

Union Calendar No. 75

114TH CONGRESS
1ST SESSION

H. R. 1806

[Report No. 114–107, Part I]

To provide for technological innovation through the prioritization of Federal investment in basic research, fundamental scientific discovery, and development to improve the competitiveness of the United States, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 15, 2015

Mr. SMITH of Texas (for himself, Mr. LUCAS, Mrs. COMSTOCK, Mr. WEBER of Texas, Mr. MOOLENAAR, Mr. PALAZZO, Mr. HULTGREN, Mr. KNIGHT, Mr. BABIN, and Mr. LOUDERMILK) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committees on Education and the Workforce and Oversight and Government Reform, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

MAY 8, 2015

Additional sponsor: Mr. BRIDENSTINE

MAY 8, 2015

Reported from the Committee on Science, Space, and Technology with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

MAY 8, 2015

The Committees on Oversight and Government Reform and Education and the Workforce discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

[For text of introduced bill, see copy of bill as introduced on April 15, 2015]

A BILL

To provide for technological innovation through the prioritization of Federal investment in basic research, fundamental scientific discovery, and development to improve the competitiveness of the United States, 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; TABLE OF CONTENTS.**

4 (a) *SHORT TITLE.*—*This Act may be cited as the*
 5 *“America COMPETES Reauthorization Act of 2015”.*

6 (b) *TABLE OF CONTENTS.*—*The table of contents for*
 7 *this Act is as follows:*

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

TITLE I—NATIONAL SCIENCE FOUNDATION

Sec. 101. Authorization of appropriations.

Sec. 102. Findings.

Sec. 103. Policy objectives.

Sec. 104. Definitions.

Sec. 105. Accountability and transparency.

Sec. 106. Greater accountability in Federal funding for research.

Sec. 107. Obligation of major research equipment and facilities construction funds.

Sec. 108. Management and oversight of large facilities.

Sec. 109. Whistleblower education.

Sec. 110. Graduate student support.

Sec. 111. Permissible support.

Sec. 112. Expanding STEM opportunities.

Sec. 113. Review of education programs.

Sec. 114. Recompetition of awards.

Sec. 115. Sense of the Congress regarding industry investment in STEM education.

Sec. 116. Misrepresentation of research results.

Sec. 117. Research reproducibility and replication.

Sec. 118. Research grant conditions.

Sec. 119. Computing resources study.

Sec. 120. Scientific breakthrough prizes.

Sec. 121. Rotating personnel.

Sec. 122. Sense of Congress regarding Innovation Corps.

Sec. 123. Brain Research through Advancing Innovative Neurotechnologies Initiative.

Sec. 124. Noyce scholarship program amendments.

Sec. 125. Informal STEM education.

Sec. 126. Experimental Program to Stimulate Competitive Research.

TITLE II—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Sec. 201. Findings; sense of Congress.

Sec. 202. STEM Education Advisory Panel.

Sec. 203. Committee on STEM Education.

Sec. 204. STEM Education Coordinating Office.

TITLE III—OFFICE OF SCIENCE AND TECHNOLOGY POLICY

Sec. 301. Authorization of appropriations.

Sec. 302. Regulatory efficiency.

Sec. 303. Coordination of international science and technology partnerships.

Sec. 304. Alternative research funding models.

Sec. 305. Amendments to prize competitions.

Sec. 306. United States Chief Technology Officer.

Sec. 307. National Research Council study on technology for emergency notifications on university campuses.

TITLE IV—NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

Sec. 401. Authorization of appropriations.

Sec. 402. Standards and conformity assessment.

Sec. 403. Visiting Committee on Advanced Technology.

Sec. 404. Police and security authority.

Sec. 405. Education and outreach.

Sec. 406. Programmatic planning report.

Sec. 407. Assessments by the National Research Council.

Sec. 408. Hollings Manufacturing Extension Partnership.

Sec. 409. Elimination of obsolete reports.

Sec. 410. Modifications to grants and cooperative agreements.

Sec. 411. Information systems standards consultation.

Sec. 412. United States-Israeli cooperation.

TITLE V—DEPARTMENT OF ENERGY SCIENCE

Sec. 501. Mission.

Sec. 502. Basic energy sciences.

Sec. 503. Advanced scientific computing research.

Sec. 504. High energy physics.

Sec. 505. Biological and environmental research.

Sec. 506. Fusion energy.

Sec. 507. Nuclear physics.

Sec. 508. Science laboratories infrastructure program.

Sec. 509. Domestic manufacturing.

Sec. 510. Authorization of appropriations.

Sec. 511. Definitions.

TITLE VI—DEPARTMENT OF ENERGY APPLIED RESEARCH AND DEVELOPMENT

Subtitle A—Crosscutting Research and Development

Sec. 601. Crosscutting research and development.

Sec. 602. Strategic research portfolio analysis and coordination plan.

Sec. 603. Strategy for facilities and infrastructure.

Subtitle B—Electricity Delivery and Energy Reliability Research and Development

Sec. 611. Distributed energy and electric energy systems.

Sec. 612. Electric transmission and distribution research and development.

Subtitle C—Nuclear Energy Research and Development

- Sec. 621. Objectives.*
- Sec. 622. Program objectives study.*
- Sec. 623. Nuclear energy research and development programs.*
- Sec. 624. Small modular reactor program.*
- Sec. 625. Fuel cycle research and development.*
- Sec. 626. Nuclear energy enabling technologies program.*
- Sec. 627. Technical standards collaboration.*
- Sec. 628. Available facilities database.*
- Sec. 629. Nuclear waste disposal.*

Subtitle D—Energy Efficiency and Renewable Energy Research and Development

- Sec. 641. Energy efficiency.*
- Sec. 642. Next Generation Lighting Initiative.*
- Sec. 643. Building standards.*
- Sec. 644. Secondary electric vehicle battery use program.*
- Sec. 645. Network for Manufacturing Innovation Program.*
- Sec. 646. Advanced Energy Technology Transfer Centers.*
- Sec. 647. Renewable energy.*
- Sec. 648. Bioenergy program.*
- Sec. 649. Concentrating solar power research program.*
- Sec. 650. Renewable energy in public buildings.*

Subtitle E—Fossil Energy Research and Development

- Sec. 661. Fossil energy.*
- Sec. 662. Coal research, development, demonstration, and commercial application programs.*
- Sec. 663. High efficiency gas turbines research and development.*

Subtitle F—Advanced Research Projects Agency—Energy

- Sec. 671. ARPA—E amendments.*

Subtitle G—Authorization of Appropriations

- Sec. 681. Authorization of appropriations.*

Subtitle H—Definitions

- Sec. 691. Definitions.*

TITLE VII—DEPARTMENT OF ENERGY TECHNOLOGY TRANSFER

Subtitle A—In General

- Sec. 701. Definitions.*
- Sec. 702. Savings clause.*

Subtitle B—Innovation Management at Department of Energy

- Sec. 711. Under Secretary for Science and Energy.*
- Sec. 712. Technology transfer and transitions assessment.*
- Sec. 713. Sense of Congress.*
- Sec. 714. Nuclear energy innovation.*

Subtitle C—Cross-Sector Partnerships and Grant Competitiveness

Sec. 721. Agreements for Commercializing Technology pilot program.

Sec. 722. Public-private partnerships for commercialization.

Sec. 723. Inclusion of early-stage technology demonstration in authorized technology transfer activities.

Sec. 724. Funding competitiveness for institutions of higher education and other nonprofit institutions.

Sec. 725. Participation in the Innovation Corps program.

Subtitle D—Assessment of Impact

Sec. 731. Report by Government Accountability Office.

TITLE VIII—SENSE OF CONGRESS

Sec. 801. Sense of Congress.

1 SEC. 2. DEFINITIONS.

2 In this Act—

3 (1) the term “STEM” means the subjects of
4 science, technology, engineering, and mathematics;

5 (2) the term “STEM education” means edu-
6 cation in the subjects of STEM, including computer
7 science; and

8 (3) the term “Committee on STEM Education”
9 means the Committee on Science, Technology, Engi-
10 neering, and Mathematics Education established
11 under section 101 of the America COMPETES Reau-
12 thorization Act of 2010 (42 U.S.C. 6621).

13 TITLE I—NATIONAL SCIENCE
14 FOUNDATION

15 SEC. 101. AUTHORIZATION OF APPROPRIATIONS.

16 (a) FISCAL YEAR 2016.—

1 (1) *IN GENERAL.*—*There are authorized to be ap-*
2 *propriated to the Foundation \$7,597,140,000 for fis-*
3 *cal year 2016.*

4 (2) *SPECIFIC ALLOCATIONS.*—*Of the amount au-*
5 *thorized by paragraph (1)—*

6 (A) *\$6,186,300,000 shall be made available*
7 *to carry out research and related activities, in-*
8 *cluding—*

9 (i) *\$834,800,000 for the Biological*
10 *Science Directorate;*

11 (ii) *\$1,050,000,000 for the Computer*
12 *and Information Science and Engineering*
13 *Directorate;*

14 (iii) *\$1,034,000,000 for the Engineer-*
15 *ing Directorate;*

16 (iv) *\$1,200,000,000 for the Geosciences*
17 *Directorate;*

18 (v) *\$1,500,000,000 for the Mathe-*
19 *matical and Physical Science Directorate;*

20 (vi) *\$150,000,000 for the Social, Be-*
21 *havioral, and Economics Directorate, of*
22 *which \$50,000,000 shall be for the National*
23 *Center for Science and Engineering Statis-*
24 *tics;*

1 (vii) \$38,520,000 for the Office of
2 International Science and Engineering;

3 (viii) \$377,500,000 for Integrative Ac-
4 tivities; and

5 (ix) \$1,480,000 for the United States
6 Arctic Commission;

7 (B) \$866,000,000 shall be made available
8 for education and human resources;

9 (C) \$200,310,000 shall be made available
10 for major research equipment and facilities con-
11 struction;

12 (D) \$325,000,000 shall be made available
13 for agency operations and award management;

14 (E) \$4,370,000 shall be made available for
15 the Office of the National Science Board; and

16 (F) \$15,160,000 shall be made available for
17 the Office of Inspector General.

18 (b) FISCAL YEAR 2017.—

19 (1) IN GENERAL.—There are authorized to be ap-
20 propriated to the Foundation \$7,597,140,000 for fis-
21 cal year 2017.

22 (2) SPECIFIC ALLOCATIONS.—Of the amount au-
23 thorized by paragraph (1)—

1 (A) \$6,186,300,000 shall be made available
2 to carry out research and related activities, in-
3 cluding—

4 (i) \$834,800,000 for the Biological
5 Science Directorate;

6 (ii) \$1,050,000,000 for the Computer
7 and Information Science and Engineering
8 Directorate;

9 (iii) \$1,034,000,000 for the Engineer-
10 ing Directorate;

11 (iv) \$1,200,000,000 for the Geosciences
12 Directorate;

13 (v) \$1,500,000,000 for the Mathe-
14 matical and Physical Science Directorate;

15 (vi) \$150,000,000 for the Social, Be-
16 havioral, and Economics Directorate, of
17 which \$50,000,000 shall be for the National
18 Center for Science and Engineering Statis-
19 tics;

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21 International Science and Engineering;

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5 struction;

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7 for agency operations and award management;

8 (E) \$4,370,000 shall be made available for
9 the Office of the National Science Board; and

10 (F) \$15,160,000 shall be made available for
11 the Office of Inspector General.

12 **SEC. 102. FINDINGS.**

13 Congress finds the following:

14 (1) Taxpayer-supported research investments ad-
15 ministered by the Foundation should serve the na-
16 tional interest.

17 (2) The Foundation has made major contribu-
18 tions for more than 60 years to strengthen and sus-
19 tain the Nation's academic research enterprise.

20 (3) The economic strength and national security
21 of the United States, and the quality of life of all
22 Americans, are grounded in the Nation's scientific
23 and technological capabilities.

1 (4) *Providing support for basic research is an*
2 *investment in our Nation's future security and eco-*
3 *nomie prosperity.*

4 (5) *Congress applauds the Foundation's recogni-*
5 *tion that wise stewardship of taxpayer dollars is nec-*
6 *essary to maintain and ensure the public's trust for*
7 *funding of fundamental scientific and engineering re-*
8 *search.*

9 (6) *Other nations are increasing their public in-*
10 *vestments in basic research in the physical sciences in*
11 *order to boost long-term economic growth.*

12 (7) *Longstanding United States leadership in*
13 *supercomputing, genomics, nanoscience, photonics,*
14 *quantum physics, and other key technological areas is*
15 *jeopardized if United States investments in basic re-*
16 *search in the natural sciences do not keep pace.*

17 (8) *Redundant regulations and reporting re-*
18 *quirements imposed by Federal agencies on research*
19 *institutions and researchers increase costs by tens of*
20 *millions of dollars annually.*

21 (9) *The Foundation carries out important func-*
22 *tions by supporting basic research in all science and*
23 *engineering disciplines and in supporting STEM edu-*
24 *cation at all levels.*

1 (10) *The research and education activities of the*
2 *Foundation promote the discovery, integration, dis-*
3 *semination, and application of new knowledge in*
4 *service to society and prepare future generations of*
5 *scientists, mathematicians, and engineers who will be*
6 *necessary to ensure America's leadership in the global*
7 *marketplace.*

8 (11) *Many of the complex problems and chal-*
9 *lenges facing the Nation increasingly require the col-*
10 *laboration of multiple scientific disciplines. The*
11 *Foundation should continue to emphasize cross-direc-*
12 *torate research collaboration and activities to address*
13 *these issues and encourage interdisciplinary research.*

14 (12) *The Foundation should meet the highest*
15 *standards of efficiency, transparency, and account-*
16 *ability in its stewardship of public funds.*

17 (13) *The Foundation is charged with the respon-*
18 *sibilities—*

19 (A) *to develop and encourage the pursuit of*
20 *a national policy for the promotion of basic re-*
21 *search and education in the sciences;*

22 (B) *to initiate, support, and conduct basic*
23 *scientific research and to appraise the impact of*
24 *research on industrial development and the gen-*
25 *eral welfare;*

1 (C) to initiate, support, and conduct sci-
2 entific research activities in connection with
3 matters relating to the national defense, at the
4 request of the Secretary of Defense;

5 (D) to award scholarships and graduate fel-
6 lowships in the sciences;

7 (E) to foster the interchange of scientific in-
8 formation among scientists and across scientific
9 disciplines;

10 (F) to evaluate scientific research programs
11 undertaken by agencies of the Federal Govern-
12 ment, and to correlate the Foundation's scientific
13 research with that undertaken by individuals
14 and by public and private research groups;

15 (G) to communicate effectively to American
16 citizens the relevance of public investments in
17 scientific discovery and technological innovation
18 to the Nation's security, prosperity, and welfare;
19 and

20 (H) to establish such special commissions as
21 the Board considers necessary.

22 (14) The emerging global economic, scientific,
23 and technical environment challenges long standing
24 assumptions about domestic and international policy,
25 requiring the Foundation to play a more proactive

1 *role in sustaining the competitive advantage of the*
2 *United States through superior research capabilities.*

3 **SEC. 103. POLICY OBJECTIVES.**

4 *In allocating resources made available under this title,*
5 *the Foundation shall have the following policy objectives:*

6 *(1) To renew and maintain the Nation's inter-*
7 *national leadership in science and technology by—*

8 *(A) increasing the national investment in*
9 *basic scientific research and increasing inter-*
10 *disciplinary investment in strategic areas vital*
11 *to the national interest;*

12 *(B) balancing the Nation's research port-*
13 *folio among the life sciences, mathematics, the*
14 *physical sciences, computer and information*
15 *science, geosciences, engineering, and social, be-*
16 *havioral, and economic sciences, all of which are*
17 *important for the continued development of ena-*
18 *bling technologies necessary for sustained eco-*
19 *nomics competitiveness;*

20 *(C) encouraging investments in potentially*
21 *transformative scientific research to benefit our*
22 *Nation and its citizens;*

23 *(D) expanding the pool of scientists and en-*
24 *gineers in the United States, including among*

1 *segments of the population that have been his-*
2 *torically underrepresented in STEM fields; and*

3 *(E) modernizing the Nation’s research in-*
4 *frastructure and establishing and maintaining*
5 *cooperative international relationships with pre-*
6 *mier research institutions.*

7 *(2) To increase overall workforce skills by—*

8 *(A) improving the quality of STEM edu-*
9 *cation and tools provided both inside and outside*
10 *of the classroom, including in kindergarten*
11 *through grade 12; and*

12 *(B) expanding STEM training opportuni-*
13 *ties at institutions of higher education.*

14 *(3) To strengthen innovation by expanding the*
15 *focus of competitiveness and innovation at the re-*
16 *gional and local level.*

17 **SEC. 104. DEFINITIONS.**

18 *In this title:*

19 *(1) BOARD.—The term “Board” means the Na-*
20 *tional Science Board.*

21 *(2) DIRECTOR.—The term “Director” means the*
22 *Director of the Foundation.*

23 *(3) FOUNDATION.—The term “Foundation”*
24 *means the National Science Foundation established*

1 *under section 2 of the National Science Foundation*
 2 *Act of 1950 (42 U.S.C. 1861).*

3 (4) *INSTITUTION OF HIGHER EDUCATION.—The*
 4 *term “institution of higher education” has the mean-*
 5 *ing given such term in section 101(a) of the Higher*
 6 *Education Act of 1965 (20 U.S.C. 1001(a)).*

7 (5) *STATE.—The term “State” means one of the*
 8 *several States, the District of Columbia, the Common-*
 9 *wealth of Puerto Rico, the Virgin Islands, Guam,*
 10 *American Samoa, the Commonwealth of the Northern*
 11 *Mariana Islands, or any other territory or possession*
 12 *of the United States.*

13 (6) *UNITED STATES.—The term “United States”*
 14 *means the several States, the District of Columbia, the*
 15 *Commonwealth of Puerto Rico, the Virgin Islands,*
 16 *Guam, American Samoa, the Commonwealth of the*
 17 *Northern Mariana Islands, and any other territory or*
 18 *possession of the United States.*

19 **SEC. 105. ACCOUNTABILITY AND TRANSPARENCY.**

20 *It is the sense of Congress that—*

21 (1) *sustained, predictable Federal funding is es-*
 22 *sential to United States leadership in science and*
 23 *technology;*

24 (2) *building understanding of and confidence in*
 25 *investments in basic research are essential to public*

1 *support for sustained, predictable Federal funding;*
 2 *and*

3 *(3) the Foundation should commit itself fully to*
 4 *transparency and accountability and to clear, con-*
 5 *sistent public communication regarding the national*
 6 *interest for each Foundation-awarded grant and coop-*
 7 *erative agreement.*

8 **SEC. 106. GREATER ACCOUNTABILITY IN FEDERAL FUND-**
 9 **ING FOR RESEARCH.**

10 *(a) STANDARD FOR AWARD OF GRANTS.—The Founda-*
 11 *tion shall award Federal funding for basic research and*
 12 *education in the sciences through a new research grant or*
 13 *cooperative agreement only if an affirmative determination*
 14 *is made by the Foundation under subsection (b) and written*
 15 *justification relating thereto is published under subsection*
 16 *(c).*

17 *(b) DETERMINATION.—A determination referred to in*
 18 *subsection (a) is a justification by the responsible Founda-*
 19 *tion official as to how the research grant or cooperative*
 20 *agreement promotes the progress of science in the United*
 21 *States, consistent with the Foundation mission as estab-*
 22 *lished in the National Science Foundation Act of 1950 (42*
 23 *U.S.C. 1861 et seq.), and further—*

24 *(1) is worthy of Federal funding; and*

1 (2) *is in the national interest, as indicated by*
 2 *having the potential to achieve—*

3 (A) *increased economic competitiveness in*
 4 *the United States;*

5 (B) *advancement of the health and welfare*
 6 *of the American public;*

7 (C) *development of an American STEM*
 8 *workforce that is globally competitive;*

9 (D) *increased public scientific literacy and*
 10 *public engagement with science and technology*
 11 *in the United States;*

12 (E) *increased partnerships between aca-*
 13 *demia and industry in the United States;*

14 (F) *support for the national defense of the*
 15 *United States; or*

16 (G) *promotion of the progress of science in*
 17 *the United States.*

18 (c) *WRITTEN JUSTIFICATION.*—*Public announcement*
 19 *of each award of Federal funding described in subsection*
 20 *(a) shall include a written justification from the responsible*
 21 *Foundation official as to how a grant or cooperative agree-*
 22 *ment meets the requirements of subsection (b).*

