

DOE AND NSF INTERAGENCY RESEARCH ACT

SEPTEMBER 21, 2023.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. LUCAS, from the Committee on Science, Space, and Technology, submitted the following

R E P O R T

[To accompany H.R. 2980]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 2980) to provide for Department of Energy and National Science Foundation research and development coordination, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

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The amendment is as follows:

Strike all after the enacting clause and insert the following:

**SECTION 1. SHORT TITLE.**

This Act may be cited as the “DOE and NSF Interagency Research Act”.

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

(a) **IN GENERAL.**—The Secretary of Energy (in this section referred to as the “Secretary”) and the Director of the National Science Foundation (in this section referred to as the “Director”) shall carry out cross-cutting and collaborative research and development activities focused on the joint advancement of Department of Energy and National Science Foundation mission requirements and priorities.

(b) **MEMORANDUM OF UNDERSTANDING.**—The Secretary and the Director shall coordinate the activities under subsection (a) through the establishment of a memorandum of understanding, or other appropriate interagency agreement. Such memorandum or agreement, as the case may be, shall require the use of a competitive, merit-reviewed process, which considers applications from Federal agencies, National Laboratories, institutions of higher education, non-profit institutions, and other appropriate entities.

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

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

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

(B) fundamental biological and computational science and engineering, including computational neuroscience and neuromorphic computing, including in collaboration with the program authorized under section 306 of the Department of Energy Research and Innovation Act (42 U.S.C. 18644);

(C) modeling and simulation, machine learning, artificial intelligence, data assimilation, large-scale data analytics, predictive analysis, and advanced computational, storage, and networking capabilities in order to optimize algorithms for purposes related to energy and climate;

(D) quantum information sciences, including quantum computing and quantum network infrastructure, including in collaboration with the programs authorized under sections 403 and 404 of the National Quantum Initiative Act (15 U.S.C. 8853 and 8854);

(E) energy and materials science and engineering, including artificial photosynthesis, plasma, solar fuels, and fusion, including in collaboration with the programs authorized under sections 303 and 307 of the Department of Energy Research and Innovation Act (42 U.S.C. 18641 and 18645), and section 973 of the Energy Policy Act of 2005 (42 U.S.C. 16313);

(F) advanced manufacturing technologies, including efficient storage systems and alternatives to high-temperature processing, for the purposes of optimizing energy consumption, including in collaboration with the program authorized under section 975 of the Department of Energy Research and Innovation Act (42 U.S.C. 16315);

(G) microelectronics, including novel chip architectures, memory systems, and interconnects; and

(H) advanced physics, including high energy and particle physics, accelerator research and development, and high performance computational tools, including in collaboration with the programs authorized under section 303 of the Department of Energy Research and Innovation Act (42 U.S.C. 18641);

(2) promote collaboration, open community-based development, and data and information sharing between Federal agencies, National Laboratories, institutions of higher education, nonprofit institutions, and other appropriate entities by providing the necessary access and secure data and information transfer capabilities;

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

(4) organize education, training, and research initiatives relating to STEM education and workforce development, including—

(A) internships, fellowships, and other research or work-based learning opportunities;

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

(C) professional development opportunities for educators and researchers.

(d) **AGREEMENTS.**—In carrying out the activities under subsection (a), the Secretary and the Director are authorized to—

(1) carry out reimbursable agreements between the Department of Energy, the National Science Foundation, and other entities in order to maximize the effectiveness of research and development; and

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

(e) REPORT.—Not later than two years after the date of the enactment of this section, the Secretary and 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 and the Committee on Commerce, Science, and Transportation of the Senate a report detailing the following:

(1) Interagency coordination between each Federal agency involved in the research and development activities carried out under this section.

(2) Potential opportunities to expand the technical capabilities of the Department of Energy and the National Science Foundation.

(3) Collaborative research achievements.

(4) Areas of future mutually beneficial successes.

(5) Continuation of coordination activities between the Department of Energy and the National Science Foundation.

