the Secretary and
10 Director determine necessary; and

11 (4) organize education, training, and research
12 initiatives relating to STEM education and work-
13 force development, including—

14 (A) internships, fellowships, and other re-
15 search or work-based learning opportunities;

16 (B) educational programming for students
17 at all levels, especially experiential and project-
18 based learning opportunities; and

19 (C) professional development opportunities
20 for educators and researchers.

21 (d) AGREEMENTS.—In carrying out the activities
22 under subsection (a), the Secretary and the Director
23 may—

24 (1) carry out reimbursable agreements between
25 the Department of Energy, the National Science

1 Foundation, and other entities in order to maximize
2 the effectiveness of research and development; and

3 (2) collaborate with other Federal agencies, as
4 appropriate.

5 (e) REPORT.—Not later than 2 years after the date
6 of enactment of this Act, the Secretary and the Director
7 shall submit to the Committee on Science, Space, and
8 Technology of the House of Representatives and the Com-
9 mittees on Energy and Natural Resources and Commerce,
10 Science, and Transportation of the Senate a report detail-
11 ing the following:

12 (1) Interagency coordination between each Fed-
13 eral agency involved in the research and development
14 activities carried out under this section.

15 (2) Potential opportunities to expand the tech-
16 nical capabilities of the Department of Energy and
17 the National Science Foundation.

18 (3) Collaborative research achievements.

19 (4) Areas of future mutually beneficial suc-
20 cesses.

21 (5) Continuation of coordination activities be-
22 tween the Department of Energy and the National
23 Science Foundation.

24 (f) RESEARCH SECURITY.—The activities authorized
25 under this section shall be applied in a manner consistent

1 with subtitle D of title VI of the Research and Develop-
2 ment, Competition, and Innovation Act (42 U.S.C. 19231
3 et seq.).