23 (d) *IMPLEMENTATION.*—*A determination under sub-*
 24 *section (b) shall be made after a research grant or coopera-*
 25 *tive agreement proposal has satisfied the Foundation’s re-*

1 *views for Merit and Broader Impacts. Nothing in this sec-*
 2 *tion shall be construed as altering the Foundation's intellec-*
 3 *tual merit or broader impacts criteria for evaluating grant*
 4 *applications.*

5 **SEC. 107. OBLIGATION OF MAJOR RESEARCH EQUIPMENT**
 6 **AND FACILITIES CONSTRUCTION FUNDS.**

7 *No funds may be obligated for a fiscal year for a con-*
 8 *struction project for the Foundation that has not com-*
 9 *menced before the date of enactment of this Act until 30*
 10 *days after the report required with respect to each such fis-*
 11 *cal year under section 14(a)(2) of the National Science*
 12 *Foundation Authorization Act of 2002 (42 U.S.C. 1862n-*
 13 *4(a)(2)) is transmitted to the Congress.*

14 **SEC. 108. MANAGEMENT AND OVERSIGHT OF LARGE FACILI-**
 15 **TIES.**

16 *(a) LARGE FACILITIES OFFICE.—The Director shall*
 17 *maintain a Large Facilities Office within the Office of the*
 18 *Director. The functions of the Large Facilities Office shall*
 19 *be to support the research directorates in the development,*
 20 *implementation, and assessment of major multi-user re-*
 21 *search facilities, including by—*

22 *(1) serving as the Foundation's primary resource*
 23 *for all policy or process issues related to the develop-*
 24 *ment and implementation of major multi-user re-*
 25 *search facilities;*

1 (2) *serving as a Foundation-wide resource on*
2 *project management, including providing expert as-*
3 *sistance on nonscientific and nontechnical aspects of*
4 *project planning, budgeting, implementation, man-*
5 *agement, and oversight;*

6 (3) *coordinating and collaborating with research*
7 *directorates to share best management practices and*
8 *lessons learned from prior projects; and*

9 (4) *assessing projects during preconstruction and*
10 *construction phases for cost and schedule risk.*

11 (b) *OVERSIGHT OF LARGE FACILITIES.—The Director*
12 *shall appoint a senior agency official within the Office of*
13 *the Director whose primary responsibility is oversight of*
14 *major multi-user research facilities. The duties of this offi-*
15 *cial shall include—*

16 (1) *oversight of the development, construction,*
17 *and operation of major multi-user research facilities*
18 *across the Foundation;*

19 (2) *in collaboration with the directors of the re-*
20 *search directorates and other senior agency officials*
21 *as appropriate, ensuring that the requirements of sec-*
22 *tion 14(a) of the National Science Foundation Au-*
23 *thorization Act of 2002 are satisfied;*

1 (3) *serving as a liaison to the National Science*
 2 *Board for approval and oversight of major multi-user*
 3 *research facilities; and*

4 (4) *periodically reviewing and updating as nec-*
 5 *essary Foundation policies and guidelines for the de-*
 6 *velopment and construction of major multi-user re-*
 7 *search facilities.*

8 (c) *POLICIES FOR LARGE FACILITY COSTS.—*

9 (1) *IN GENERAL.—The Director shall ensure that*
 10 *the Foundation’s policies for developing and man-*
 11 *aging major multi-user research facility construction*
 12 *costs are consistent with the best practices described*
 13 *in the March 2009 Government Accountability Office*
 14 *Report GAO-09-3SP, or any successor report thereto.*

15 (2) *REPORT.—Not later than 12 months after the*
 16 *date of enactment of this Act, the Director shall sub-*
 17 *mit to Congress the results of a study and a report*
 18 *reforming the Foundation’s policies on financial*
 19 *management of major multi-user research facilities,*
 20 *including a description of any aspects of the policies*
 21 *that diverge from the best practices recommended in*
 22 *Government Accountability Office Report GAO-09-*
 23 *3SP and the Uniform Guidance in 2 C.F.R. Part*
 24 *200.*

25 (3) *MANAGEMENT FEES.—*

1 (A) *DEFINITION.*—*In this paragraph, the*
2 *term “management fee” means a portion of an*
3 *award made by the Foundation for the purpose*
4 *of covering ordinary and necessary business ex-*
5 *penditures necessary to maintain operational sta-*
6 *bility which are not otherwise allowable under*
7 *Cost Principles Uniform Guidance in 2 C.F.R.*
8 *part 200, Subpart E, , or any successor regula-*
9 *tion thereto.*

10 (B) *LIMITATION.*—*The Foundation may*
11 *provide management fees under an award only*
12 *if the awardee has demonstrated that it has lim-*
13 *ited or no other financial resources for covering*
14 *the expenses for which the management fees are*
15 *sought.*

16 (C) *FINANCIAL INFORMATION.*—*The Foun-*
17 *dation shall require award applicants to provide*
18 *income and financial information covering a pe-*
19 *riod of no less than three prior years (or in the*
20 *case of an entity established less than three years*
21 *prior to the entity’s application date, the period*
22 *beginning on the date of establishment and end-*
23 *ing on the application date), including cash on*
24 *hand and net asset information, in support of a*
25 *request for management fees. The Foundation*

1 *shall also require awardees to report to the*
2 *Foundation, within 30 days of receipt, any*
3 *sources of non-Federal funds received in excess of*
4 *\$50,000 during the award period.*

5 *(D) EXPENSE REPORTING.—The Founda-*
6 *tion shall require awardees to track and report*
7 *to the Foundation annually all expenses reim-*
8 *bursed or otherwise paid for with management*
9 *fee funds, in accordance with Federal accounting*
10 *practices as established in Government Account-*
11 *ability Office Report GAO-12-331G, or any suc-*
12 *cessor report thereto.*

13 *(E) AUDITS.—The Inspector General of the*
14 *Foundation may audit any Foundation award*
15 *for compliance with this paragraph.*

16 *(F) PROHIBITED USES.—An awardee may*
17 *not use management fees for—*

18 *(i) costs allowable under Cost Prin-*
19 *ciples Uniform Guidance in 2 C.F.R. part*
20 *200, Subpart E, or any successor regulation*
21 *thereto;*

22 *(ii) alcoholic beverages;*

23 *(iii) tickets to concerts, or sporting and*
24 *other entertainment events;*

- 1 (iv) vacation or other travel for non-
2 business purposes;
3 (v) charitable contributions;
4 (vi) social or sporting club member-
5 ships;
6 (vii) meals for nonbusiness purposes;
7 (viii) luxury or personal items;
8 (ix) lobbying, as described in the Uni-
9 form Guidance at 2 C.F.R. 200.450; or
10 (x) any other purpose the Foundation
11 determines is inappropriate.

12 (G) *REVIEW.*—*The Foundation shall review*
13 *management fee usage under each Foundation*
14 *award on at least an annual basis for compli-*
15 *ance with this paragraph and the Foundation’s*
16 *Large Facilities Manual.*

17 (4) *REPORT.*—*Not later than 12 months after the*
18 *date of enactment of this Act, the Director shall sub-*
19 *mit to Congress a report describing the Foundation’s*
20 *policies for developing and managing major multi-*
21 *user research facility construction costs, including a*
22 *description of any aspects of the policies that diverge*
23 *from the best practices recommended in Government*
24 *Accountability Office Report GAO-09-3SP, or any*

1 *successor report thereto, and the Uniform Guidance in*
2 *2 C.F.R. part 200.*

3 **SEC. 109. WHISTLEBLOWER EDUCATION.**

4 (a) *IN GENERAL.*—*The Foundation shall be subject to*
5 *section 4712 of title 41, United States Code.*

6 (b) *EDUCATION AND TRAINING.*—*The Foundation shall*
7 *provide education and training for Foundation managers*
8 *and staff on the requirements of such section 4712, and pro-*
9 *vide information on the law to all grantees, contractors, and*
10 *employees of such grantees and contractors.*

11 **SEC. 110. GRADUATE STUDENT SUPPORT.**

12 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*
13 *that the essential elements of the NSF Research Traineeship*
14 *Program, formerly the Integrative Graduate Education and*
15 *Research Traineeship program, (or any successor thereto)*
16 *should be maintained, including—*

17 (1) *collaborative research that transcends tradi-*
18 *tional disciplinary boundaries to solve large and com-*
19 *plex research problems of significant scientific and so-*
20 *cietal importance; and*

21 (2) *providing students the opportunity to become*
22 *leaders in the science and engineering of the future.*

23 (b) *MODELS FOR SUPPORT.*—*The Director shall enter*
24 *into an agreement with the National Research Council to*
25 *convene a workshop or roundtable to examine models of*

1 *Federal support for STEM graduate students, including the*
2 *Foundation's Graduate Research Fellowship program and*
3 *comparable fellowship programs at other agencies,*
4 *traineeship programs, and the research assistant model.*

5 *(c) PURPOSE.—The purpose of the workshop or round-*
6 *table shall be to compare and evaluate the extent to which*
7 *each of these models helps to prepare graduate students for*
8 *diverse careers utilizing STEM degrees, including at diverse*
9 *types of institutions of higher education, in industry, and*
10 *at government agencies and research laboratories, and to*
11 *make recommendations regarding—*

12 *(1) how current Federal programs and models,*
13 *including programs and models at the Foundation,*
14 *can be improved;*

15 *(2) the appropriateness of the current distribu-*
16 *tion of funding among the different models at the*
17 *Foundation and across the agencies; and*

18 *(3) the appropriateness of creating a new edu-*
19 *cation and training program for graduate students*
20 *distinct from programs that provide direct financial*
21 *support, including the grants authorized in section*
22 *527 of the America COMPETES Reauthorization Act*
23 *of 2010 (42 U.S.C. 1862p-15).*

24 *(d) CRITERIA.—At a minimum, in comparing pro-*
25 *grams and models, the workshop or roundtable participants*

1 *shall consider the capacity of such programs or models to*
2 *provide students with knowledge and skills—*

3 *(1) to become independent, creative, successful re-*
4 *searchers;*

5 *(2) to participate in large interdisciplinary re-*
6 *search projects, including in an international context;*

7 *(3) to adhere to the highest standards for re-*
8 *search ethics;*

9 *(4) to become high-quality teachers utilizing the*
10 *most currently available evidence-based pedagogy;*

11 *(5) in oral and written communication, to both*
12 *technical and nontechnical audiences;*

13 *(6) in innovation, entrepreneurship, and busi-*
14 *ness ethics; and*

15 *(7) in program management.*

16 *(e) GRADUATE STUDENT INPUT.—The participants in*
17 *the workshop or roundtable shall include current or recent*
18 *STEM graduate students.*

19 *(f) REPORT.—Not later than 1 year after the date of*
20 *enactment of this Act, the National Research Council shall*
21 *submit to Congress a summary report of the findings and*
22 *recommendations of the workshop or roundtable convened*
23 *under this section.*

1 **SEC. 111. PERMISSIBLE SUPPORT.**

2 *A grant made by the Education and Human Resources*
 3 *Directorate to support informal education may be used—*

4 *(1) to support the participation of underrep-*
 5 *resented students in nonprofit competitions, out-of-*
 6 *school activities, and field experiences related to*
 7 *STEM subjects (such as robotics, science research, in-*
 8 *vention, mathematics, and technology competitions),*
 9 *including—*

10 *(A) the purchase of parts and supplies need-*
 11 *ed to participate in such competitions; and*

12 *(B) incentives and stipends for teachers and*
 13 *instructional leaders who are involved in assist-*
 14 *ing students and preparing students for such*
 15 *competitions, if such activities fall outside the*
 16 *regular duties and responsibilities of such teach-*
 17 *ers and instructional leaders; and*

18 *(2) to broaden underrepresented secondary school*
 19 *students' access to, and interest in, careers that re-*
 20 *quire academic preparation in STEM subjects.*

21 **SEC. 112. EXPANDING STEM OPPORTUNITIES.**

22 *(a) IN GENERAL.—Within the Directorate for Edu-*
 23 *cation and Human Resources (or any successor thereto),*
 24 *under existing programs targeting broadening participa-*
 25 *tion, the Director shall provide grants on a merit-reviewed,*
 26 *competitive basis for research on programming that engages*

1 *underrepresented students in grades kindergarten through*
2 *8 in STEM.*

3 *(b) USE OF FUNDS.—*

4 *(1) IN GENERAL.—Grants awarded under this*
5 *section shall be used for research to advance the en-*
6 *gagement of underrepresented students in grades kin-*
7 *dergarten through 8 in STEM through the develop-*
8 *ment and implementation of innovative before-school,*
9 *after-school, out-of-school, or summer activities, in-*
10 *cluding programs (if applicable to the target popu-*
11 *lation) provided in a single-gender environment, that*
12 *are designed to encourage interest, engagement, and*
13 *skills development of underrepresented students in*
14 *STEM. Such research shall be conducted in learning*
15 *environments that actively provide programming to*
16 *underrepresented students in grades kindergarten*
17 *through 8 in STEM.*

18 *(2) PERMITTED ACTIVITIES.—Such activities*
19 *may include—*

20 *(A) the development and implementation of*
21 *programming described in subsection (a) for the*
22 *purpose of research;*

23 *(B) the use of a variety of engagement*
24 *methods, including cooperative and hands-on*
25 *learning;*

1 (C) exposure of underrepresented youth to
2 role models in the fields of STEM, including re-
3 searchers in the National Laboratories, and
4 nearpeer mentors;

5 (D) training of informal learning educators
6 and youth-serving professionals using evidence-
7 based methods consistent with the target student
8 population being served;

9 (E) education of students on the relevance
10 and significance of STEM careers, provision of
11 academic advice and assistance, and activities
12 designed to help students make real-world con-
13 nections to STEM content activities;

14 (F) the attendance of underrepresented
15 youth at events, competitions, and academic pro-
16 grams to provide content expertise and encourage
17 career exposure in STEM;

18 (G) activities designed to engage parents of
19 underrepresented youth;

20 (H) innovative strategies to engage under-
21 represented youth, such as using leadership skill
22 outcome measures to encourage youth with the
23 confidence to pursue STEM coursework and aca-
24 demic study;

1 (I) *coordination with STEM-rich environ-*
2 *ments, including other nonprofit, nongovern-*
3 *mental organizations, classroom and out-of-class-*
4 *room settings, institutions of higher education,*
5 *vocational facilities, corporations, museums, Na-*
6 *tional Laboratories, or science centers; and*

7 (J) *the acquisition of instructional mate-*
8 *rials or technology-based tools to conduct appli-*
9 *cable grant activity.*

10 (c) *APPLICATION.—An applicant seeking funding*
11 *under the section shall submit an application at such time,*
12 *in such manner, and containing such information as may*
13 *be required. The application shall include, at a minimum,*
14 *the following:*

15 (1) *A description of the target audience to be*
16 *served by the program.*

17 (2) *A description of the process for recruitment*
18 *and selection of students, as appropriate.*

19 (3) *A description of how such research activity*
20 *may inform programming that engages underrep-*
21 *resented students in grades kindergarten through 8 in*
22 *STEM.*

23 (4) *A description of how such research activity*
24 *may inform programming that promotes student aca-*
25 *demic achievement in STEM.*

1 (5) *An evaluation plan that includes, at a min-*
 2 *imum, the use of outcome-oriented measures to deter-*
 3 *mine the impact and efficacy of activities being re-*
 4 *searched.*

5 (d) *AWARDS.—In awarding grants under this section,*
 6 *the Director shall give priority to applicants which, for the*
 7 *purpose of grant activity, include or partner with a non-*
 8 *profit, nongovernmental organization that has extensive ex-*
 9 *perience and expertise in increasing the participation of*
 10 *underrepresented students in STEM.*

11 (e) *ACCOUNTABILITY AND DISSEMINATION.—*

12 (1) *EVALUATION REQUIRED.—Not later than 5*
 13 *years after the date of enactment of this Act, the Di-*
 14 *rector shall evaluate the grants provided under this*
 15 *section. In addition to evaluating the effectiveness of*
 16 *the grant activities, such evaluation shall—*

17 (A) *use a common set of benchmarks and*
 18 *assessment tools to identify best practices and*
 19 *materials developed or demonstrated by the re-*
 20 *search; and*

21 (B) *to the extent practicable, combine the*
 22 *research resulting from the grant activity with*
 23 *the current research on serving underrepresented*
 24 *students in grades kindergarten through 8.*

1 (2) *REPORT ON EVALUATIONS.*—Not later than
 2 180 days after the completion of the evaluation under
 3 paragraph (1), the Director shall submit to Congress
 4 and make widely available to the public a report that
 5 includes—

6 (A) the results of the evaluation; and

7 (B) any recommendations for administra-
 8 tive and legislative action that could optimize
 9 the effectiveness of the program.

10 (f) *COORDINATION.*—In carrying out this section, the
 11 Director shall consult, cooperate, and coordinate, to enhance
 12 program effectiveness and to avoid duplication, with the
 13 programs and policies of other relevant Federal agencies.

14 **SEC. 113. REVIEW OF EDUCATION PROGRAMS.**

15 (a) *IN GENERAL.*—The Director shall review the edu-
 16 cation programs of the Foundation that are in operation
 17 as of the date of enactment of this Act to determine—

18 (1) whether any of such programs duplicate tar-
 19 get groups, services provided, fields of focus, or objec-
 20 tives; and

21 (2) how those programs are being evaluated and
 22 assessed for outcome-oriented effectiveness.

23 (b) *REPORT.*—Not later than 1 year after the date of
 24 enactment of this Act, and annually thereafter as part of
 25 the annual budget submission to Congress, the Director

1 *shall complete a report on the review carried out under this*
2 *section and shall submit the report to the Committee on*
3 *Science, Space, and Technology and the Committee on Ap-*
4 *propriations of the House of Representatives, and to the*
5 *Committee on Commerce, Science, and Transportation, the*
6 *Committee on Health, Education, Labor, and Pensions, and*
7 *the Committee on Appropriations of the Senate, and shall*
8 *make the report widely available to the public.*

9 **SEC. 114. RECOMPETITION OF AWARDS.**

10 (a) *FINDINGS.—The Congress finds that—*

11 (1) *the merit-reviewed competition of grant and*
12 *award proposals is a hallmark of the Foundation*
13 *grant and award making process;*

14 (2) *the majority of Foundation-funded multi-*
15 *user research facilities have transitioned to five-year*
16 *cooperative agreements, and every five years the pro-*
17 *gram officer responsible for the facility makes a rec-*
18 *ommendation to the National Science Board as to the*
19 *renewal, recompetition, or termination of support for*
20 *the facility; and*

21 (3) *requiring the recompetition of expiring*
22 *awards is based on the conviction that competition is*
23 *most likely to ensure the effective stewardship of*
24 *Foundation funds for supporting research and edu-*
25 *cation.*

1 (b) *RECOMPETITION.*—*The Director shall ensure that*
 2 *the system for recompetition of Maintenance and Oper-*
 3 *ations of facilities, equipment and instrumentation is fair,*
 4 *consistent, and transparent and is applied in a manner*
 5 *that renews grants and awards in a timely manner. The*
 6 *Director shall periodically evaluate whether the criteria of*
 7 *the system are being applied in a manner that is trans-*
 8 *parent, reliable, and valid.*

9 **SEC. 115. SENSE OF THE CONGRESS REGARDING INDUSTRY**

10 **INVESTMENT IN STEM EDUCATION.**

11 *It is the sense of Congress that—*

12 (1) *in order to bolster the STEM workforce pipe-*
 13 *line, many industry sectors are becoming involved in*
 14 *K-12 initiatives and supporting undergraduate and*
 15 *graduate work in STEM subject areas and fields;*

16 (2) *partnerships with education providers,*
 17 *STEM focused competitions, and other opportunities*
 18 *have become important aspects of private sector efforts*
 19 *to strengthen the STEM workforce;*

20 (3) *understanding the work that private sector*
 21 *organizations are undertaking in STEM fields should*
 22 *inform the Federal Government’s role in STEM edu-*
 23 *cation; and*

24 (4) *successful private sector STEM initiatives, as*
 25 *reflected by measurements of relevant outcomes,*

1 *should be encouraged and supported by the Founda-*
2 *tion.*

3 **SEC. 116. MISREPRESENTATION OF RESEARCH RESULTS.**

4 (a) *PROHIBITION.*—*The findings and conclusions of*
5 *any article authored by a principal investigator receiving*
6 *a research grant from the Foundation, using the results of*
7 *the research conducted under the grant, that is published*
8 *in a peer-reviewed publication, otherwise made publicly*
9 *available, or incorporated in an application for a research*
10 *grant or grant extension from the Foundation may not con-*
11 *tain any falsification, fabrication, or plagiarism, as estab-*
12 *lished in the Foundation’s Research Misconduct regulation*
13 *(45 C.F.R. 689).*