(f) RESEARCH SECURITY.—The activities authorized under this section shall be applied in a manner consistent with subtitle D of title VI of the Research and Development, Competition, and Innovation Act (enacted as division B of the CHIPS Act of 2022 (Public Law 117–167; 42 U.S.C. 19231 et seq.)).

#### PURPOSE AND SUMMARY

The purpose of this bill is to authorize the longstanding research partnership between the U.S. Department of Energy (DOE) and the National Science Foundation (NSF). H.R. 2980 directs DOE and NSF to carry out cross-cutting and collaborative research and development activities focused on the joint advancement of DOE and NSF mission requirements and priorities, through a memorandum of understanding or other appropriate interagency agreement. It also directs the Secretary and Director to submit a report to Congress on these activities.

#### BACKGROUND AND NEED FOR LEGISLATION

The DOE's Office of Science is the nation's largest federal sponsor of basic research in the physical sciences, addressing mission-critical challenges through innovative science discovery and advanced technology development. The Office operates ten of DOE's world-leading national laboratories, manages 29 national scientific user facilities, and supports 25,000 researchers from industry, universities, national laboratories, and other federal agencies.

NSF makes up approximately 25% of all federally supported academic basic research in all fields of science and engineering, except the medical sciences. NSF supports scientists, engineers, and educators through over 11,000 awards to approximately 2,000 universities and colleges. Similarly, NSF funds facilities construction and equipment acquisition such as telescopes, through cooperative agreements with various agencies, individual organizations, and consortia.

Both agencies share a common goal to advance U.S. leadership science and technology research and development. The DOE and NSF have established joint coordination activities, programs, and collaborations to maximize impacts by leveraging each other's investments in research. Working together on future challenges, these agencies can improve the fields of advanced physics, fusion science, biological and computational science and engineering, artificial intelligence, quantum information sciences, advanced manufacturing technologies, microelectronics, among many others.

As international competition grows and new opportunities for government-wide coordination and collaboration emerge, there is a need to strengthen these types of interagency research partner-

ships and preserve them for the next generation. This legislation would codify the essential research partnership between DOE and NSF, allowing both agencies to extend their collaboration within a well-vetted framework of scientific and engineering fields, education and workforce development, and infrastructure maintenance.

#### LEGISLATIVE HISTORY

On April 27, 2023, Rep. Haley Stevens and Rep. James Baird introduced H.R. 2980, the DOE and NSF Interagency Research Act. Additional cosponsors include Mr. Fitzpatrick (R-PA).

On June 15, 2023, the Committee on Science, Space, and Technology met to consider H.R. 2980. Chairman Lucas moved that Committee favorably report the bill, H.R. 2980, as amended, to the House of Representatives, with the recommendation that the bill be approved. The motion was agreed to by a vote of 29–0.

#### SECTION-BY-SECTION

##### *Section 1. Short title*

The short title of this legislation is “DOE and NSF Interagency Research Act”.

##### *Section 2. Department of Energy and National Science Foundation Research and Development Coordination*

This section directs the Secretary of Energy and the Director of the National Science Foundation to carry out cross-cutting and collaborative research and development activities focused on the joint advancement DOE and USDA mission requirements and priorities, through a memorandum of understanding or the appropriate inter-agency agreement. Directs the Secretary and Director to, in carrying out these activities, conduct collaborative research over a range of focus areas; provide access and secure data and information transfer capabilities to promote collaboration, open community-based development and data and information sharing between Federal agencies, National Laboratories, institutions of higher education, nonprofit institutions, and other entities; support research infrastructure; and organize education, training and research initiatives relating to STEM education and workforce development. Requires the Secretary and Director to submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources and the Committee on Commerce, Science, and Transportation of the Senate, a report detailing coordination activities carried out under this section, collaborative research achievements, and potential opportunities to expand technical capabilities, among other areas. Requires that the activities authorized under this section be applied in a manner consistent with the research security provisions under subtitle D of title VI of the Research and Development, Competition, and Innovation Act (enacted as division B of the CHIPS Act of 2022 (Public Law 117–167; 42 U.S.C. 19231 et seq.)).