14 (b) *PUBLICATION.*—*The Director shall make publicly*
15 *available any finding that research misconduct (as defined*
16 *in 45 C.F.R. 689) has been committed, including the name*
17 *of the principal investigator, within 30 days of the final*
18 *administration action of the Foundation.*

19 **SEC. 117. RESEARCH REPRODUCIBILITY AND REPLICATION.**

20 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*
21 *that—*

22 (1) *the gold standard of good science is the abil-*
23 *ity of a researcher or research lab to reproduce a pub-*
24 *lished method and finding;*

1 (2) *there is growing concern that some published*
2 *research findings cannot be reproduced or replicated,*
3 *which can negatively affect the public's trust in*
4 *science;*

5 (3) *there are a complex set of factors affecting re-*
6 *producibility and replication; and*

7 (4) *the increasing interdisciplinary nature and*
8 *complexity of scientific research may be a contrib-*
9 *uting factor to issues with research reproducibility*
10 *and replication.*

11 (b) *REPORT.—The Director shall—*

12 (1) *not later than 45 days after the date of en-*
13 *actment of this Act, enter into an agreement with the*
14 *National Research Council to provide, within 18*
15 *months after the date of enactment of this Act, a re-*
16 *port to assess research and data reproducibility and*
17 *replicability issues in interdisciplinary research and*
18 *to make recommendations on how to improve rigor*
19 *and transparency in scientific research; and*

20 (2) *not later than 60 days after receiving the re-*
21 *sults of the assessment under paragraph (1), submit*
22 *a report to the Committee on Science, Space, and*
23 *Technology of the House of Representatives and the*
24 *Committee on Commerce, Science, and Transpor-*
25 *tation of the Senate on the findings of the assessment,*

1 *together with the agreement or disagreement of the*
2 *Director and Board with each of its findings and rec-*
3 *ommendations.*

4 **SEC. 118. RESEARCH GRANT CONDITIONS.**

5 *The Foundation shall establish procedures to ensure*
6 *that—*

7 (1) *a research grant awarded by the Foundation*
8 *to a principal investigator supports a scope of work*
9 *not otherwise being directly funded by grants pro-*
10 *vided by other Federal agencies;*

11 (2) *a principal investigator includes in any ap-*
12 *plication for a research grant awarded by the Foun-*
13 *dation a list of all Federal research funding received*
14 *by the principal investigator, as well as any funding*
15 *that is being requested as of that time;*

16 (3) *unpublished research results used to support*
17 *a grant proposal made to the Foundation do not in-*
18 *clude any knowing misrepresentations of data;*

19 (4) *principal investigators who receive Founda-*
20 *tion research grant funding under more than one*
21 *grant at the same time have sufficient resources to*
22 *conduct the proposed research under each of those*
23 *grants appropriately under the terms of the grant;*
24 *and*

1 (5) barriers to early career and new investigator
 2 applicants are addressed, including taking into ac-
 3 count the broader accomplishments and potential of
 4 the individual investigator in addition to the poten-
 5 tial impact of the project.

6 **SEC. 119. COMPUTING RESOURCES STUDY.**

7 Not later than 1 year after the date of enactment of
 8 this Act, the Comptroller General shall transmit to the Con-
 9 gress a report detailing the results of a study on the use
 10 of scientific computing resources funded by the Foundation
 11 at institutions of higher education. Such study shall as-
 12 sess—

13 (1) efficiencies that can be achieved by using
 14 shared scientific computing resources for projects that
 15 have similar scientific computing requirements or
 16 projects where specialized software solutions could be
 17 shared with other practitioners in the scientific com-
 18 munity;

19 (2) efficiencies that can be achieved by using
 20 shared hardware that can be cost effectively procured
 21 from cloud computing services;

22 (3) efficiencies that can be achieved by using
 23 shared software from an open source repository or
 24 platform; and

1 (4) *cost savings that could be achieved by poten-*
 2 *tial sharing of scientific computing resources across*
 3 *all Foundation grants.*

4 **SEC. 120. SCIENTIFIC BREAKTHROUGH PRIZES.**

5 *The Director shall place a high priority on designing*
 6 *and administering pilot programs for scientific break-*
 7 *through prizes, in conjunction with private entities, that*
 8 *are consistent with Office of Science and Technology Policy*
 9 *guidelines. Breakthrough prizes shall center around techno-*
 10 *logical breakthroughs that are of strategic importance to the*
 11 *Nation, and have the capacity to spur new economic*
 12 *growth.*

13 **SEC. 121. ROTATING PERSONNEL.**

14 *In order to control the costs to the Foundation of indi-*
 15 *viduals employed pursuant to the Intergovernmental Per-*
 16 *sonnel Act of 1970 (42 U.S.C. 4701 note)—*

17 (1) *the Foundation shall provide to Congress a*
 18 *written justification and waiver by the Deputy Direc-*
 19 *tor in instances in which such an individual is to be*
 20 *paid at a rate that exceeds the maximum rate of pay*
 21 *for the Senior Executive Service, including, if appli-*
 22 *cable, adjustment for the certified Senior Executive*
 23 *Service Performance Appraisal System;*

24 (2) *the Foundation shall provide to Congress a*
 25 *written justification and waiver by the Director in*

1 *instances in which such an individual is to be paid*
2 *at a rate that exceeds the annual salary rate of the*
3 *Vice President of the United States; and*

4 *(3) the Foundation shall provide an annual re-*
5 *port to Congress on the costs to the Foundation of em-*
6 *ploying such individuals, including—*

7 *(A) the timeliness and completeness of*
8 *Foundation actions in response to recommenda-*
9 *tions and findings from the Office of Inspector*
10 *General related to the employment of such indi-*
11 *viduals;*

12 *(B) actions taken by the Foundation to re-*
13 *duce the cost to the Foundation of the employ-*
14 *ment of such individuals at pay levels that ex-*
15 *ceed the threshold described in paragraph (1);*

16 *(C) the value to the Foundation of employ-*
17 *ing individuals pursuant to the Intergovern-*
18 *mental Personnel Act of 1970 (42 U.S.C. 4701*
19 *note) whose pay is set below the threshold de-*
20 *scribed in paragraph (1); and*

21 *(D) the value to the Foundation of employ-*
22 *ing individuals who are not permanent employ-*
23 *ees whose pay requires a justification and waiver*
24 *under paragraph (1) or (2).*

1 **SEC. 122. SENSE OF CONGRESS REGARDING INNOVATION**
2 **CORPS.**

3 *It is the sense of Congress that—*

4 *(1) the Foundation’s Innovation Corps (I-Corps)*
5 *was established to foster a national innovation eco-*
6 *system by encouraging institutions, scientists, engi-*
7 *neers, and entrepreneurs to identify and explore the*
8 *innovation and commercial potential of Foundation-*
9 *funded research well beyond the laboratory;*

10 *(2) the Foundation’s I-Corps includes investment*
11 *in entrepreneurship and commercialization education,*
12 *training, and mentoring, ultimately leading to the*
13 *practical deployment of technologies, products, proc-*
14 *esses, and services that improve the Nation’s competi-*
15 *tiveness, promote economic growth, and benefit soci-*
16 *ety; and*

17 *(3) by building networks of entrepreneurs, edu-*
18 *cators, mentors, institutions, and collaborations, and*
19 *supporting specialized education and training, I-*
20 *Corps is at the leading edge of a strong, lasting foun-*
21 *dition for an American innovation ecosystem.*

22 **SEC. 123. BRAIN RESEARCH THROUGH ADVANCING INNOVA-**
23 **TIVE NEUROTECHNOLOGIES INITIATIVE.**

24 *The Foundation shall support research activities re-*
25 *lated to the Brain Research through Advancing Innovative*
26 *Neurotechnologies Initiative. The Foundation is encouraged*

1 *to work in conjunction with the Interagency Working*
 2 *Group on Neuroscience (IWGN) to determine how to use*
 3 *the data infrastructure of the Foundation and other appli-*
 4 *cable agencies to help neuroscientists collect, standardize,*
 5 *manage, and analyze the large amounts of data that will*
 6 *result from research attempting to understand how the*
 7 *brain functions.*

8 **SEC. 124. NOYCE SCHOLARSHIP PROGRAM AMENDMENTS.**

9 (a) *AMENDMENTS.*—Section 10A of the National
 10 *Science Foundation Authorization Act of 2002 (42 U.S.C.*
 11 *1862n—1a) is amended—*

12 (1) *in subsection (a)(2)(B), by inserting “or*
 13 *bachelor’s” after “master’s”;*

14 (2) *in subsection (c)—*

15 (A) *by striking “and” at the end of para-*
 16 *graph (2)(B);*

17 (B) *in paragraph (3)—*

18 (i) *by inserting “for teachers with mas-*
 19 *ter’s degrees in their field” after “Teaching*
 20 *Fellowships”; and*

21 (ii) *by striking the period at the end of*
 22 *subparagraph (B) and inserting “; and”;*
 23 *and*

24 (C) *by adding at the end the following new*
 25 *paragraph:*

1 “(4) in the case of National Science Foundation
 2 *Master Teaching Fellowships for teachers with bach-*
 3 *elor’s degrees in their field and working toward a*
 4 *master’s degree—*

5 “(A) offering academic courses leading to a
 6 *master’s degree and leadership training to pre-*
 7 *pare individuals to become master teachers in el-*
 8 *ementary and secondary schools; and*

9 “(B) offering programs both during and
 10 *after matriculation in the program for which the*
 11 *fellowship is received to enable fellows to become*
 12 *highly effective mathematics and science teachers,*
 13 *including mentoring, training, induction, and*
 14 *professional development activities, to fulfill the*
 15 *service requirements of this section, including the*
 16 *requirements of subsection (e), and to exchange*
 17 *ideas with others in their fields.”;*

18 (3) in subsection (e), by striking “subsection (g)”
 19 and inserting “subsection (h)”;

20 (4) by redesignating subsections (g) through (i)
 21 as subsections (h) through (j), respectively; and

22 (5) by inserting after subsection (f) the following
 23 new subsection:

24 “(g) *SUPPORT FOR MASTER TEACHING FELLOWS*
 25 *WHILE ENROLLED IN A MASTER’S DEGREE PROGRAM.—*

1 *A National Science Foundation Master Teacher Fellow may*
 2 *receive a maximum of 1 year of fellowship support while*
 3 *enrolled in a master’s degree program as described in sub-*
 4 *section (c)(4)(A), except that if such fellow is enrolled in*
 5 *a part-time program, such amount shall be prorated accord-*
 6 *ing to the length of the program.”.*

7 (b) *DEFINITION.*—Section 10(i)(5) of the National
 8 Science Foundation Authorization Act of 2002 (42 U.S.C.
 9 1862n—1(i)(5)) is amended by inserting “computer
 10 science,” after “means a science,”.

11 **SEC. 125. INFORMAL STEM EDUCATION.**

12 (a) *GRANTS.*—The Director, through the Directorate
 13 for Education and Human Resources, shall continue to
 14 award competitive, merit-reviewed grants to support—

15 (1) *research and development of innovative out-*
 16 *of-school STEM learning and emerging STEM learn-*
 17 *ing environments in order to improve STEM learning*
 18 *outcomes and engagement in STEM; and*

19 (2) *research that advances the field of informal*
 20 *STEM education.*

21 (b) *USES OF FUNDS.*—Activities supported by grants
 22 under this section may encompass a single STEM dis-
 23 cipline, multiple STEM disciplines, or integrative STEM
 24 initiatives and shall include—

1 (1) *research and development that improves our*
 2 *understanding of learning and engagement in infor-*
 3 *mal environments, including the role of informal en-*
 4 *vironments in broadening participation in STEM;*
 5 *and*

6 (2) *design and testing of innovative STEM*
 7 *learning models, programs, and other resources for in-*
 8 *formal learning environments to improve STEM*
 9 *learning outcomes and increase engagement for K-12*
 10 *students, K-12 teachers, and the general public, in-*
 11 *cluding design and testing of the scalability of models,*
 12 *programs, and other resources.*

13 **SEC. 126. EXPERIMENTAL PROGRAM TO STIMULATE COM-**
 14 **PETITIVE RESEARCH.**

15 *The Foundation shall continue to operate a robust Ex-*
 16 *perimental Program to Stimulate Competitive Research*
 17 *(EPSCoR). The EPSCoR program helps ensure that aca-*
 18 *demic research institutions in more than half the States de-*
 19 *velop a strong research infrastructure and participate fully*
 20 *in federally funded research activities. The program should*
 21 *be a high priority for the Foundation.*

1 **TITLE II—SCIENCE, TECH-**
2 **NOLOGY, ENGINEERING, AND**
3 **MATHEMATICS**

4 **SEC. 201. FINDINGS; SENSE OF CONGRESS.**

5 (a) *FINDINGS.*—Congress finds the following:

6 (1) *According to the National Science Board’s*
7 *Science and Engineering Indicators, the science and*
8 *engineering workforce has shown sustained growth for*
9 *more than half a century, and workers with science*
10 *and engineering degrees tend to earn more than com-*
11 *parable workers in other fields.*

12 (2) *According to the Program for International*
13 *Student Assessment 2012 results, America lags behind*
14 *many other nations in STEM education. American*
15 *students rank 21st in science and 26th in mathe-*
16 *matics.*

17 (3) *Junior Achievement USA and ING found a*
18 *decrease of 25 percent in the percentage of teenage*
19 *students interested in STEM careers.*

20 (4) *According to a 2007 report from the Depart-*
21 *ment of Labor, industries and firms dependent on a*
22 *strong science and mathematics workforce have*
23 *launched a variety of programs that target K-12 stu-*
24 *dents and undergraduate and graduate students in*
25 *STEM fields.*

1 (5) *The Federal Government spends nearly \$3*
2 *billion annually on STEM education related program*
3 *and activities, but encouraging STEM education ac-*
4 *tivities beyond the scope of the Federal Government,*
5 *including privately sponsored competitions and pro-*
6 *grams in our schools, is crucial to the future technical*
7 *and economic competitiveness of the United States.*

8 (b) *SENSE OF CONGRESS.—It is the sense of Congress*
9 *that—*

10 (1) *more effective coordination and adoption of*
11 *performance measurement based on objective outcomes*
12 *for federally supported STEM programs is needed;*

13 (2) *leveraging private and nonprofit investments*
14 *in STEM education will be essential to strengthening*
15 *the Federal STEM portfolio;*

16 (3) *strengthening the Federal STEM portfolio*
17 *may require program consolidations and termi-*
18 *nations, but such changes should be based on evidence*
19 *with stakeholder input;*

20 (4) *coordinating STEM programs and activities*
21 *across the Federal Government in order to limit du-*
22 *plication and engage stakeholders in STEM programs*
23 *and related activities for which objective outcomes can*
24 *be measured will bolster results of Federal STEM edu-*
25 *cation programs, improve the return on taxpayers’*

1 *investments in STEM education programs, and in*
 2 *turn strengthen the United States economy; and*

3 *(5) as the Committee on STEM Education im-*
 4 *plements the 5-year Strategic Plan for Federal STEM*
 5 *education required under section 101(b)(5) of the*
 6 *America COMPETES Reauthorization Act of 2010*
 7 *(42 U.S.C. 6621(b)(5)), STEM education stakeholders*
 8 *must be engaged and outcome-based evaluation*
 9 *metrics should be considered in the coordination and*
 10 *consolidation efforts for the Federal STEM portfolio.*

11 **SEC. 202. STEM EDUCATION ADVISORY PANEL.**

12 *(a) ESTABLISHMENT.—The President shall establish or*
 13 *designate a STEM Education Advisory Panel that incor-*
 14 *porates key stakeholders from the education and industry*
 15 *sectors. The co-chairs shall be members of the President’s*
 16 *Council of Advisors on Science and Technology.*

17 *(b) QUALIFICATIONS.—The Advisory Panel established*
 18 *or designated by the President under subsection (a) shall*
 19 *consist primarily of members from academic institutions,*
 20 *nonprofit organizations, and industry and shall include in-*
 21 *school, out-of-school, and informal educational practi-*
 22 *tioners. Members of the Advisory Panel shall be qualified*
 23 *to provide advice and information on STEM education re-*
 24 *search, development, training, implementation, interven-*
 25 *tions, professional development, or workforce needs or con-*

1 cerns. In selecting or designating an Advisory Panel, the
2 President may also seek and give consideration to rec-
3 ommendations from the Congress, industry, the scientific
4 community (including the National Academy of Sciences,
5 scientific professional societies, and academia), State and
6 local governments, and other appropriate organizations.

7 (c) DUTIES.—The Advisory Panel shall advise the
8 President, the Committee on STEM Education, and the
9 STEM Education Coordinating Office established under
10 section 204 on matters relating to STEM education, and
11 shall each year provide general guidance to every Federal
12 agency with STEM education programs or activities, in-
13 cluding in the preparation of requests for appropriations
14 for activities related to STEM education. The Advisory
15 Panel shall also assess and develop recommendations for—

16 (1) progress made in implementing the STEM
17 education Strategic Plan required under section 101
18 of the America COMPETES Reauthorization Act of
19 2010 (42 U.S.C. 6621), and any needs or opportuni-
20 ties to update the strategic plan;

21 (2) the management, coordination, and imple-
22 mentation of STEM education programs and activi-
23 ties across the Federal Government;

1 (3) the appropriateness of criteria used by Fed-
2 eral agencies to evaluate the effectiveness of Federal
3 STEM education programs and activities;

4 (4) ways to leverage private and nonprofit
5 STEM investments and encourage public-private
6 partnerships to strengthen STEM education and help
7 build the STEM workforce pipeline;

8 (5) ways to incorporate workforce needs into
9 Federal STEM education programs, particularly for
10 specific fields of national interest and areas experi-
11 encing high unemployment rates;

12 (6) ways to better vertically and horizontally in-
13 tegrate Federal STEM programs and activities from
14 pre-K through graduate study and the workforce, and
15 from in-school to out-of-school in order to improve
16 transitions for students moving through the STEM
17 pipeline;

18 (7) whether societal and workforce concerns are
19 adequately addressed by current Federal STEM edu-
20 cation programs and activities;

21 (8) the extent to which Federal STEM education
22 programs and activities are contributing to recruit-
23 ment and retention of women and underrepresented
24 students in the STEM education and workforce pipe-
25 line; and

1 (9) *ways to encourage geographic diversity in*
 2 *STEM education and the workforce pipeline.*

3 (d) *REPORTS.*—*The Advisory Panel shall report, not*
 4 *less frequently than once every 3 fiscal years, to the Presi-*
 5 *dent and Congress on its assessments under subsection (c)*
 6 *and its recommendations for ways to improve Federal*
 7 *STEM education programs. The first report under this sub-*
 8 *section shall be submitted within 1 year after the date of*
 9 *enactment of this Act.*

10 (e) *TRAVEL EXPENSES OF NON-FEDERAL MEM-*
 11 *BERS.*—*Non-Federal members of the Advisory Panel, while*
 12 *attending meetings of the Advisory Panel or while otherwise*
 13 *serving at the request of the head of the Advisory Panel*
 14 *away from their homes or regular places of business, may*
 15 *be allowed travel expenses, including per diem in lieu of*
 16 *subsistence, as authorized by section 5703 of title 5, United*
 17 *States Code, for individuals in the Government serving*
 18 *without pay. Nothing in this subsection shall be construed*
 19 *to prohibit members of the Advisory Panel who are officers*
 20 *or employees of the United States from being allowed travel*
 21 *expenses, including per diem in lieu of subsistence, in ac-*
 22 *cordance with existing law.*

23 **SEC. 203. COMMITTEE ON STEM EDUCATION.**

24 *Section 101 of the America COMPETES Reauthoriza-*
 25 *tion Act of 2010 (42 U.S.C. 6621) is amended—*

1 (1) *in the first subsection (b)—*

2 (A) *by redesignating paragraphs (3)*
3 *through (6) as paragraphs (5) through (8), re-*
4 *spectively;*

5 (B) *by inserting after paragraph (2) the fol-*
6 *lowing new paragraphs:*

7 “(3) *collaborate with the STEM Education Advi-*
8 *sory Panel established under section 202 of the Amer-*
9 *ica COMPETES Reauthorization Act of 2015 and*
10 *other outside stakeholders to ensure the engagement of*
11 *the STEM education community;*

12 “(4) *review evaluation measures used for Federal*
13 *STEM education programs;”;* and

14 (C) *in paragraph (8), as so redesignated by*
15 *subparagraph (A) of this paragraph, by striking*
16 *“, periodically update,”; and*

17 (2) *in the second subsection (b) and in subsection*
18 *(c), by striking “subsection (b)(5)” and inserting*
19 *“subsection (b)(7)”.*

20 **SEC. 204. STEM EDUCATION COORDINATING OFFICE.**

21 (a) *ESTABLISHMENT.—The Director of the National*
22 *Science Foundation shall establish within the Directorate*
23 *for Education and Human Resources a STEM Education*
24 *Coordinating Office, which shall have a Director and staff*
25 *that shall include career employees detailed from Federal*

1 *agencies that fund STEM education programs and activi-*
2 *ties.*

3 (b) *RESPONSIBILITIES.—The STEM Education Co-*
4 *ordinating Office shall—*

5 (1) *provide technical and administrative support*
6 *to—*

7 (A) *the Committee on STEM Education, es-*
8 *pecially in its coordination of Federal STEM*
9 *programs and strategic planning responsibilities;*

10 (B) *the Advisory Panel established under*
11 *section 202; and*

12 (C) *Federal agencies with STEM education*
13 *programs;*

14 (2) *periodically update and maintain the inven-*
15 *tory of federally sponsored STEM education programs*
16 *and activities established under section 101(b)(8) of*
17 *the America COMPETES Reauthorization Act of*
18 *2010 (42 U.S.C. 6621); and*

19 (3) *provide for dissemination of information on*
20 *Federal STEM education programs and activities, as*
21 *appropriate, to stakeholders in academia, industry,*
22 *nonprofit organizations with expertise in STEM edu-*
23 *cation, State and local educational agencies, and*
24 *other STEM stakeholders.*

1 (c) *REPORT.*—*The Director of the STEM Education*
2 *Coordinating Office shall transmit a report annually to*
3 *Congress not later than 60 days after the submission of the*
4 *President’s budget request. The annual report shall in-*
5 *clude—*

6 (1) *any updates to the inventory required under*
7 *subsection (b)(2);*

8 (2) *a description of all consolidations and termi-*
9 *nations of Federal STEM education programs imple-*
10 *mented in the previous fiscal year, including an ex-*
11 *planation of the reasons for consolidations and termi-*
12 *nations;*

13 (3) *recommendations for consolidations and ter-*
14 *minations of STEM education programs or activities*
15 *in the upcoming fiscal year;*

16 (4) *a description of any significant new STEM*
17 *Education public-private partnerships; and*

18 (5) *description of the progress made in carrying*
19 *out the strategic plan required under section 101 of*
20 *the America COMPETES Reauthorization Act of*
21 *2010 (42 U.S.C. 6621), including a description of the*
22 *outcome of any program assessments completed in the*
23 *previous year.*

24 (d) *RESPONSIBILITIES OF NSF.*—*The Director of the*
25 *National Science Foundation shall encourage and monitor*

1 *the efforts of the STEM Education Coordinating Office to*
 2 *ensure that the Coordinating Office is carrying out its re-*
 3 *sponsibilities under subsection (b) appropriately.*

4 ***TITLE III—OFFICE OF SCIENCE***
 5 ***AND TECHNOLOGY POLICY***

6 ***SEC. 301. AUTHORIZATION OF APPROPRIATIONS.***

7 *There are authorized to be appropriated for the Office*
 8 *of Science and Technology Policy—*

9 *(1) \$4,550,000 for fiscal year 2016; and*

10 *(2) \$4,550,000 for fiscal year 2017.*

11 ***SEC. 302. REGULATORY EFFICIENCY.***

12 *(a) SENSE OF CONGRESS.—It is the sense of Congress*
 13 *that—*

14 *(1) high and increasing administrative burdens*
 15 *and costs in Federal research administration, par-*
 16 *ticularly in the higher education sector where most*
 17 *federally sponsored research is performed, are eroding*
 18 *funds available to carry out basic scientific research;*

19 *(2) progress has been made over the last decade*
 20 *in streamlining the pre-award grant application*
 21 *process through Grants.gov, the Federal Government's*
 22 *website portal;*

23 *(3) post-award administrative costs have grown*
 24 *as Federal research agencies have continued to impose*

1 *agency-unique compliance and reporting requirements*
2 *on researchers and research institutions;*

3 *(4) facilities and administration costs at re-*
4 *search universities can exceed 50 percent of the total*
5 *value of Federal research grants, and it is estimated*
6 *that nearly 30 percent of the funds invested annually*
7 *in federally funded research is consumed by paper-*
8 *work and other administrative processes required by*
9 *Federal agencies; and*

10 *(5) it is a matter of critical importance to Amer-*
11 *ican competitiveness that administrative costs of fed-*
12 *erally funded research be streamlined so that a higher*
13 *proportion of taxpayer dollars flow into direct re-*
14 *search activities.*

15 *(b) IN GENERAL.—The Director of the Office of Science*
16 *and Technology Policy shall establish a working group*
17 *under the authority of the National Science and Technology*
18 *Council, to include the Office of Management and Budget.*
19 *The working group shall be responsible for reviewing Fed-*
20 *eral regulations affecting research and research universities*
21 *and making recommendations on how to—*

22 *(1) harmonize, streamline, and eliminate dupli-*
23 *cative Federal regulations and reporting require-*
24 *ments;*

1 (2) *minimize the regulatory burden on United*
2 *States institutions of higher education performing*
3 *federally funded research while maintaining account-*
4 *ability for Federal tax dollars; and*

5 (3) *identify and update specific regulations to*
6 *refocus on performance-based goals rather than on*
7 *process while still meeting the desired outcome.*

8 (c) *STAKEHOLDER INPUT.—In carrying out the re-*
9 *sponsibilities under subsection (b), the working group shall*
10 *take into account input and recommendations from non-*
11 *Federal stakeholders, including federally funded and non-*
12 *federally funded researchers, institutions of higher edu-*
13 *cation, scientific disciplinary societies and associations,*
14 *nonprofit research institutions, industry, including small*
15 *businesses, federally funded research and development cen-*
16 *ters, and others with a stake in ensuring effectiveness, effi-*
17 *ciency, and accountability in the performance of scientific*
18 *research.*

19 (d) *REPORT.—Not later than 1 year after the date of*
20 *enactment of this Act, and annually thereafter for 3 years,*
21 *the Director shall report to the Committee on Science,*
22 *Space, and Technology of the House of Representatives and*
23 *the Committee on Commerce, Science, and Transportation*
24 *of the Senate on what steps have been taken to carry out*

1 *the recommendations of the working group established*
 2 *under subsection (b).*

3 **SEC. 303. COORDINATION OF INTERNATIONAL SCIENCE**
 4 **AND TECHNOLOGY PARTNERSHIPS.**

5 *(a) ESTABLISHMENT.—The Director of the Office of*
 6 *Science and Technology Policy shall establish a body under*
 7 *the National Science and Technology Council with the re-*
 8 *sponsibility to identify and coordinate international science*
 9 *and technology cooperation that can strengthen the United*
 10 *States science and technology enterprise, improve economic*
 11 *and national security, and support United States foreign*
 12 *policy goals.*

13 *(b) NSTC BODY LEADERSHIP.—The body established*
 14 *under subsection (a) shall be co-chaired by senior level offi-*
 15 *cials from the Office of Science and Technology Policy and*
 16 *the Department of State.*

17 *(c) RESPONSIBILITIES.—The body established under*
 18 *subsection (a) shall—*

19 *(1) plan and coordinate interagency inter-*
 20 *national science and technology cooperative research*
 21 *and training activities and partnerships supported or*
 22 *managed by Federal agencies and work with other*
 23 *National Science and Technology Council committees*
 24 *to help plan and coordinate the international compo-*
 25 *nent of national science and technology priorities;*

1 (2) *establish Federal priorities and policies for*
2 *aligning, as appropriate, international science and*
3 *technology cooperative research and training activi-*
4 *ties and partnerships supported or managed by Fed-*
5 *eral agencies with the foreign policy goals of the*
6 *United States;*

7 (3) *identify opportunities for new international*
8 *science and technology cooperative research and train-*
9 *ing partnerships that advance both the science and*
10 *technology and the foreign policy priorities of the*
11 *United States;*

12 (4) *in carrying out paragraph (3), solicit input*
13 *and recommendations from non-Federal science and*
14 *technology stakeholders, including universities, sci-*
15 *entific and professional societies, industry, and rel-*
16 *evant organizations and institutions; and*

17 (5) *identify broad issues that influence the abil-*
18 *ity of United States scientists and engineers to col-*
19 *laborate with foreign counterparts, including barriers*
20 *to collaboration and access to scientific information.*

21 (d) *REPORT TO CONGRESS.—The Director of the Office*
22 *of Science and Technology Policy shall transmit a report,*
23 *to be updated every 2 years, to the Committee on Science,*
24 *Space, and Technology and the Committee on Foreign Af-*
25 *airs of the House of Representatives, and to the Committee*

1 *on Commerce, Science, and Transportation and the Com-*
 2 *mittee on Foreign Relations of the Senate. The report shall*
 3 *also be made available to the public on the reporting agen-*
 4 *cy's website. The report shall contain a description of—*

5 *(1) the priorities and policies established under*
 6 *subsection (c)(2);*

7 *(2) the ongoing and new partnerships established*
 8 *since the last update to the report;*

9 *(3) the means by which stakeholder input was*
 10 *received, as well as summary views of stakeholder*
 11 *input; and*

12 *(4) the issues influencing the ability of United*
 13 *States scientists and engineers to collaborate with for-*
 14 *eign counterparts.*

15 *(e) ADDITIONAL REPORTS TO CONGRESS.—The Direc-*
 16 *tor of the Office of Science and Technology Policy shall*
 17 *transmit, not later than 60 days after the date of enactment*
 18 *of this Act and annually thereafter, to the Committee on*
 19 *Science, Space, and Technology and the Committee on For-*
 20 *eign Affairs of the House of Representatives, and to the*
 21 *Committee on Commerce, Science, and Transportation and*
 22 *the Committee on Foreign Relations of the Senate, a report*
 23 *that lists and describes all foreign travel by Office of Science*
 24 *and Technology Policy staff and detailees. Each report shall*
 25 *specify the dates of each trip, the purpose of the trip, Office*

1 *of Science and Technology Policy participants on the trip,*
 2 *total Office of Science and Technology Policy costs associ-*
 3 *ated with the trip, and details of all international meetings,*
 4 *including meeting participants and topics addressed.*

5 **SEC. 304. ALTERNATIVE RESEARCH FUNDING MODELS.**

6 *(a) PILOT PROGRAM AUTHORITY.—The heads of Fed-*
 7 *eral science agencies, in consultation with the Director of*
 8 *the Office of Science and Technology Policy, shall conduct*
 9 *appropriate pilot programs to validate alternative research*
 10 *funding models, including—*

11 *(1) scientific breakthrough prize programs that*
 12 *are of strategic importance to the Nation and have*
 13 *the capacity to spur new economic growth; and*

14 *(2) novel mechanisms of funding including ob-*
 15 *taining non-Federal funds through crowd source fund-*
 16 *ing.*

17 *(b) NON-FEDERAL PARTNERS.—A pilot program may*
 18 *be conducted under this section through an agreement,*
 19 *grant, or contractual relationship with a non-Federal enti-*
 20 *ty regarding the design, administration, and funding of the*
 21 *program.*

22 *(c) PRIZE COMPETITION JUDGES.—*

23 *(1) REQUIREMENTS.—Judges for a prize com-*
 24 *petition carried out under this section shall not be re-*
 25 *quired to be Federal employees. An individual who*

1 *serves as a judge for a prize competition carried out*
2 *under this section who is not a Federal employee shall*
3 *be required to sign an agreement, developed by the Of-*
4 *fice of Science and Technology Policy, with respect to*
5 *nondisclosure, conflict of interest, and judging code of*
6 *conduct requirements.*

7 (2) *DISCLOSURE OF PERSONAL FINANCIAL IN-*
8 *TERESTS.—A judge for a prize competition with a*
9 *total purse of \$10,000 or more, or for an aggregate of*
10 *prize competitions with a total purse of \$50,000 or*
11 *more, shall be required to disclose all personal finan-*
12 *cial interests.*

13 (3) *REPORT TO CONGRESS.—Not later than 30*
14 *days after the Office of Science and Technology Policy*
15 *completes development of an agreement under para-*
16 *graph (1), it shall transmit a report to Congress de-*
17 *scribing the requirements of such agreement.*

18 (d) *PUBLIC NOTICE.—The heads of Federal science*
19 *agencies shall widely advertise prize competitions to be con-*
20 *ducted under this section to ensure maximum participa-*
21 *tion.*

22 (e) *DEFINITION.—For purposes of this section, the*
23 *term “Federal science agency” means—*

24 (1) *the National Aeronautics and Space Admin-*
25 *istration;*

1 (2) *the National Science Foundation;*

2 (3) *the National Institute of Standards and*
3 *Technology; and*

4 (4) *the National Weather Service.*

5 (f) *REPORT TO CONGRESS.*—*Not later than 1 year*
6 *after the date of enactment of this Act, and annually there-*
7 *after as part of the annual budget submission to Congress,*
8 *the Director of the Office of Science and Technology Policy*
9 *shall transmit to the Congress a report on programs identi-*
10 *fied and conducted under subsection (a).*

11 **SEC. 305. AMENDMENTS TO PRIZE COMPETITIONS.**

12 *Section 24 of the Stevenson-Wydler Technology Inno-*
13 *vation Act of 1980 (15 U.S.C. 3719) is amended—*

14 (1) *in subsection (c)—*

15 (A) *by inserting “competition” after “sec-*
16 *tion, a prize”;*

17 (B) *by inserting “types” after “following”;*
18 *and*

19 (C) *in paragraph (4), by striking “prizes”*
20 *and inserting “prize competitions”;*

21 (2) *in subsection (f)—*

22 (A) *by striking “in the Federal Register”*
23 *and inserting “on a publicly accessible Govern-*
24 *ment website, such as www.challenge.gov,”; and*

1 (B) in paragraph (4), by striking “prize”
2 and inserting “cash prize purse”;

3 (3) in subsection (g), by striking “prize” and in-
4 serting “cash prize purse”;

5 (4) in subsection (h), by inserting “prize” before
6 “competition” both places it appears;

7 (5) in subsection (i)—

8 (A) in paragraph (1)(B), by inserting
9 “prize” before “competition”;

10 (B) in paragraph (2)(A), by inserting
11 “prize” before “competition” both places it ap-
12 pears;

13 (C) by redesignating paragraph (3) as
14 paragraph (4); and

15 (D) by inserting after paragraph (2) the fol-
16 lowing new paragraph:

17 “(3) WAIVER.—An agency may waive the re-
18 quirement under paragraph (2). The annual report
19 under subsection (p) shall include a list of such waiv-
20 ers granted during the preceding fiscal year, along
21 with a detailed explanation of the reasons for grant-
22 ing the waivers.”;

23 (6) in subsection (k)—

24 (A) in paragraph (2)(A), by inserting
25 “prize” before “competition”; and

1 (B) in paragraph (3), by inserting “prize”
2 before “competitions” both places it appears;

3 (7) in subsection (l), by striking all after “may
4 enter into” and inserting “a grant, contract, coopera-
5 tive agreement, or other agreement with a private sec-
6 tor for-profit or nonprofit entity to administer the
7 prize competition, subject to the provisions of this sec-
8 tion.”;

9 (8) in subsection (m)—

10 (A) by amending paragraph (1) to read as
11 follows:

12 “(1) *IN GENERAL.*—Support for a prize competi-
13 tion under this section, including financial support
14 for the design and administration of a prize competi-
15 tion or funds for a cash prize purse, may consist of
16 Federal appropriated funds and funds provided by
17 private sector for-profit and nonprofit entities. The
18 head of an agency may accept funds from other Fed-
19 eral agencies, private sector for-profit entities, and
20 nonprofit entities to support such prize competitions.
21 The head of an agency may not give any special con-
22 sideration to any private sector for-profit or nonprofit
23 entity in return for a donation.”;

24 (B) in paragraph (2), by striking “prize
25 awards” and inserting “cash prize purses”;

1 (C) in paragraph (3)(A)—

2 (i) by striking “No prize” and insert-
3 ing “No prize competition”; and

4 (ii) by striking “the prize” and insert-
5 ing “the cash prize purse”;

6 (D) in paragraph (3)(B), by striking “a
7 prize” and inserting “a cash prize purse”;

8 (E) in paragraph (3)(B)(i), by inserting
9 “competition” after “prize”;

10 (F) in paragraph (4)(A), by striking “a
11 prize” and inserting “a cash prize purse”; and

12 (G) in paragraph (4)(B), by striking “cash
13 prizes” and inserting “cash prize purses”;

14 (9) in subsection (n), by inserting “for both for-
15 profit and nonprofit entities,” after “contract vehi-
16 cle”;

17 (10) in subsection (o)(1), by striking “or pro-
18 viding a prize” and insert “a prize competition or
19 providing a cash prize purse”; and

20 (11) in subsection (p)(2)—

21 (A) in subparagraph (C), by striking “cash
22 prizes” both places it occurs and inserting “cash
23 prize purses”; and

24 (B) by adding at the end the following new
25 subparagraph:

1 “(G) *PLAN*.—A description of crosscutting
 2 *topical areas and agency-specific mission needs*
 3 *that may be the strongest opportunities for prize*
 4 *competitions during the upcoming 2 fiscal*
 5 *years.”.*

6 **SEC. 306. UNITED STATES CHIEF TECHNOLOGY OFFICER.**

7 *Title II of the National Science and Technology Policy,*
 8 *Organization, and Priorities Act of 1976 (42 U.S.C. 6611*
 9 *et seq.) is amended by adding at the end the following new*
 10 *section:*

11 “*UNITED STATES CHIEF TECHNOLOGY OFFICER*

12 “*SEC. 210. (a) APPOINTMENT*.—*The President may*
 13 *appoint a United States Chief Technology Officer. Not later*
 14 *than 1 year after the date of enactment of the America*
 15 *COMPETES Reauthorization Act of 2015, such officer shall*
 16 *be one of the Associate Directors of the Office of Science*
 17 *and Technology Policy.*

18 “(b) *DUTIES*.—*The duties of the United States Chief*
 19 *Technology Officer should include—*

20 “*(1) advising the President and the Director of*
 21 *the Office of Science and Technology Policy on Fed-*
 22 *eral information systems, technology, data, and inno-*
 23 *vation policies and initiatives;*

24 “*(2) promoting an improved exchange of infor-*
 25 *mation among the Federal Government, the public,*
 26 *and Congress;*

1 “(3) promoting the use of innovative techno-
2 logical approaches across the Federal Government to
3 ensure a modern information technology infrastruc-
4 ture;

5 “(4) working with the Chief Technology Officers
6 and Chief Information Officers of all Federal agencies
7 to ensure the use of best technologies and security
8 practices for information systems;

9 “(5) establishing a working group with such Of-
10 ficers to exchange best practices about information
11 systems;

12 “(6) promoting transparency and accountability
13 across the Federal Government for all technological
14 implementation by working with agencies to ensure
15 that each arm of the Federal Government, including
16 the executive branch, makes its records open and ac-
17 cessible;

18 “(7) promoting security and privacy protection
19 policies for all Federal information technology sys-
20 tems that are consistent with Federal law, regula-
21 tions, and current best practices;

22 “(8) promoting technological interoperability of
23 key Government functions;

24 “(9) in consultation with the Office of Manage-
25 ment and Budget, providing an annual report to the

1 *President, the Director of the Office of Science and*
2 *Technology Policy, and Congress on the current state*
3 *of information systems of all Federal agencies, includ-*
4 *ing—*

5 *“(A) the status of information systems, in-*
6 *cluding potential technology and security con-*
7 *cerns about these information systems in all Fed-*
8 *eral agencies;*

9 *“(B) a review of all Federal websites with*
10 *third-party embedded tools that—*

11 *“(i) identifies each embedded tool, who*
12 *it belongs to, and the data it collects; and*

13 *“(ii) addresses effects on cybersecurity*
14 *and consumer privacy, including whether*
15 *each website provides prominent notice to*
16 *consumers about the presence of the tool and*
17 *whether the consumer may opt-out of the*
18 *tool;*

19 *“(C) the amount of money being spent on*
20 *various technologies; and*

21 *“(D) technology recommendations and best*
22 *practices; and*

23 *“(10) such other functions and activities as the*
24 *President and Director of the Office of Science and*
25 *Technology Policy may assign.*

1 “(c) *REPORT.*—*In the absence of a United States Chief*
 2 *Technology Officer, the Director of the Office of Science and*
 3 *Technology Policy shall be responsible for providing the re-*
 4 *port required under subsection (b)(9).’’.*

5 **SEC. 307. NATIONAL RESEARCH COUNCIL STUDY ON TECH-**
 6 **NOLOGY FOR EMERGENCY NOTIFICATIONS**
 7 **ON UNIVERSITY CAMPUSES.**

8 (a) *IN GENERAL.*—*Not later than 90 days after the*
 9 *date of enactment of this Act, the Director of the Office of*
 10 *Science and Technology Policy shall enter into an arrange-*
 11 *ment with the National Research Council to conduct and*
 12 *complete a study to identify and review technologies em-*
 13 *ployed at institutions of higher education to provide notifi-*
 14 *cations to students, faculty, and other personnel during*
 15 *emergency situations in accordance with the requirements*
 16 *of existing law. The study shall address—*

17 (1) *the timeliness of notifications during emer-*
 18 *gency situations provided by various technologies;*

19 (2) *the durability of such technologies in deliv-*
 20 *ering such notifications to students, faculty, and other*
 21 *personnel; and*

22 (3) *the limitations exhibited by such technologies*
 23 *to successfully deliver notifications not more than 30*
 24 *seconds after the institution of higher education*
 25 *transmits such notifications.*

1 (b) *REPORT REQUIRED.*—Not later than 1 year after
 2 the date on which the National Research Council enters into
 3 the arrangement required by subsection (a), the Director of
 4 the Office of Science and Technology Policy shall submit
 5 to Congress a report on the study conducted under such sub-
 6 section.