#### RELATED COMMITTEE HEARINGS

On March 8, 2023, Chairman Frank Lucas presiding, the House Committee on Science, Space, and Technology held a hearing titled, “Innovation through Collaboration: The Department of Energy’s

Role in the U.S. Research Ecosystem” to examine the role of the U.S. Department of Energy (DOE) in the federal research enterprise by exploring interagency research partnerships between DOE and the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture (USDA), and the National Science Foundation (NSF), among others.

Witnesses:

- Dr. Harriet Kung, Deputy Director for Science Programs in the Office of Science, the U.S. Department of Energy
- Mr. James L. Reuter, Associate Administrator for the Space Technology Mission Directorate, the National Aeronautics and Space Administration
- Dr. Michael C. Morgan, Assistant Secretary of Commerce for Environmental Observation and Prediction, the National Oceanic and Atmospheric Administration
- Dr. Sean L. Jones, Assistant Director for the Directorate of Mathematical and Physical Sciences, the National Science Foundation

#### COMMITTEE CONSIDERATION

On June 15, 2023, the Committee met in open session and ordered reported favorably the bill, H.R. 2980, as amended, by a recorded vote of 29 yeas to 0 nays, a quorum being present.

Two amendments to H.R. 2980 were proposed by Rep. Bowman (D-NY). The first sought to include hardware and networking in research on optimizing algorithms; the second added language which is intended to further education, training, research, and professional development opportunities. Both amendments were agreed to via voice vote.

#### ROLL CALL VOTES

Clause 3(b) of rule XIII requires the Committee to list the recorded votes on the motion to report legislation and amendments thereto. The following reflects the record votes taken during the Committee consideration:

House Committee on Science, Space, and Technology  
 118th Congress  
 Full Committee Markup

Bill # HR 2980

Motion to report H.R. 2980, as amended, to the House

Majority	Aye	No	Present
Frank Lucas, Oklahoma	1		
Bill Posey, Florida	1		
Randy Weber, Texas			
Brian Babin, Texas	1		
Jim Baird, Indiana	1		
Daniel Webster, Florida	1		
Mike Garcia, California			
Stephanie Bice, Oklahoma			
Jay Obernolte, California	1		
Chuck Fleischmann, Tennessee			
Darrell Issa, California			
Rick Crawford, Arkansas	1		
Claudia Tenney, New York	1		
Ryan Zinke, Montana			
Scott Franklin, Florida			
Dale Strong, Alabama	1		
Max Miller, Ohio	1		
Rich McCormick, Georgia			
Mike Collins, Georgia	1		
Brandon Williams, New York	1		
Tom Kean, New Jersey	1		
Minority	Aye	No	Present
Zoe Lofgren, California	1		
Suzanne Bonamici, Oregon	1		
Haley Stevens, Michigan	1		
Jamaal Bowman, New York	1		
Deborah Ross, New Carolina			
Eric Sorensen, Illinois	1		
Andrea Salinas, Oregon	1		
Val Foushee, North Carolina	1		
Kevin Mullin, California	1		
Jeff Jackson, North Carolina			
Emilia Sykes, Ohio	1		
Maxwell Frost, Florida	1		
Yadira Caraveo, Colorado	1		
Summer Lee, Pennsylvania	1		
Jennifer McClellan, Virginia	1		
Ted Lieu, California	1		
Sean Casten, Illinois	1		
Paul Tonko	1		
<b>Total</b>	29	0	

Date: 6/15/23

Offered By: Rep. Haley Stevens of Michigan and Rep. Jim Baird of Texas

<b>Result?</b>	Agreed To: [ X ]		
	Not Agreed To: [ ]		
	Withdrawn: [ ]		
<i>Voice Vote</i>	<i>Ayes</i>	<i>Nays</i>	<i>Present</i>
	29	0	

## APPLICATION OF LAW TO THE LEGISLATIVE BRANCH

The Committee finds that H.R. 2980 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104–1).

STATEMENT OF OVERSIGHT FINDINGS AND RECOMMENDATIONS  
OF THE COMMITTEE

In compliance with clause 3(c)(1) of rule XIII and clause (2)(b)(1) of rule X, the Committee's oversight findings and recommendations are reflected in the descriptive portions of this report.

## STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

Pursuant to clause (3)(c)(4) of rule XIII, the goal of H.R. 2980 is to authorize the longstanding research partnership between the U.S. Department of Energy (DOE) and the National Science Foundation (NSF). H.R. 2980 directs DOE and NSF to carry out cross-cutting and collaborative research and development activities focused on the joint advancement of DOE and NSF mission requirements and priorities, through a memorandum of understanding or other appropriate interagency agreement.

## DUPLICATION OF FEDERAL PROGRAMS

Pursuant to clause 3(c)(5) of rule XIII, the Committee finds that no provision of H.R. 2980 establishes or reauthorizes a program of the Federal Government known to be duplicative of another Federal program, including any program that was included in a report to Congress pursuant to section 21 of Public Law 111–139 or identified in the most recent Catalog of Federal Domestic Assistance.

## FEDERAL ADVISORY COMMITTEE ACT

The Committee finds that the legislation does not establish or authorize the establishment of an advisory committee within the definition of section 5(b) of the Federal Advisory Committee Act.

## UNFUNDED MANDATE STATEMENT

The Committee adopts as its own the estimate of Federal mandates prepared by the Director of the Congressional Budget Office pursuant to section 423 of the Unfunded Mandates Reform Act.

## EARMARK IDENTIFICATION

Pursuant to clauses 9(e), 9(f), and 9(g) of rule XXI, the Committee finds that H.R. 2980 does not include any congressional earmarks, limited tax benefits, or limited tariff benefits.

## COMMITTEE COST ESTIMATE

Pursuant to clause 3(d)(1) of rule XIII, the Committee adopts as its own the cost estimate prepared by the Director of the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974.

NEW BUDGET AUTHORITY, ENTITLEMENT AUTHORITY,  
AND TAX EXPENDITURES

Pursuant to clause 3(c)(2) of rule XIII, the Committee finds that H.R. 2980 would result in no new or increased budget authority, entitlement authority, or tax expenditures or revenues.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

Pursuant to clause 3(c)(3) of rule XII and section 402 of the Congressional Budget Act of 1974, the Committee has received the following cost estimate for H.R. 2980 from the Director of the Congressional Budget Office:

<b>H.R. 2980, DOE and NSF Interagency Research Act</b>			
As ordered reported by the House Committee on Science, Space, and Technology on June 15, 2023			
By Fiscal Year, Millions of Dollars	2023	2023-2028	2023-2033
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	0	*	not estimated
Increases <i>net direct spending</i> in any of the four consecutive 10-year periods beginning in 2034?	No	Statutory pay-as-you-go procedures apply? No	
		<b>Mandate Effects</b>	
Increases <i>on-budget deficits</i> in any of the four consecutive 10-year periods beginning in 2034?	No	Contains intergovernmental mandate? No	
		Contains private-sector mandate? No	
* = between zero and \$500,000.			

H.R. 2980 would require the Department of Energy (DOE) and the National Science Foundation (NSF) to collaborate on research and development activities that focus on a variety of topics, including plasma science, advanced physics, quantum information sciences, and advanced manufacturing. In addition, the bill would require DOE and the NSF to promote data sharing, support research infrastructure, and organize initiatives for science, technology, engineering, and mathematics education and training. Within two years of enactment, the bill would require the agencies to report to the Congress on those efforts.

In January 2023, DOE and the NSF entered into a memorandum of understanding to collaborate on most of the research and development topics covered under the bill. Based on that memorandum and information from DOE and the NSF, CBO expects that the bill's requirements are largely being met under current law. As a result, CBO estimates that implementing H.R. 2980 would have an insignificant cost, mostly for the report. Any spending would be subject to the availability of appropriated funds.

The CBO staff contact for this estimate is Willow Latham-Proença. The estimate was reviewed by H. Samuel Papenfuss, Deputy Director of Budget Analysis.

PHILLIP L. SWAGEL,  
*Director, Congressional Budget Office.*