7 **TITLE IV—NATIONAL INSTITUTE**
 8 **OF STANDARDS AND TECH-**
 9 **NOLOGY**

10 **SEC. 401. AUTHORIZATION OF APPROPRIATIONS.**

11 (a) *FISCAL YEAR 2016.*—

12 (1) *IN GENERAL.*—There are authorized to be ap-
 13 propriated to the Secretary of Commerce
 14 \$933,700,000 for the National Institute of Standards
 15 and Technology for fiscal year 2016.

16 (2) *SPECIFIC ALLOCATIONS.*—Of the amount au-
 17 thorized by paragraph (1)—

18 (A) \$744,700,000 shall be for scientific and
 19 technical research and services laboratory activi-
 20 ties;

21 (B) \$59,000,000 shall be for the construc-
 22 tion and maintenance of facilities; and

23 (C) \$130,000,000 shall be for industrial
 24 technology services activities, of which
 25 \$125,000,000 shall be for the Manufacturing Ex-

1 *tension Partnership program under sections 25*
 2 *and 26 of the National Institute of Standards*
 3 *and Technology Act (15 U.S.C. 278k and 278I)*
 4 *and \$5,000,000 shall be for the Network for Man-*
 5 *ufacturing Innovation Program under section 34*
 6 *of the National Institute of Standards and Tech-*
 7 *nology Act (15 U.S.C. 278s).*

8 *(b) FISCAL YEAR 2017.—*

9 *(1) IN GENERAL.—There are authorized to be ap-*
 10 *propriated to the Secretary of Commerce*
 11 *\$933,700,000 for the National Institute of Standards*
 12 *and Technology for fiscal year 2017.*

13 *(2) SPECIFIC ALLOCATIONS.—Of the amount au-*
 14 *thorized by paragraph (1)—*

15 *(A) \$744,700,000 shall be for scientific and*
 16 *technical research and services laboratory activi-*
 17 *ties;*

18 *(B) \$59,000,000 shall be for the construc-*
 19 *tion and maintenance of facilities; and*

20 *(C) \$130,000,000 shall be for industrial*
 21 *technology services activities, of which*
 22 *\$125,000,000 shall be for the Manufacturing Ex-*
 23 *tension Partnership program under sections 25*
 24 *and 26 of the National Institute of Standards*
 25 *and Technology Act (15 U.S.C. 278k and 278I)*

1 *and \$5,000,000 shall be for the Network for Man-*
 2 *ufacturing Innovation Program under section 34*
 3 *of the National Institute of Standards and Tech-*
 4 *nology Act (15 U.S.C. 278s).*

5 **SEC. 402. STANDARDS AND CONFORMITY ASSESSMENT.**

6 *Section 2 of the National Institute of Standards and*
 7 *Technology Act (15 U.S.C. 272) is amended—*

8 *(1) in subsection (b)—*

9 *(A) in the matter preceding paragraph (1),*
 10 *by striking “authorized to take” and inserting*
 11 *“authorized to serve as the President’s principal*
 12 *adviser on standards policy pertaining to the*
 13 *Nation’s technological competitiveness and inno-*
 14 *vation ability and to take”;*

15 *(B) in paragraph (3), by striking “compare*
 16 *standards” and all that follows through “Federal*
 17 *Government” and inserting “facilitate stand-*
 18 *ards-related information sharing and coopera-*
 19 *tion between Federal agencies”;* and

20 *(C) in paragraph (13), by striking “Fed-*
 21 *eral, State, and local” and all that follows*
 22 *through “private sector” and inserting “technical*
 23 *standards activities and conformity assessment*
 24 *activities of Federal, State, and local govern-*
 25 *ments with private sector”;* and

1 (2) in subsection (c)—

2 (A) in paragraph (22), by striking “and”
3 after the semicolon;

4 (B) by redesignating paragraph (23) as
5 paragraph (25); and

6 (C) by inserting after paragraph (22) the
7 following:

8 “(23) participate in and support scientific and
9 technical conferences;

10 “(24) perform pre-competitive measurement
11 science and technology research in partnership with
12 institutions of higher education and industry to pro-
13 mote United States industrial competitiveness; and”.

14 **SEC. 403. VISITING COMMITTEE ON ADVANCED TECH-**
15 **NOLOGY.**

16 Section 10 of the National Institute of Standards and
17 Technology Act (15 U.S.C. 278) is amended—

18 (1) in subsection (a)—

19 (A) by striking “15 members” and inserting
20 “not fewer than 11 members”;

21 (B) by striking “at least 10” and inserting
22 “at least two-thirds”; and

23 (C) by adding at the end the following:

24 “The Committee may consult with the National

1 *Research Council in making recommendations*
 2 *regarding general policy for the Institute.”; and*
 3 *(2) in subsection (h)(1), by striking “, including*
 4 *the Program established under section 28,”.*

5 **SEC. 404. POLICE AND SECURITY AUTHORITY.**

6 *Section 15 of the National Institute of Standards and*
 7 *Technology Act (15 U.S.C. 278e) is amended—*

8 *(1) by striking “of the Government; and” and*
 9 *inserting “of the Government;”; and*

10 *(2) by striking “United States Code.” and insert-*
 11 *ing “United States Code; and (i) the protection of In-*
 12 *stitute buildings and other plant facilities, equipment,*
 13 *and property, and of employees, associates, visitors,*
 14 *or other persons located therein or associated there-*
 15 *with, notwithstanding any other provision of law.”.*

16 **SEC. 405. EDUCATION AND OUTREACH.**

17 *The National Institute of Standards and Technology*
 18 *Act (15 U.S.C. 271 et seq.) is amended by striking sections*
 19 *18, 19, and 19A and inserting the following:*

20 **“SEC. 18. EDUCATION AND OUTREACH.**

21 *“(a) IN GENERAL.—The Director may support, pro-*
 22 *mote, and coordinate activities and efforts to enhance public*
 23 *awareness and understanding of measurement sciences,*
 24 *standards, and technology by the general public, industry,*
 25 *and academia in support of the Institute’s mission.*

1 “(b) *RESEARCH FELLOWSHIPS.*—

2 “(1) *IN GENERAL.*—*The Director may award re-*
3 *search fellowships and other forms of financial and*
4 *logistical assistance, including direct stipend awards,*
5 *to—*

6 “(A) *students at institutions of higher edu-*
7 *cation within the United States who show prom-*
8 *ise as present or future contributors to the mis-*
9 *sion of the Institute; and*

10 “(B) *United States citizens for research and*
11 *technical activities of the Institute.*

12 “(2) *SELECTION.*—*The Director shall select per-*
13 *sons to receive such fellowships and assistance on the*
14 *basis of ability and of the relevance of the proposed*
15 *work to the mission and programs of the Institute.*

16 “(3) *DEFINITION.*—*For the purposes of this sub-*
17 *section, financial and logistical assistance includes,*
18 *notwithstanding section 1345 of title 31, United*
19 *States Code, or any contrary provision of law, tem-*
20 *porary housing and local transportation to and from*
21 *the Institute facilities.*

22 “(c) *POST-DOCTORAL FELLOWSHIP PROGRAM.*—*The*
23 *Director shall establish and conduct a post-doctoral fellow-*
24 *ship program, subject to the availability of appropriations,*
25 *that shall include not fewer than 20 fellows per fiscal year.*

1 *In evaluating applications for fellowships under this sub-*
 2 *section, the Director shall give consideration to the goal of*
 3 *promoting the participation of underrepresented students in*
 4 *research areas supported by the Institute.”.*

5 **SEC. 406. PROGRAMMATIC PLANNING REPORT.**

6 *Section 23(d) of the National Institute of Standards*
 7 *and Technology Act (15 U.S.C. 278i(d)) is amended by add-*
 8 *ing at the end the following: “The 3-year programmatic*
 9 *planning document shall also describe how the Director is*
 10 *addressing recommendations from the Visiting Committee*
 11 *on Advanced Technology established under section 10.”.*

12 **SEC. 407. ASSESSMENTS BY THE NATIONAL RESEARCH**
 13 **COUNCIL.**

14 *(a) NATIONAL ACADEMY OF SCIENCES REVIEW.—Not*
 15 *later than 6 months after the date of enactment of this Act,*
 16 *the Director of the National Institute of Standards and*
 17 *Technology shall enter into a contract with the National*
 18 *Academy of Sciences to conduct a single, comprehensive re-*
 19 *view of the Institute’s laboratory programs. The review*
 20 *shall—*

- 21 *(1) assess the technical merits and scientific cal-*
 22 *iber of the research conducted at the laboratories;*
 23 *(2) examine the strengths and weaknesses of the*
 24 *2010 laboratory reorganization on the Institute’s abil-*
 25 *ity to fulfill its mission;*

1 (3) *evaluate how cross-cutting research and de-*
 2 *velopment activities are planned, coordinated, and ex-*
 3 *ecuted across the laboratories; and*

4 (4) *assess how the laboratories are engaging in-*
 5 *dustry, including the incorporation of industry need,*
 6 *into the research goals and objectives of the Institute.*

7 (b) *ADDITIONAL ASSESSMENTS.—Section 24 of the Na-*
 8 *tional Institute of Standards and Technology Act (15*
 9 *U.S.C. 278j) is amended to read as follows:*

10 **“SEC. 24. ASSESSMENTS BY THE NATIONAL RESEARCH**
 11 **COUNCIL.**

12 “(a) *IN GENERAL.—The Institute shall contract with*
 13 *the National Research Council to perform and report on*
 14 *assessments of the technical quality and impact of the work*
 15 *conducted at Institute laboratories.*

16 “(b) *SCHEDULE.—Two laboratories shall be assessed*
 17 *under subsection (a) each year, and each laboratory shall*
 18 *be assessed at least once every 3 years.*

19 “(c) *SUMMARY REPORT.—Beginning in the year after*
 20 *the first assessment is conducted under subsection (a), and*
 21 *once every two years thereafter, the Institute shall contract*
 22 *with the National Research Council to prepare a report that*
 23 *summarizes the findings common across the individual as-*
 24 *essment reports.*

1 “(d) *ADDITIONAL ASSESSMENTS.—The Institute, at*
 2 *the discretion of the Director, also may contract with the*
 3 *National Research Council to conduct additional assess-*
 4 *ments of Institute programs and projects that involve col-*
 5 *laboration across the Institute laboratories and centers and*
 6 *assessments of selected scientific and technical topics.*

7 “(e) *CONSULTATION WITH VISITING COMMITTEE ON*
 8 *ADVANCED TECHNOLOGY.—The National Research Council*
 9 *may consult with the Visiting Committee on Advanced*
 10 *Technology established under section 10 in performing the*
 11 *assessments under this section.*

12 “(f) *REPORTS.—Not later than 30 days after the com-*
 13 *pletion of each assessment, the Institute shall transmit the*
 14 *report on such assessment to the Committee on Science,*
 15 *Space, and Technology of the House of Representatives and*
 16 *the Committee on Commerce, Science, and Transportation*
 17 *of the Senate.”.*

18 **SEC. 408. HOLLINGS MANUFACTURING EXTENSION PART-**
 19 **NERSHIP.**

20 *Section 25 of the National Institute of Standards and*
 21 *Technology Act (15 U.S.C. 278k) is amended to read as fol-*
 22 *lows:*

23 **“SEC. 25. HOLLINGS MANUFACTURING EXTENSION PART-**
 24 **NERSHIP.**

25 “(a) *ESTABLISHMENT AND PURPOSE.—*

1 “(1) *IN GENERAL.*—*The Secretary, through the*
2 *Director and, if appropriate, through other officials,*
3 *shall provide assistance for the creation and support*
4 *of manufacturing extension centers, to be known as*
5 *the ‘Hollings Manufacturing Extension Centers’, for*
6 *the transfer of manufacturing technology and best*
7 *business practices (in this Act referred to as the ‘Cen-*
8 *ters’). The program under this section shall be known*
9 *as the ‘Hollings Manufacturing Extension Partner-*
10 *ship’.*

11 “(2) *AFFILIATIONS.*—*Such Centers shall be af-*
12 *filiated with any United States-based public or non-*
13 *profit institution or organization, or group thereof,*
14 *that applies for and is awarded financial assistance*
15 *under this section.*

16 “(3) *OBJECTIVE.*—*The objective of the Centers is*
17 *to enhance competitiveness, productivity, and techno-*
18 *logical performance in United States manufacturing*
19 *through—*

20 “(A) *the transfer of manufacturing tech-*
21 *nology and techniques developed at the Institute*
22 *to Centers and, through them, to manufacturing*
23 *companies throughout the United States;*

24 “(B) *the participation of individuals from*
25 *industry, institutions of higher education, State*

1 *governments, other Federal agencies, and, when*
2 *appropriate, the Institute in cooperative tech-*
3 *nology transfer activities;*

4 *“(C) efforts to make new manufacturing*
5 *technology and processes usable by United*
6 *States-based small and medium-sized companies;*

7 *“(D) the active dissemination of scientific,*
8 *engineering, technical, and management infor-*
9 *mation about manufacturing to industrial firms,*
10 *including small and medium-sized manufac-*
11 *turing companies;*

12 *“(E) the utilization, when appropriate, of*
13 *the expertise and capability that exists in Fed-*
14 *eral laboratories other than the Institute;*

15 *“(F) the provision to community colleges*
16 *and area career and technical education schools*
17 *of information about the job skills needed in*
18 *small and medium-sized manufacturing busi-*
19 *nesses in the regions they serve; and*

20 *“(G) promoting and expanding certification*
21 *systems offered through industry, associations,*
22 *and local colleges, when appropriate.*

23 *“(b) ACTIVITIES.—The activities of the Centers shall*
24 *include—*

1 “(1) *the establishment of automated manufac-*
 2 *turing systems and other advanced production tech-*
 3 *nologies, based on Institute-supported research, for the*
 4 *purpose of demonstrations and technology transfer;*

5 “(2) *the active transfer and dissemination of re-*
 6 *search findings and Center expertise to a wide range*
 7 *of companies and enterprises, particularly small and*
 8 *medium-sized manufacturers; and*

9 “(3) *the facilitation of collaborations and part-*
 10 *nerships between small and medium-sized manufac-*
 11 *turing companies and community colleges and area*
 12 *career and technical education schools to help such*
 13 *colleges and schools better understand the specific*
 14 *needs of manufacturers and to help manufacturers*
 15 *better understand the skill sets that students learn in*
 16 *the programs offered by such colleges and schools.*

17 “(c) *OPERATIONS.—*

18 “(1) *FINANCIAL SUPPORT.—The Secretary may*
 19 *provide financial support to any Center created*
 20 *under subsection (a). The Secretary may not provide*
 21 *to a Center more than 50 percent of the capital and*
 22 *annual operating and maintenance funds required to*
 23 *create and maintain such Center.*

24 “(2) *REGULATIONS.—The Secretary shall imple-*
 25 *ment, review, and update the sections of the Code of*

1 *Federal Regulations related to this section at least*
2 *once every 3 years.*

3 “(3) *APPLICATION.*—

4 “(A) *IN GENERAL.*—Any nonprofit institu-
5 *tion, or consortium thereof, or State or local gov-*
6 *ernment, may submit to the Secretary an appli-*
7 *cation for financial support under this section,*
8 *in accordance with the procedures established by*
9 *the Secretary.*

10 “(B) *COST SHARING.*—In order to receive
11 *assistance under this section, an applicant for fi-*
12 *nancial assistance under subparagraph (A) shall*
13 *provide adequate assurances that non-Federal as-*
14 *sets obtained from the applicant and the appli-*
15 *cant’s partnering organizations will be used as a*
16 *funding source to meet not less than 50 percent*
17 *of the costs incurred. For purposes of the pre-*
18 *ceding sentence, the costs incurred means the*
19 *costs incurred in connection with the activities*
20 *undertaken to improve the competitiveness, man-*
21 *agement, productivity, and technological per-*
22 *formance of small and medium-sized manufac-*
23 *turing companies.*

24 “(C) *AGREEMENTS WITH OTHER ENTI-*
25 *TIES.*—In meeting the 50 percent requirement, it

1 *is anticipated that a Center will enter into*
2 *agreements with other entities such as private*
3 *industry, institutions of higher education, and*
4 *State governments to accomplish programmatic*
5 *objectives and access new and existing resources*
6 *that will further the impact of the Federal in-*
7 *vestment made on behalf of small and medium-*
8 *sized manufacturing companies.*

9 *“(D) LEGAL RIGHTS.—Each applicant*
10 *under subparagraph (A) shall also submit a pro-*
11 *posal for the allocation of the legal rights associ-*
12 *ated with any invention which may result from*
13 *the proposed Center’s activities.*

14 *“(4) MERIT REVIEW.—The Secretary shall sub-*
15 *ject each such application to merit review. In making*
16 *a decision whether to approve such application and*
17 *provide financial support under this section, the Sec-*
18 *retary shall consider, at a minimum, the following:*

19 *“(A) The merits of the application, particu-*
20 *larly those portions of the application regarding*
21 *technology transfer, training and education, and*
22 *adaptation of manufacturing technologies to the*
23 *needs of particular industrial sectors.*

24 *“(B) The quality of service to be provided.*

1 “(C) *Geographical diversity and extent of*
2 *service area.*

3 “(D) *The percentage of funding and amount*
4 *of in-kind commitment from other sources.*

5 “(5) *EVALUATION.—*

6 “(A) *IN GENERAL.—Each Center that re-*
7 *ceives financial assistance under this section*
8 *shall be evaluated during its third year of oper-*
9 *ation by an evaluation panel appointed by the*
10 *Secretary.*

11 “(B) *COMPOSITION.—Each such evaluation*
12 *panel shall be composed of private experts, none*
13 *of whom shall be connected with the involved*
14 *Center, and Federal officials.*

15 “(C) *CHAIR.—An official of the Institute*
16 *shall chair the panel.*

17 “(D) *PERFORMANCE MEASUREMENT.—Each*
18 *evaluation panel shall measure the involved Cen-*
19 *ter’s performance against the objectives specified*
20 *in this section.*

21 “(E) *POSITIVE EVALUATION.—If the evalua-*
22 *tion is positive, the Secretary may provide con-*
23 *tinued funding through the sixth year.*

24 “(F) *PROBATION.—The Secretary shall not*
25 *provide funding unless the Center has received a*

1 *positive evaluation. A Center that has not re-*
2 *ceived a positive evaluation by the evaluation*
3 *panel shall be notified by the panel of the defi-*
4 *ciencies in its performance and shall be placed*
5 *on probation for one year, after which time the*
6 *panel shall reevaluate the Center. If the Center*
7 *has not addressed the deficiencies identified by*
8 *the panel, or shown a significant improvement*
9 *in its performance, the Director shall conduct a*
10 *new competition to select an operator for the*
11 *Center or may close the Center.*

12 “(G) *ADDITIONAL FINANCIAL SUPPORT.—*
13 *After the sixth year, a Center may receive addi-*
14 *tional financial support under this section if it*
15 *has received a positive evaluation through an*
16 *independent review, under procedures established*
17 *by the Institute.*

18 “(H) *EIGHT-YEAR REVIEW.—A Center shall*
19 *undergo an independent review in the 8th year*
20 *of operation. Each evaluation panel shall meas-*
21 *ure the Center’s performance against the objec-*
22 *tives specified in this section. A Center that has*
23 *not received a positive evaluation as a result of*
24 *an independent review shall be notified by the*
25 *Program of the deficiencies in its performance*

1 *and shall be placed on probation for one year,*
2 *after which time the Program shall reevaluate*
3 *the Center. If the Center has not addressed the*
4 *deficiencies identified by the review, or shown a*
5 *significant improvement in its performance, the*
6 *Director shall conduct a new competition to se-*
7 *lect an operator for the Center or may close the*
8 *Center.*

9 “(I) *RECOMPETITION.*—*If a recipient of a*
10 *Center award has received financial assistance*
11 *for 10 consecutive years, the Director shall con-*
12 *duct a new competition to select an operator for*
13 *the Center consistent with the plan required in*
14 *this Act. Incumbent Center operators in good*
15 *standing shall be eligible to compete for the new*
16 *award.*

17 “(J) *REPORTS.*—

18 “(i) *PLAN.*—*Not later than 180 days*
19 *after the date of enactment of the America*
20 *COMPETES Reauthorization Act of 2015,*
21 *the Director shall transmit to the Com-*
22 *mittee on Science, Space, and Technology of*
23 *the House of Representatives and the Com-*
24 *mittee on Commerce, Science, and Trans-*
25 *portation of the Senate a plan as to how the*

1 *Institute will conduct reviews, assessments,*
2 *and reapplication competitions under this*
3 *paragraph.*

4 “(ii) *INDEPENDENT ASSESSMENT.—*
5 *The Director shall contract with an inde-*
6 *pendent organization to perform an assess-*
7 *ment of the implementation of the re-*
8 *application competition process under this*
9 *paragraph within 3 years after the trans-*
10 *mittal of the report under clause (i). The or-*
11 *ganization conducting the assessment under*
12 *this clause may consult with the MEP Advi-*
13 *sory Board.*

14 “(iii) *COMPARISON OF CENTERS.—Not*
15 *later than 2 years after the date of enact-*
16 *ment of the America COMPETES Reau-*
17 *thorization Act of 2015, the Director shall*
18 *transmit to the Committee on Science,*
19 *Space, and Technology of the House of Rep-*
20 *resentatives and the Committee on Com-*
21 *merce, Science, and Transportation of the*
22 *Senate a report providing information on*
23 *the first and second years of operations for*
24 *centers operating from new competitions or*
25 *recompetition as compared to longstanding*

1 *centers. The report shall provide detail on*
2 *the engagement in services provided by Cen-*
3 *ters and the characteristics of services pro-*
4 *vided, including volume and type of serv-*
5 *ices, so that the Committees can evaluate*
6 *whether the cost-sharing ratio has an effect*
7 *on the services provided at Centers.*

8 “(6) *PATENT RIGHTS.*—*The provisions of chapter*
9 *18 of title 35, United States Code, shall apply, to the*
10 *extent not inconsistent with this section, to the pro-*
11 *motion of technology from research by Centers under*
12 *this section except for contracts for such specific tech-*
13 *nology extension or transfer services as may be speci-*
14 *fied by statute or by the Director.*

15 “(7) *PROTECTION OF CENTER CLIENT CONFIDEN-*
16 *TIAL INFORMATION.*—*Section 552 of title 5, United*
17 *States Code, shall apply to the following information*
18 *obtained by the Federal Government on a confidential*
19 *basis in connection with the activities of any partici-*
20 *phant involved in the Hollings Manufacturing Exten-*
21 *sion Partnership:*

22 “(A) *Information on the business operation*
23 *of any participant in a Hollings Manufacturing*
24 *Extension Partnership program or of a client of*
25 *a Center.*

1 “(B) *Trade secrets possessed by any client*
 2 *of a Center.*

3 “(8) *ADVISORY BOARDS.—Each Center’s advi-*
 4 *sory boards shall institute a conflict of interest policy,*
 5 *approved by the Director, that ensures the Board rep-*
 6 *resents local small and medium-sized manufacturers*
 7 *in the Center’s region. Board Members may not serve*
 8 *as a vendor or provide services to the Center, nor may*
 9 *they serve on more than one Center’s oversight board*
 10 *simultaneously.*

11 “(d) *ACCEPTANCE OF FUNDS.—*

12 “(1) *IN GENERAL.—In addition to such sums as*
 13 *may be appropriated to the Secretary and Director to*
 14 *operate the Hollings Manufacturing Extension Part-*
 15 *nership, the Secretary and Director also may accept*
 16 *funds from other Federal departments and agencies*
 17 *and, under section 2(c)(7), from the private sector for*
 18 *the purpose of strengthening United States manufac-*
 19 *turing.*

20 “(2) *ALLOCATION OF FUNDS.—*

21 “(A) *FUNDS ACCEPTED FROM OTHER FED-*
 22 *ERAL DEPARTMENTS OR AGENCIES.—The Direc-*
 23 *tor shall determine whether funds accepted from*
 24 *other Federal departments or agencies shall be*
 25 *counted in the calculation of the Federal share of*

1 *capital and annual operating and maintenance*
 2 *costs under subsection (c).*

3 “(B) *FUNDS ACCEPTED FROM THE PRIVATE*
 4 *SECTOR.—Funds accepted from the private sector*
 5 *under section 2(c)(7), if allocated to a Center,*
 6 *may not be considered in the calculation of the*
 7 *Federal share under subsection (c) of this section.*

8 “(e) *MEP ADVISORY BOARD.—*

9 “(1) *ESTABLISHMENT.—There is established*
 10 *within the Institute a Manufacturing Extension Part-*
 11 *nership Advisory Board (in this subsection referred to*
 12 *as the ‘MEP Advisory Board’).*

13 “(2) *MEMBERSHIP.—*

14 “(A) *IN GENERAL.—The MEP Advisory*
 15 *Board shall consist of not fewer than 10 members*
 16 *broadly representative of stakeholders, to be ap-*
 17 *pointed by the Director. At least 2 members shall*
 18 *be employed by or on an advisory board for the*
 19 *Centers, at least 1 member shall represent a com-*
 20 *munity college, and at least 5 other members*
 21 *shall be from United States small businesses in*
 22 *the manufacturing sector. No member shall be an*
 23 *employee of the Federal Government.*

24 “(B) *TERM.—Except as provided in sub-*
 25 *paragraph (C) or (D), the term of office of each*

1 *member of the MEP Advisory Board shall be 3*
2 *years.*

3 “(C) *VACANCIES.*—*Any member appointed*
4 *to fill a vacancy occurring prior to the expira-*
5 *tion of the term for which his predecessor was*
6 *appointed shall be appointed for the remainder*
7 *of such term.*

8 “(D) *SERVING CONSECUTIVE TERMS.*—*Any*
9 *person who has completed two consecutive full*
10 *terms of service on the MEP Advisory Board*
11 *shall thereafter be ineligible for appointment*
12 *during the one-year period following the expira-*
13 *tion of the second such term.*

14 “(3) *MEETINGS.*—*The MEP Advisory Board*
15 *shall meet not less than 2 times annually and shall*
16 *provide to the Director—*

17 “(A) *advice on Hollings Manufacturing Ex-*
18 *tension Partnership programs, plans, and poli-*
19 *cies;*

20 “(B) *assessments of the soundness of Hol-*
21 *lings Manufacturing Extension Partnership*
22 *plans and strategies; and*

23 “(C) *assessments of current performance*
24 *against Hollings Manufacturing Extension Part-*
25 *nership program plans.*

1 “(4) *FEDERAL ADVISORY COMMITTEE ACT APPLI-*
2 *CABILITY.*—

3 “(A) *IN GENERAL.*—*In discharging its du-*
4 *ties under this subsection, the MEP Advisory*
5 *Board shall function solely in an advisory ca-*
6 *capacity, in accordance with the Federal Advisory*
7 *Committee Act.*

8 “(B) *EXCEPTION.*—*Section 14 of the Fed-*
9 *eral Advisory Committee Act shall not apply to*
10 *the MEP Advisory Board.*

11 “(5) *REPORT.*—*The MEP Advisory Board shall*
12 *transmit an annual report to the Secretary for trans-*
13 *mittal to Congress within 30 days after the submis-*
14 *sion to Congress of the President’s annual budget re-*
15 *quest in each year. Such report shall address the sta-*
16 *tus of the program established pursuant to this section*
17 *and comment on the relevant sections of the pro-*
18 *grammatic planning document and updates thereto*
19 *transmitted to Congress by the Director under sub-*
20 *sections (c) and (d) of section 23.*

21 “(f) *COMPETITIVE GRANT PROGRAM.*—

22 “(1) *ESTABLISHMENT.*—*The Director shall estab-*
23 *lish, within the Hollings Manufacturing Extension*
24 *Partnership, under this section and section 26, a pro-*
25 *gram of competitive awards among participants de-*

1 scribed in paragraph (2) for the purposes described in
2 paragraph (3).

3 “(2) *PARTICIPANTS.*—*Participants receiving*
4 *awards under this subsection shall be the Centers, or*
5 *a consortium of such Centers.*

6 “(3) *PURPOSE.*—*The purpose of the program*
7 *under this subsection is to add capabilities to the*
8 *Hollings Manufacturing Extension Partnership, in-*
9 *cluding the development of projects to solve new or*
10 *emerging manufacturing problems as determined by*
11 *the Director, in consultation with the Director of the*
12 *Hollings Manufacturing Extension Partnership pro-*
13 *gram, the MEP Advisory Board, and small and me-*
14 *dium-sized manufacturers. One or more themes for the*
15 *competition may be identified, which may vary from*
16 *year to year, depending on the needs of manufactur-*
17 *ers and the success of previous competitions. Centers*
18 *may be reimbursed for costs incurred under the pro-*
19 *gram.*

20 “(4) *APPLICATIONS.*—*Applications for awards*
21 *under this subsection shall be submitted in such man-*
22 *ner, at such time, and containing such information*
23 *as the Director shall require, in consultation with the*
24 *MEP Advisory Board.*

1 “(5) *SELECTION.—Awards under this subsection*
2 *shall be peer reviewed and competitively awarded.*
3 *The Director shall endeavor to have broad geographic*
4 *diversity among selected proposals. The Director shall*
5 *select proposals to receive awards that will—*

6 “(A) *improve the competitiveness of indus-*
7 *tries in the region in which the Center or Centers*
8 *are located;*

9 “(B) *create jobs or train newly hired em-*
10 *ployees; and*

11 “(C) *promote the transfer and commer-*
12 *cialization of research and technology from insti-*
13 *tutions of higher education, national labora-*
14 *tories, and nonprofit research institutes.*

15 “(6) *PROGRAM CONTRIBUTION.—Recipients of*
16 *awards under this subsection shall not be required to*
17 *provide a matching contribution.*

18 “(7) *GLOBAL MARKETPLACE PROJECTS.—In*
19 *making awards under this subsection, the Director, in*
20 *consultation with the MEP Advisory Board and the*
21 *Secretary, may take into consideration whether an*
22 *application has significant potential for enhancing*
23 *the competitiveness of small and medium-sized United*
24 *States manufacturers in the global marketplace.*

1 “(8) *DURATION.*—*Awards under this subsection*
2 *shall last no longer than 3 years.*

3 “(g) *EVALUATION OF OBSTACLES UNIQUE TO SMALL*
4 *MANUFACTURERS.*—*The Director shall—*

5 “(1) *evaluate obstacles that are unique to small*
6 *manufacturers that prevent such manufacturers from*
7 *effectively competing in the global market;*

8 “(2) *implement a comprehensive plan to train*
9 *the Centers to address such obstacles; and*

10 “(3) *facilitate improved communication between*
11 *the Centers to assist such manufacturers in imple-*
12 *menting appropriate, targeted solutions to such obsta-*
13 *cles.*

14 “(h) *DEFINITIONS.*—*In this section—*

15 “(1) *the term ‘area career and technical edu-*
16 *cation school’ has the meaning given such term in sec-*
17 *tion 3 of the Carl D. Perkins Career and Technical*
18 *Education Improvement Act of 2006 (20 U.S.C.*
19 *2302); and*

20 “(2) *the term ‘community college’ means an in-*
21 *stitution of higher education (as defined under section*
22 *101(a) of the Higher Education Act of 1965 (20*
23 *U.S.C. 1001(a))) at which the highest degree that is*
24 *predominately awarded to students is an associate’s*
25 *degree.”.*

1 **SEC. 409. ELIMINATION OF OBSOLETE REPORTS.**

2 *Section 28 of the National Institute of Standards and*
 3 *Technology Act (15 U.S.C. 278n) is amended—*

4 *(1) by striking subsection (g); and*

5 *(2) in subsection (k)—*

6 *(A) in paragraph (3), by inserting “and”*
 7 *after the semicolon at the end;*

8 *(B) in paragraph (4)(B), by striking “;*
 9 *and” at the end and inserting a period; and*

10 *(C) by striking paragraph (5).*

11 **SEC. 410. MODIFICATIONS TO GRANTS AND COOPERATIVE**
 12 **AGREEMENTS.**

13 *Section 8(a) of the Stevenson-Wydler Technology Inno-*
 14 *vation Act of 1980 (15 U.S.C. 3706(a)) is amended by strik-*
 15 *ing “The total amount of any such grant or cooperative*
 16 *agreement may not exceed 75 percent of the total cost of*
 17 *the program.”.*

18 **SEC. 411. INFORMATION SYSTEMS STANDARDS CONSULTA-**
 19 **TION.**

20 *Section 20(c)(1) of the National Institute of Standards*
 21 *and Technology Act (15 U.S.C. 278g—3(c)(1)) is amended*
 22 *by striking “the National Security Agency,”.*

23 **SEC. 412. UNITED STATES-ISRAELI COOPERATION.**

24 *It is the Sense of Congress that—*

25 *(1) partnerships that facilitate basic scientific*
 26 *research between the United States and Israel advance*

1 *technology development, innovation, and commer-*
 2 *cialization leading to growth in various sectors, in-*
 3 *cluding manufacturing, and creating benefits for both*
 4 *nations;*

5 *(2) joint research and development agreements*
 6 *carried out through government organizations like the*
 7 *National Institute of Standards and Technology sup-*
 8 *port these efforts;*

9 *(3) partnerships between the United States and*
 10 *Israel that further the basic scientific enterprise*
 11 *should be encouraged; and*

12 *(4) the National Institute of Standards and*
 13 *Technology should continue to facilitate scientific col-*
 14 *laborations between Israel and United States' tech-*
 15 *nical agencies working in measurement science and*
 16 *standardization.*

17 ***TITLE V—DEPARTMENT OF***
 18 ***ENERGY SCIENCE***

19 ***SEC. 501. MISSION.***

20 *Section 209 of the Department of Energy Organization*
 21 *Act (42 U.S.C. 7139) is amended by adding at the end the*
 22 *following:*

23 *“(c) MISSION.—The mission of the Office of Science*
 24 *shall be the delivery of scientific discoveries, capabilities,*
 25 *and major scientific tools to transform the understanding*

1 *of nature and to advance the energy, economic, and na-*
2 *tional security of the United States. In support of this mis-*
3 *sion, the Director shall carry out programs on basic energy*
4 *sciences, advanced scientific computing research, high en-*
5 *ergy physics, biological and environmental research, fusion*
6 *energy sciences, and nuclear physics, including as provided*
7 *under subtitle A of title V of the America COMPETES Re-*
8 *authorization Act of 2015, through activities focused on—*

9 “(1) *fundamental scientific discoveries through*
10 *the study of matter and energy;*

11 “(2) *science in the national interest, including—*

12 “(A) *advancing an agenda for American*
13 *energy security through research on energy pro-*
14 *duction, storage, transmission, efficiency, and*
15 *use; and*

16 “(B) *advancing our understanding of the*
17 *Earth’s climate through research in atmospheric*
18 *and environmental sciences; and*

19 “(3) *National Scientific User Facilities to de-*
20 *liver the 21st century tools of science, engineering,*
21 *and technology and provide the Nation’s researchers*
22 *with the most advanced tools of modern science in-*
23 *cluding accelerators, colliders, supercomputers, light*
24 *sources and neutron sources, and facilities for study-*
25 *ing materials science.*

1 “(d) *COORDINATION WITH OTHER DEPARTMENT OF*
 2 *ENERGY PROGRAMS.*—*The Under Secretary for Science and*
 3 *Energy shall ensure the coordination of Office of Science*
 4 *activities and programs with other activities of the Depart-*
 5 *ment.*”.

6 **SEC. 502. BASIC ENERGY SCIENCES.**

7 (a) *PROGRAM.*—*The Director shall carry out a pro-*
 8 *gram in basic energy sciences, including materials sciences*
 9 *and engineering, chemical sciences, physical biosciences,*
 10 *and geosciences, for the purpose of providing the scientific*
 11 *foundations for new energy technologies.*

12 (b) *MISSION.*—*The mission of the program described*
 13 *in subsection (a) shall be to support fundamental research*
 14 *to understand, predict, and ultimately control matter and*
 15 *energy at the electronic, atomic, and molecular levels in*
 16 *order to provide the foundations for new energy technologies*
 17 *and to support Department missions in energy, environ-*
 18 *ment, and national security.*

19 (c) *BASIC ENERGY SCIENCES USER FACILITIES.*—*The*
 20 *Director shall carry out a subprogram for the development,*
 21 *construction, operation, and maintenance of national user*
 22 *facilities to support the program under this section. As*
 23 *practicable, these facilities shall serve the needs of the De-*
 24 *partment, industry, the academic community, and other*
 25 *relevant entities to create and examine new materials and*

1 *chemical processes for the purposes of advancing new energy*
2 *technologies and improving the competitiveness of the*
3 *United States. These facilities shall include—*

4 *(1) x-ray light sources;*

5 *(2) neutron sources;*

6 *(3) nanoscale science research centers; and*

7 *(4) other facilities the Director considers appro-*
8 *priate, consistent with section 209 of the Department*
9 *of Energy Organization Act (42 U.S.C. 7139).*

10 *(d) LIGHT SOURCE LEADERSHIP INITIATIVE.—*

11 *(1) ESTABLISHMENT.—In support of the subpro-*
12 *gram authorized in subsection (c), the Director shall*
13 *establish an initiative to sustain and advance global*
14 *leadership of light source user facilities.*

15 *(2) LEADERSHIP STRATEGY.—Not later than 9*
16 *months after the date of enactment of this Act, and*
17 *biennially thereafter, the Director shall prepare, in*
18 *consultation with relevant stakeholders, and submit to*
19 *the Committee on Science, Space, and Technology of*
20 *the House of Representatives and the Committee on*
21 *Energy and Natural Resources of the Senate a light*
22 *source leadership strategy that—*

23 *(A) identifies, prioritizes, and describes*
24 *plans for the development, construction, and op-*
25 *eration of light sources over the next decade;*

1 (B) describes plans for optimizing manage-
 2 ment and use of existing light source facilities;
 3 and

4 (C) assesses the international outlook for
 5 light source user facilities and describes plans for
 6 United States cooperation in such projects.

7 (3) *ADVISORY COMMITTEE FEEDBACK AND REC-*
 8 *OMMENDATIONS.*—Not later than 45 days after sub-
 9 mission of the strategy described in paragraph (2),
 10 the Basic Energy Sciences Advisory Committee shall
 11 provide the Director, the Committee on Science,
 12 Space, and Technology of the House of Representa-
 13 tives, and the Committee on Energy and Natural Re-
 14 sources of the Senate a report of the Advisory Com-
 15 mittee's analyses, findings, and recommendations for
 16 improving the strategy, including a review of the
 17 most recent budget request for the initiative.

18 (4) *PROPOSED BUDGET.*—The Director shall
 19 transmit annually to Congress a proposed budget cor-
 20 responding to the activities identified in the strategy.

21 (e) *ACCELERATOR RESEARCH AND DEVELOPMENT.*—
 22 The Director shall carry out research and development on
 23 advanced accelerator and storage ring technologies relevant
 24 to the development of Basic Energy Sciences user facilities,

1 *in consultation with the Office of Science's High Energy*
 2 *Physics and Nuclear Physics programs.*

3 *(f) ENERGY FRONTIER RESEARCH CENTERS.—*

4 *(1) IN GENERAL.—The Director shall carry out*
 5 *a program to provide awards, on a competitive,*
 6 *merit-reviewed basis, to multi-institutional collabora-*
 7 *tions or other appropriate entities to conduct funda-*
 8 *mental and use-inspired energy research to accelerate*
 9 *scientific breakthroughs.*

10 *(2) COLLABORATIONS.—A collaboration receiving*
 11 *an award under this subsection may include multiple*
 12 *types of institutions and private sector entities.*

13 *(3) SELECTION AND DURATION.—*

14 *(A) IN GENERAL.—A collaboration under*
 15 *this subsection shall be selected for a period of 5*
 16 *years. An Energy Frontier Research Center al-*
 17 *ready in existence and supported by the Director*
 18 *on the date of enactment of this Act may con-*
 19 *tinue to receive support for a period of 5 years*
 20 *beginning on the date of establishment of that*
 21 *center.*

22 *(B) REAPPLICATION.—After the end of the*
 23 *period described in subparagraph (A), an*
 24 *awardee may reapply for selection for a second*

1 *period of 5 years on a competitive, merit-re-*
 2 *viewed basis.*

3 (C) *TERMINATION.*—*Consistent with the ex-*
 4 *isting authorities of the Department, the Direc-*
 5 *tor may terminate an underperforming center*
 6 *for cause during the performance period.*

7 (4) *NO FUNDING FOR CONSTRUCTION.*—*No fund-*
 8 *ing provided pursuant to this subsection may be used*
 9 *for the construction of new buildings or facilities.*

10 **SEC. 503. ADVANCED SCIENTIFIC COMPUTING RESEARCH.**

11 (a) *PROGRAM.*—*The Director shall carry out a re-*
 12 *search, development, and demonstration program to ad-*
 13 *vance computational and networking capabilities to ana-*
 14 *lyze, model, simulate, and predict complex phenomena rel-*
 15 *evant to the development of new energy technologies and*
 16 *the competitiveness of the United States.*

17 (b) *FACILITIES.*—*The Director, as part of the program*
 18 *described in subsection (a), shall develop and maintain*
 19 *world-class computing and network facilities for science*
 20 *and deliver critical research in applied mathematics, com-*
 21 *puter science, and advanced networking to support the De-*
 22 *partment's missions.*

23 (c) *DEFINITIONS.*—*Section 2 of the Department of En-*
 24 *ergy High-End Computing Revitalization Act of 2004 (15*

1 *U.S.C. 5541) is amended by striking paragraphs (1)*
2 *through (5) and inserting the following:*

3 “(1) *CO-DESIGN.*—*The term ‘co-design’ means*
4 *the joint development of application algorithms, mod-*
5 *els, and codes with computer technology architectures*
6 *and operating systems to maximize effective use of*
7 *high-end computing systems.*

8 “(2) *DEPARTMENT.*—*The term ‘Department’*
9 *means the Department of Energy.*

10 “(3) *EXASCALE.*—*The term ‘exascale’ means*
11 *computing system performance at or near 10 to the*
12 *18th power floating point operations per second.*

13 “(4) *HIGH-END COMPUTING SYSTEM.*—*The term*
14 *‘high-end computing system’ means a computing sys-*
15 *tem with performance that substantially exceeds that*
16 *of systems that are commonly available for advanced*
17 *scientific and engineering applications.*

18 “(5) *INSTITUTION OF HIGHER EDUCATION.*—*The*
19 *term ‘institution of higher education’ has the meaning*
20 *given the term in section 2 of the Energy Policy Act*
21 *of 2005 (42 U.S.C. 15801).*

22 “(6) *LEADERSHIP SYSTEM.*—*The term ‘leader-*
23 *ship system’ means a high-end computing system that*
24 *is among the most advanced in the world in terms of*

1 *performance in solving scientific and engineering*
 2 *problems.*

3 “(7) *NATIONAL LABORATORY.*—*The term ‘Na-*
 4 *tional Laboratory’ means any one of the seventeen*
 5 *laboratories owned by the Department.*

6 “(8) *SECRETARY.*—*The term ‘Secretary’ means*
 7 *the Secretary of Energy.*

8 “(9) *SOFTWARE TECHNOLOGY.*—*The term ‘soft-*
 9 *ware technology’ includes optimal algorithms, pro-*
 10 *gramming environments, tools, languages, and oper-*
 11 *ating systems for high-end computing systems.”.*

12 (d) *DEPARTMENT OF ENERGY HIGH-END COMPUTING*
 13 *RESEARCH AND DEVELOPMENT PROGRAM.*—*Section 3 of*
 14 *the Department of Energy High-End Computing Revital-*
 15 *ization Act of 2004 (15 U.S.C. 5542) is amended—*

16 (1) *in subsection (a)—*

17 (A) *in paragraph (1), by striking “pro-*
 18 *gram” and inserting “coordinated program*
 19 *across the Department”;*

20 (B) *by striking “and” at the end of para-*
 21 *graph (1);*

22 (C) *by striking the period at the end of*
 23 *paragraph (2) and inserting “; and”; and*

24 (D) *by adding at the end the following new*
 25 *paragraph:*

1 “(3) partner with universities, National Labora-
 2 tories, and industry to ensure the broadest possible
 3 application of the technology developed in this pro-
 4 gram to other challenges in science, engineering, med-
 5 icine, and industry.”;

6 (2) in subsection (b)(2), by striking “vector” and
 7 all that follows through “architectures” and inserting
 8 “computer technologies that show promise of substan-
 9 tial reductions in power requirements and substantial
 10 gains in parallelism of multicore processors, con-
 11 currency, memory and storage, bandwidth, and reli-
 12 ability”; and

13 (3) by striking subsection (d) and inserting the
 14 following:

15 “(d) EXASCALE COMPUTING PROGRAM.—

16 “(1) IN GENERAL.—The Secretary shall conduct
 17 a coordinated research program to develop exascale
 18 computing systems to advance the missions of the De-
 19 partment.

20 “(2) EXECUTION.—The Secretary shall, through
 21 competitive merit review, establish two or more Na-
 22 tional Laboratory-industry-university partnerships to
 23 conduct integrated research, development, and engi-
 24 neering of multiple exascale architectures, and—

1 “(A) conduct mission-related co-design ac-
2 tivities in developing such exascale platforms;

3 “(B) develop those advancements in hard-
4 ware and software technology required to fully
5 realize the potential of an exascale production
6 system in addressing Department target applica-
7 tions and solving scientific problems involving
8 predictive modeling and simulation and large-
9 scale data analytics and management; and

10 “(C) explore the use of exascale computing
11 technologies to advance a broad range of science
12 and engineering.

13 “(3) ADMINISTRATION.—In carrying out this
14 program, the Secretary shall—

15 “(A) provide, on a competitive, merit-re-
16 viewed basis, access for researchers in United
17 States industry, institutions of higher education,
18 National Laboratories, and other Federal agen-
19 cies to these exascale systems, as appropriate;
20 and

21 “(B) conduct outreach programs to increase
22 the readiness for the use of such platforms by do-
23 mestic industries, including manufacturers.

24 “(4) REPORTS.—

1 “(A) *INTEGRATED STRATEGY AND PROGRAM*
2 *MANAGEMENT PLAN.*—*The Secretary shall submit*
3 *to Congress, not later than 90 days after the date*
4 *of enactment of the America COMPETES Reau-*
5 *thorization Act of 2015, a report outlining an*
6 *integrated strategy and program management*
7 *plan, including target dates for prototypical and*
8 *production exascale platforms, interim mile-*
9 *stones to reaching these targets, functional re-*
10 *quirements, roles and responsibilities of National*
11 *Laboratories and industry, acquisition strategy,*
12 *and estimated resources required, to achieve this*
13 *exascale system capability. The report shall in-*
14 *clude the Secretary’s plan for Departmental or-*
15 *ganization to manage and execute the Exascale*
16 *Computing Program, including definition of the*
17 *roles and responsibilities within the Department*
18 *to ensure an integrated program across the De-*
19 *partment. The report shall also include a plan*
20 *for ensuring balance and prioritizing across*
21 *ASCR subprograms in a flat or slow-growth*
22 *budget environment.*

23 “(B) *STATUS REPORTS.*—*At the time of the*
24 *budget submission of the Department for each*
25 *fiscal year, the Secretary shall submit a report*

1 to Congress that describes the status of milestones
2 and costs in achieving the objectives of the
3 exascale computing program.

4 “(C) *EXASCALE MERIT REPORT*.—At least
5 18 months prior to the initiation of construction
6 or installation of any exascale-class computing
7 facility, the Secretary shall transmit a plan to
8 the Congress detailing—

9 “(i) the proposed facility’s cost projec-
10 tions and capabilities to significantly accel-
11 erate the development of new energy tech-
12 nologies;

13 “(ii) technical risks and challenges that
14 must be overcome to achieve successful com-
15 pletion and operation of the facility; and

16 “(iii) an independent assessment of the
17 scientific and technological advances ex-
18 pected from such a facility relative to those
19 expected from a comparable investment in
20 expanded research and applications at
21 terascale-class and petascale-class com-
22 puting facilities, including an evaluation of
23 where investments should be made in the
24 system software and algorithms to enable
25 these advances.”.

1 **SEC. 504. HIGH ENERGY PHYSICS.**

2 (a) *PROGRAM.*—*The Director shall carry out a re-*
3 *search program on the fundamental constituents of matter*
4 *and energy and the nature of space and time.*

5 (b) *SENSE OF CONGRESS.*—*It is the sense of the Con-*
6 *gress that—*

7 (1) *the Director should incorporate the findings*
8 *and recommendations of the Particle Physics Project*
9 *Prioritization Panel’s report entitled “Building for*
10 *Discovery: Strategic Plan for U.S. Particle Physics in*
11 *the Global Context”, into the Department’s planning*
12 *process as part of the program described in subsection*
13 *(a);*

14 (2) *the Director should prioritize domestically*
15 *hosted research projects that will maintain the United*
16 *States position as a global leader in particle physics*
17 *and attract the world’s most talented physicists and*
18 *foreign investment for international collaboration;*
19 *and*

20 (3) *the nations that lead in particle physics by*
21 *hosting international teams dedicated to a common*
22 *scientific goal attract the world’s best talent and in-*
23 *spire future generations of physicists and tech-*
24 *nologists.*

25 (c) *NEUTRINO RESEARCH.*—*As part of the program*
26 *described in subsection (a), the Director shall carry out re-*

1 *search activities on rare decay processes and the nature of*
2 *the neutrino, which may include collaborations with the*
3 *National Science Foundation or international collabora-*
4 *tions.*

5 (d) *DARK ENERGY AND DARK MATTER RESEARCH.*—
6 *As part of the program described in subsection (a), the Di-*
7 *rector shall carry out research activities on the nature of*
8 *dark energy and dark matter, which may include collabora-*
9 *tions with the National Aeronautics and Space Administra-*
10 *tion or the National Science Foundation, or international*
11 *collaborations.*

12 (e) *ACCELERATOR RESEARCH AND DEVELOPMENT.*—
13 *The Director shall carry out research and development in*
14 *advanced accelerator concepts and technologies, including*
15 *laser technologies, to reduce the necessary scope and cost*
16 *for the next generation of particle accelerators. The Director*
17 *shall ensure access to national laboratory accelerator facili-*
18 *ties, infrastructure, and technology for users and developers*
19 *of accelerators that advance applications in energy and the*
20 *environment, medicine, industry, national security, and*
21 *discovery science.*

22 (f) *INTERNATIONAL COLLABORATION.*—*The Director,*
23 *as practicable and in coordination with other appropriate*
24 *Federal agencies as necessary, shall ensure the access of*
25 *United States researchers to the most advanced accelerator*

1 *facilities and research capabilities in the world, including*
2 *the Large Hadron Collider.*

3 **SEC. 505. BIOLOGICAL AND ENVIRONMENTAL RESEARCH.**

4 (a) *PROGRAM.*—*The Director shall carry out a pro-*
5 *gram of research, development, and demonstration in the*
6 *areas of biological systems science and climate and environ-*
7 *mental science to support the energy and environmental*
8 *missions of the Department.*

9 (b) *PRIORITY RESEARCH.*—*In carrying out this sec-*
10 *tion, the Director shall prioritize fundamental research on*
11 *biological systems and genomics science with the greatest*
12 *potential to enable scientific discovery.*

13 (c) *ASSESSMENT.*—*Not later than 12 months after the*
14 *date of enactment of this Act, the Comptroller General shall*
15 *submit a report to Congress identifying climate science-re-*
16 *lated initiatives under this section that overlap or duplicate*
17 *initiatives of other Federal agencies and the extent of such*
18 *overlap or duplication.*

19 (d) *LIMITATION.*—*The Director shall not approve new*
20 *climate science-related initiatives to be carried out through*
21 *the Office of Science without making a determination that*
22 *such work is unique and not duplicative of work by other*
23 *Federal agencies. Not later than 3 months after receiving*
24 *the assessment required under subsection (c), the Director*
25 *shall cease those climate science-related initiatives identi-*

1 *fied in the assessment as overlapping or duplicative, unless*
2 *the Director justifies that such work is critical to achieving*
3 *American energy security.*

4 *(e) LOW DOSE RADIATION RESEARCH PROGRAM.—*

5 *(1) IN GENERAL.—The Director of the Depart-*
6 *ment of Energy Office of Science shall carry out a re-*
7 *search program on low dose radiation. The purpose of*
8 *the program is to enhance the scientific under-*
9 *standing of and reduce uncertainties associated with*
10 *the effects of exposure to low dose radiation in order*
11 *to inform improved risk management methods.*

12 *(2) STUDY.—Not later than 60 days after the*
13 *date of enactment of this Act, the Director shall enter*
14 *into an agreement with the National Academies to*
15 *conduct a study assessing the current status and de-*
16 *velopment of a long-term strategy for low dose radi-*
17 *ation research. Such study shall be completed not*
18 *later than 18 months after the date of enactment of*
19 *this Act. The study shall be conducted in coordination*
20 *with Federal agencies that perform ionizing radiation*
21 *effects research and shall leverage the most current*
22 *studies in this field. Such study shall—*

23 *(A) identify current scientific challenges for*
24 *understanding the long-term effects of ionizing*
25 *radiation;*

1 (B) assess the status of current low dose ra-
2 diation research in the United States and inter-
3 nationally;

4 (C) formulate overall scientific goals for the
5 future of low-dose radiation research in the
6 United States;

7 (D) recommend a long-term strategic and
8 prioritized research agenda to address scientific
9 research goals for overcoming the identified sci-
10 entific challenges in coordination with other re-
11 search efforts;

12 (E) define the essential components of a re-
13 search program that would address this research
14 agenda within the universities and the National
15 Laboratories; and

16 (F) assess the cost-benefit effectiveness of
17 such a program.

18 (3) *RESEARCH PLAN*.—Not later than 90 days
19 after the completion of the study performed under
20 paragraph (2) the Secretary of Energy shall deliver
21 to the Committee on Science, Space, and Technology
22 of the House of Representatives and the Committee on
23 Energy and Natural Resources of the Senate a 5-year
24 research plan that responds to the study's findings

1 *and recommendations and identifies and prioritizes*
 2 *research needs.*

3 (4) *DEFINITION.*—*In this subsection, the term*
 4 *“low dose radiation” means a radiation dose of less*
 5 *than 100 millisieverts.*

6 (5) *RULE OF CONSTRUCTION.*—*Nothing in this*
 7 *subsection shall be construed to subject any research*
 8 *carried out by the Director under the research pro-*
 9 *gram under this subsection to any limitations de-*
 10 *scribed in section 977(e) of the Energy Policy Act of*
 11 *2005 (42 U.S.C. 16317(e)).*

12 **SEC. 506. FUSION ENERGY.**

13 (a) *PROGRAM.*—*The Director shall carry out a fusion*
 14 *energy sciences research program to expand the funda-*
 15 *mental understanding of plasmas and matter at very high*
 16 *temperatures and densities and to build the scientific foun-*
 17 *dation necessary to enable fusion power.*

18 (b) *FUSION MATERIALS RESEARCH AND DEVELOP-*
 19 *MENT.*—*As part of the activities authorized in section 978*
 20 *of the Energy Policy Act of 2005 (42 U.S.C. 16318)—*

21 (1) *the Director, in coordination with the Assist-*
 22 *ant Secretary for Nuclear Energy of the Department,*
 23 *shall carry out research and development activities to*
 24 *identify, characterize, and demonstrate materials that*

1 *can endure the neutron, plasma, and heat fluxes ex-*
2 *pected in a fusion power system; and*

3 *(2) the Secretary shall—*

4 *(A) provide an assessment of the need for a*
5 *facility or facilities that can examine and test*
6 *potential fusion and next generation fission ma-*
7 *terials and other enabling technologies relevant*
8 *to the development of fusion power; and*

9 *(B) provide an assessment of whether a sin-*
10 *gle new facility that substantially addresses*
11 *magnetic fusion and next generation fission ma-*
12 *terials research needs is feasible, in conjunction*
13 *with the expected capabilities of facilities oper-*
14 *ational as of the date of enactment of this Act.*

15 *(c) TOKAMAK RESEARCH AND DEVELOPMENT.—*

16 *(1) IN GENERAL.—As part of the program de-*
17 *scribed in subsection (a), the Director shall support*
18 *research and development activities and facility oper-*
19 *ations to optimize the tokamak approach to fusion en-*
20 *ergy.*

21 *(2) ITER.—*

22 *(A) REPORT.—Not later than 1 year after*
23 *the date of enactment of this Act, the Secretary*
24 *shall submit to Congress a report providing an*
25 *assessment of—*

1 (i) the most recent schedule for ITER
2 that has been approved by the ITER Coun-
3 cil; and

4 (ii) progress of the ITER Council and
5 the ITER Director General toward imple-
6 mentation of the recommendations of the
7 Third Biennial International Organization
8 Management Assessment Report.

9 (B) *FAIRNESS IN COMPETITION FOR SOLICI-*
10 *TATIONS FOR INTERNATIONAL PROJECT ACTIVI-*
11 *TIES.*—Section 33 of the Atomic Energy Act of
12 1954 (42 U.S.C. 2053) is amended by adding at
13 the end the following: “For purposes of this sec-
14 tion, with respect to international research
15 projects, the term ‘private facilities or labora-
16 *tories’ shall refer to facilities or laboratories lo-*
17 *cated in the United States.”.*

18 (C) *SENSE OF CONGRESS.*—*It is the sense of*
19 *Congress that the United States should support*
20 *a robust, diverse fusion program. It is further*
21 *the sense of Congress that developing the sci-*
22 *entific basis for fusion, providing research results*
23 *key to the success of ITER, and training the next*
24 *generation of fusion scientists are of critical im-*
25 *portance to the United States and should in no*

1 way be diminished by participation of the
2 United States in the ITER project.

3 (d) *INERTIAL FUSION ENERGY RESEARCH AND DE-*
4 *VELOPMENT PROGRAM.*—The Secretary shall carry out a
5 program of research and technology development in inertial
6 fusion for energy applications, including ion beam, laser,
7 and pulsed power fusion systems.

8 (e) *ALTERNATIVE AND ENABLING CONCEPTS.*—

9 (1) *IN GENERAL.*—As part of the program de-
10 scribed in subsection (a), the Director shall support
11 research and development activities and facility oper-
12 ations at United States universities, national labora-
13 tories, and private facilities for a portfolio of alter-
14 native and enabling fusion energy concepts that may
15 provide solutions to significant challenges to the es-
16 tablishment of a commercial magnetic fusion power
17 plant, prioritized based on the ability of the United
18 States to play a leadership role in the international
19 fusion research community. Fusion energy concepts
20 and activities explored under this paragraph may in-
21 clude—

22 (A) high magnetic field approaches facili-
23 tated by high temperature superconductors;

24 (B) advanced stellarator concepts;

1 (C) *non-tokamak confinement configura-*
2 *tions operating at low magnetic fields;*

3 (D) *magnetized target fusion energy con-*
4 *cepts;*

5 (E) *liquid metals to address issues associ-*
6 *ated with fusion plasma interactions with the*
7 *inner wall of the encasing device;*

8 (F) *immersion blankets for heat manage-*
9 *ment and fuel breeding;*

10 (G) *advanced scientific computing activi-*
11 *ties; and*

12 (H) *other promising fusion energy concepts*
13 *identified by the Director.*

14 (2) *COORDINATION WITH ARPA-E.—The Under*
15 *Secretary and the Director shall coordinate with the*
16 *Director of the Advanced Research Projects Agency–*
17 *Energy (in this paragraph referred to as “ARPA-E”)*
18 *to—*

19 (A) *assess the potential for any fusion en-*
20 *ergy project supported by ARPA-E to represent*
21 *a promising approach to a commercially viable*
22 *fusion power plant;*

23 (B) *determine whether the results of any fu-*
24 *sion energy project supported by ARPA-E merit*

1 *the support of follow-on research activities car-*
2 *ried out by the Office of Science; and*

3 (C) *avoid unintentional duplication of ac-*
4 *tivities.*

5 (f) *GENERAL PLASMA SCIENCE AND APPLICATIONS.—*

6 *Not later than 2 years after the date of enactment of this*
7 *Act, the Secretary shall provide to Congress an assessment*
8 *of opportunities in which the United States can provide*
9 *world-leading contributions to advancing plasma science*
10 *and non-fusion energy applications, and identify opportu-*
11 *nities for partnering with other Federal agencies both with-*
12 *in and outside of the Department of Energy.*

13 (g) *IDENTIFICATION OF PRIORITIES.—*

14 (1) *REPORT.—Not later than 2 years after the*
15 *date of enactment of this Act, the Secretary shall*
16 *transmit to Congress a report on the Department’s*
17 *proposed fusion energy research and development ac-*
18 *tivities over the following 10 years under at least 3*
19 *realistic budget scenarios, including a scenario based*
20 *on 3 percent annual growth in the non-ITER portion*
21 *of the budget for fusion energy research and develop-*
22 *ment activities. The report shall—*

23 (A) *identify specific areas of fusion energy*
24 *research and enabling technology development in*
25 *which the United States can and should establish*

1 *or solidify a lead in the global fusion energy de-*
2 *velopment effort;*

3 *(B) identify priorities for initiation of fa-*
4 *cility construction and facility decommissioning*
5 *under each of those scenarios; and*

6 *(C) assess the ability of the United States*
7 *fusion workforce to carry out the activities iden-*
8 *tified in subparagraphs (A) and (B), including*
9 *the adequacy of college and university programs*
10 *to train the leaders and workers of the next gen-*
11 *eration of fusion energy researchers.*

12 *(2) PROCESS.—In order to develop the report re-*
13 *quired under paragraph (1), the Secretary shall lever-*
14 *age best practices and lessons learned from the process*
15 *used to develop the most recent report of the Particle*
16 *Physics Project Prioritization Panel of the High En-*
17 *ergy Physics Advisory Panel. No member of the Fu-*
18 *sion Energy Sciences Advisory Committee shall be ex-*
19 *cluded from participating in developing or voting on*
20 *final approval of the report required under paragraph*
21 *(1).*

22 **SEC. 507. NUCLEAR PHYSICS.**

23 *(a) PROGRAM.—The Director shall carry out a pro-*
24 *gram of experimental and theoretical research, and support*

1 *associated facilities, to discover, explore, and understand all*
2 *forms of nuclear matter.*

3 *(b) ISOTOPE DEVELOPMENT AND PRODUCTION FOR*
4 *RESEARCH APPLICATIONS.—The Director shall carry out*
5 *a program for the production of isotopes, including the de-*
6 *velopment of techniques to produce isotopes, that the Sec-*
7 *retary determines are needed for research, medical, indus-*
8 *trial, or other purposes. In making this determination, the*
9 *Secretary shall—*

10 *(1) ensure that, as has been the policy of the*
11 *United States since the publication in 1965 of Fed-*
12 *eral Register notice 30 Fed. Reg. 3247, isotope pro-*
13 *duction activities do not compete with private indus-*
14 *try unless critical national interests necessitate the*
15 *Federal Government's involvement;*

16 *(2) ensure that activities undertaken pursuant to*
17 *this section, to the extent practicable, promote the*
18 *growth of a robust domestic isotope production indus-*
19 *try; and*

20 *(3) consider any relevant recommendations made*
21 *by Federal advisory committees, the National Acad-*
22 *emies, and interagency working groups in which the*
23 *Department participates.*

1 **SEC. 508. SCIENCE LABORATORIES INFRASTRUCTURE PRO-**
2 **GRAM.**

3 (a) *PROGRAM.*—*The Director shall carry out a pro-*
4 *gram to improve the safety, efficiency, and mission readi-*
5 *ness of infrastructure at Office of Science laboratories. The*
6 *program shall include projects to—*

7 (1) *renovate or replace space that does not meet*
8 *research needs;*

9 (2) *replace facilities that are no longer cost effec-*
10 *tive to renovate or operate;*

11 (3) *modernize utility systems to prevent failures*
12 *and ensure efficiency;*

13 (4) *remove excess facilities to allow safe and effi-*
14 *cient operations; and*

15 (5) *construct modern facilities to conduct ad-*
16 *vanced research in controlled environmental condi-*
17 *tions.*

18 (b) *APPROACH.*—*In carrying out this section, the Di-*
19 *rector shall utilize all available approaches and mecha-*
20 *nisms, including capital line items, minor construction*
21 *projects, energy savings performance contracts, utility en-*
22 *ergy service contracts, alternative financing, and expense*
23 *funding, as appropriate.*

24 **SEC. 509. DOMESTIC MANUFACTURING.**

25 *Not later than 1 year after the date of enactment of*
26 *this Act, the Secretary shall transmit to the Committee on*

1 *Science, Space, and Technology of the House of Representa-*
 2 *tives and the Committee on Energy and Natural Resources*
 3 *of the Senate a report on the current ability of domestic*
 4 *manufacturers to meet the procurement requirements for*
 5 *major ongoing projects funded by the Office of Science of*
 6 *the Department, including a calculation of the percentage*
 7 *of equipment acquired from domestic manufacturers for this*
 8 *purpose.*

9 **SEC. 510. AUTHORIZATION OF APPROPRIATIONS.**

10 (a) *FISCAL YEAR 2016.*—*There are authorized to be*
 11 *appropriated to the Secretary for the Office of Science for*
 12 *fiscal year 2016 \$5,339,800,000, of which—*

13 (1) *\$1,850,000,000 shall be for Basic Energy*
 14 *Science;*

15 (2) *\$788,000,000 shall be for High Energy Phys-*
 16 *ics;*

17 (3) *\$550,000,000 shall be for Biological and En-*
 18 *vironmental Research;*

19 (4) *\$624,700,000 shall be for Nuclear Physics;*

20 (5) *\$621,000,000 shall be for Advanced Scientific*
 21 *Computing Research;*

22 (6) *\$488,000,000 shall be for Fusion Energy*
 23 *Sciences;*

24 (7) *\$113,600,000 shall be for Science Labora-*
 25 *tories Infrastructure;*

1 (8) \$181,000,000 shall be for Science Program
2 *Direction;*

3 (9) \$103,000,000 shall be for Safeguards and Se-
4 *curity; and*

5 (10) \$20,500,000 shall be for Workforce Develop-
6 *ment for Teachers and Scientists.*

7 **(b) FISCAL YEAR 2017.**—*There are authorized to be*
8 *appropriated to the Secretary for the Office of Science for*
9 *fiscal year 2017 \$5,339,800,000, of which—*

10 (1) \$1,850,000,000 shall be for Basic Energy
11 *Science;*

12 (2) \$788,000,000 shall be for High Energy Phys-
13 *ics;*

14 (3) \$550,000,000 shall be for Biological and En-
15 *vironmental Research;*

16 (4) \$624,700,000 shall be for Nuclear Physics;

17 (5) \$621,000,000 shall be for Advanced Scientific
18 *Computing Research;*

19 (6) \$488,000,000 shall be for Fusion Energy
20 *Sciences;*

21 (7) \$113,600,000 shall be for Science Labora-
22 *tories Infrastructure;*

23 (8) \$181,000,000 shall be for Science Program
24 *Direction;*

1 (9) \$103,000,000 shall be for Safeguards and Se-
2 curity; and

3 (10) \$20,500,000 shall be for Workforce Develop-
4 ment for Teachers and Scientists.

5 **SEC. 511. DEFINITIONS.**

6 *In this title—*

7 (1) the term “Department” means the Depart-
8 ment of Energy;

9 (2) the term “Director” means the Director of the
10 Office of Science of the Department; and

11 (3) the term “Secretary” means the Secretary of
12 Energy.

13 **TITLE VI—DEPARTMENT OF EN-**
14 **ERGY APPLIED RESEARCH**
15 **AND DEVELOPMENT**

16 **Subtitle A—Crosscutting Research**
17 **and Development**

18 **SEC. 601. CROSSCUTTING RESEARCH AND DEVELOPMENT.**

19 (a) *CROSSCUTTING RESEARCH AND DEVELOPMENT.—*

20 *The Secretary shall, through the Under Secretary for*
21 *Science and Energy, utilize the capabilities of the Depart-*
22 *ment to identify strategic opportunities for collaborative re-*
23 *search, development, demonstration, and commercial appli-*
24 *cation of innovative science and technologies for—*

1 (1) *advancing the understanding of the energy-*
 2 *water-land use nexus;*

3 (2) *modernizing the electric grid by improving*
 4 *energy transmission and distribution systems security*
 5 *and resiliency;*

6 (3) *utilizing supercritical carbon dioxide in elec-*
 7 *tric power generation;*

8 (4) *subsurface technology and engineering;*

9 (5) *high performance computing;*

10 (6) *cybersecurity; and*

11 (7) *critical challenges identified through com-*
 12 *prehensive energy studies, evaluations, and reviews.*

13 (b) *CROSSCUTTING APPROACHES.—To the maximum*
 14 *extent practicable, the Secretary shall seek to leverage exist-*
 15 *ing programs, and consolidate and coordinate activities,*
 16 *throughout the Department to promote collaboration and*
 17 *crosscutting approaches within programs.*

18 (c) *ADDITIONAL ACTIONS.—The Secretary shall—*

19 (1) *prioritize activities that promote the utiliza-*
 20 *tion of all affordable domestic resources;*

21 (2) *develop a rigorous and realistic planning,*
 22 *evaluation, and technical assessment framework for*
 23 *setting objective, long-term strategic goals and evalu-*
 24 *ating progress that ensures the integrity and inde-*

1 *pendence to insulate planning from political influence*
 2 *and the flexibility to adapt to market dynamics;*

3 *(3) ensure that activities shall be undertaken in*
 4 *a manner that does not duplicate other activities*
 5 *within the Department or other Federal Government*
 6 *activities; and*

7 *(4) identify programs that may be more effec-*
 8 *tively left to the States, industry, nongovernmental*
 9 *organizations, institutions of higher education, or*
 10 *other stakeholders.*

11 **SEC. 602. STRATEGIC RESEARCH PORTFOLIO ANALYSIS**
 12 **AND COORDINATION PLAN.**

13 *Section 994 of Energy Policy Act of 2005 (42 U.S.C.*
 14 *16358) is amended to read as follows:*

15 **“SEC. 994. STRATEGIC RESEARCH PORTFOLIO ANALYSIS**
 16 **AND COORDINATION PLAN.**

17 *“(a) IN GENERAL.—The Secretary shall periodically*
 18 *review all of the science and technology activities of the De-*
 19 *partment in a strategic framework that takes into account*
 20 *the frontiers of science to which the Department can con-*
 21 *tribute, the national needs relevant to the Department’s*
 22 *statutory missions, and global energy dynamics.*

23 *“(b) COORDINATION ANALYSIS AND PLAN.—As part of*
 24 *the review under subsection (a), the Secretary shall develop*
 25 *a plan to improve coordination and collaboration in re-*

1 *search, development, demonstration, and commercial appli-*
2 *cation activities across Department organizational bound-*
3 *aries.*

4 “(c) *PLAN CONTENTS.—The plan shall describe—*

5 “(1) *cross-cutting scientific and technical issues*
6 *and research questions that span more than one pro-*
7 *gram or major office of the Department;*

8 “(2) *how the applied technology programs of the*
9 *Department are coordinating their activities, and ad-*
10 *dressing those questions;*

11 “(3) *ways in which the technical interchange*
12 *within the Department, particularly between the Of-*
13 *fice of Science and the applied technology programs,*
14 *can be enhanced, including limited ways in which the*
15 *research agendas of the Office of Science and the ap-*
16 *plied programs can better interact and assist each*
17 *other;*

18 “(4) *a description of how the Secretary will en-*
19 *sure that the Department’s overall research agenda*
20 *include, in addition to fundamental, curiosity-driven*
21 *research, fundamental research related to topics of*
22 *concern to the applied programs, and applications in*
23 *Departmental technology programs of research results*
24 *generated by fundamental, curiosity-driven research;*

9 “(d) *PLAN TRANSMITTAL.—Not later than 1 year after*
10 *the date of enactment of the America COMPETES Reau-*
11 *thorization Act of 2015, and every 4 years thereafter, the*
12 *Secretary shall transmit to the Committee on Science,*
13 *Space, and Technology of the House of Representatives and*
14 *the Committee on Energy and Natural Resources of the Sen-*
15 *ate the results of the review under subsection (a) and the*
16 *coordination plan under subsection (b).’’.*

19 (a) *AMENDMENTS.—Section 993 of the Energy Policy*
20 *Act of 2005 (42 U.S.C. 16357) is amended—*

(2) in subsection (b)(1), by striking “2008” and inserting “2018”.

1 (b) *TABLE OF CONTENTS AMENDMENT.*—*The item re-*
 2 *lating to section 993 in the table of contents of the Energy*
 3 *Policy Act of 2005 is amended to read as follows:*

“Sec. 993. Strategy for facilities and infrastructure.”.

4 ***Subtitle B—Electricity Delivery and***
 5 ***Energy Reliability Research and***
 6 ***Development***

7 ***SEC. 611. DISTRIBUTED ENERGY AND ELECTRIC ENERGY***
 8 ***SYSTEMS.***

9 *Section 921 of the Energy Policy Act of 2005 (42*
 10 *U.S.C. 16211) is amended to read as follows:*

11 ***“SEC. 921. DISTRIBUTED ENERGY AND ELECTRIC ENERGY***
 12 ***SYSTEMS.***

13 *“(a) IN GENERAL.—The Secretary shall carry out pro-*
 14 *grams of research, development, demonstration, and com-*
 15 *mercial application on distributed energy resources and*
 16 *systems reliability and efficiency, to improve the reliability*
 17 *and efficiency of distributed energy resources and systems,*
 18 *integrating advanced energy technologies with grid*
 19 *connectivity, including activities described in this subtitle.*
 20 *The programs shall address advanced energy technologies*
 21 *and systems and advanced grid security, resiliency, and re-*
 22 *liability technologies.*

23 *“(b) OBJECTIVES.—To the maximum extent prac-*
 24 *ticable, the Secretary shall seek to—*

25 *“(1) leverage existing programs;*

1 “(2) consolidate and coordinate activities
2 throughout the Department to promote collaboration
3 and crosscutting approaches;

4 “(3) ensure activities are undertaken in a man-
5 ner that does not duplicate other activities within the
6 Department or other Federal Government activities;
7 and

8 “(4) identify programs that may be more effec-
9 tively left to the States, industry, nongovernmental
10 organizations, institutions of higher education, or
11 other stakeholders.”.

12 **SEC. 612. ELECTRIC TRANSMISSION AND DISTRIBUTION RE-**
13 **SEARCH AND DEVELOPMENT.**

14 (a) *AMENDMENTS.*—Section 925 of the Energy Policy
15 Act of 2005 (42 U.S.C. 16215) is amended—

16 (1) by amending the section heading to read as
17 follows: “**ELECTRIC TRANSMISSION AND DIS-**
18 **TRIBUTION RESEARCH AND DEVELOPMENT**”;

19 (2) by amending subsection (a) to read as fol-
20 lows:

21 “(a) *PROGRAM.*—The Secretary shall establish a com-
22 prehensive research, development, and demonstration pro-
23 gram to ensure the reliability, efficiency, and environ-
24 mental integrity of electrical transmission and distribution
25 systems, which shall include innovations for—

1 “(1) advanced energy delivery technologies, en-
2 ergy storage technologies, materials, and systems;

3 “(2) advanced grid reliability and efficiency
4 technology development;

5 “(3) technologies contributing to significant load
6 reductions;

7 “(4) advanced metering, load management, and
8 control technologies;

9 “(5) technologies to enhance existing grid compo-
10 nents;

11 “(6) the development and use of high-tempera-
12 ture superconductors to—

13 “(A) enhance the reliability, operational
14 flexibility, or power-carrying capability of elec-
15 tric transmission or distribution systems; or

16 “(B) increase the efficiency of electric en-
17 ergy generation, transmission, distribution, or
18 storage systems;

19 “(7) integration of power systems, including sys-
20 tems to deliver high-quality electric power, electric
21 power reliability, and combined heat and power;

22 “(8) supply of electricity to the power grid by
23 small scale, distributed, and residential-based power
24 generators;

1 “(9) the development and use of advanced grid
2 design, operation, and planning tools; and

3 “(10) any other infrastructure technologies, as
4 appropriate.”; and

5 (3) by amending subsection (c) to read as fol-
6 lows:

7 “(c) *IMPLEMENTATION.*—

8 “(1) *CONSORTIUM.*—The Secretary shall consider
9 implementing the program under this section using a
10 consortium of participants from industry, institutions
11 of higher education, and National Laboratories.

12 “(2) *OBJECTIVES.*—To the maximum extent
13 practicable the Secretary shall seek to—

14 “(A) leverage existing programs;

15 “(B) consolidate and coordinate activities,
16 throughout the Department to promote collabora-
17 tion and crosscutting approaches;

18 “(C) ensure activities are undertaken in a
19 manner that does not duplicate other activities
20 within the Department or other Federal Govern-
21 ment activities; and

22 “(D) identify programs that may be more
23 effectively left to the States, industry, nongovern-
24 mental organizations, institutions of higher edu-
25 cation, or other stakeholders.”.

1 (b) *TABLE OF CONTENTS AMENDMENT.—The item re-*
 2 *lating to section 925 in the table of contents of the Energy*
 3 *Policy Act of 2005 is amended to read as follows:*

“Sec. 925. Electric transmission and distribution research and development.”.

4 ***Subtitle C—Nuclear Energy***
 5 ***Research and Development***

6 ***SEC. 621. OBJECTIVES.***

7 *Section 951 of the Energy Policy Act of 2005 (42*
 8 *U.S.C. 16271) is amended—*

9 (1) *by amending subsection (a) to read as fol-*
 10 *lows:*

11 “(a) *IN GENERAL.—The Secretary shall conduct pro-*
 12 *grams of civilian nuclear energy research, development,*
 13 *demonstration, and commercial application, including ac-*
 14 *tivities described in this subtitle. Such programs shall take*
 15 *into consideration the following objectives:*

16 “(1) *Enhancing nuclear power’s viability as*
 17 *part of the United States energy portfolio.*

18 “(2) *Reducing used nuclear fuel and nuclear*
 19 *waste products generated by civilian nuclear energy.*

20 “(3) *Supporting technological advances in areas*
 21 *that industry by itself is not likely to undertake be-*
 22 *cause of technical and financial uncertainty.*

23 “(4) *Providing the technical means to reduce the*
 24 *likelihood of nuclear proliferation.*

1 “(5) *Maintaining a cadre of nuclear scientists*
2 *and engineers.*

3 “(6) *Maintaining National Laboratory and uni-*
4 *versity nuclear programs, including their infrastruc-*
5 *ture.*

6 “(7) *Supporting both individual researchers and*
7 *multidisciplinary teams of researchers to pioneer new*
8 *approaches in nuclear energy, science, and technology.*

9 “(8) *Developing, planning, constructing, acquir-*
10 *ing, and operating special equipment and facilities*
11 *for the use of researchers.*

12 “(9) *Supporting technology transfer and other*
13 *appropriate activities to assist the nuclear energy in-*
14 *dustry, and other users of nuclear science and engi-*
15 *neering, including activities addressing reliability,*
16 *availability, productivity, component aging, safety,*
17 *and security of nuclear power plants.*

18 “(10) *Reducing the environmental impact of nu-*
19 *clear energy-related activities.*

20 “(11) *Researching and developing technologies*
21 *and processes to meet Federal and State requirements*
22 *and standards for nuclear power systems.”;*

23 (2) *by striking subsections (b) through (d); and*
24 (3) *by redesignating subsection (e) as subsection*
25 *(b).*

1 **SEC. 622. PROGRAM OBJECTIVES STUDY.**

2 *Section 951 of the Energy Policy Act of 2005 (42*
3 *U.S.C. 16271) is further amended by adding at the end the*
4 *following new subsection:*

5 *“(c) PROGRAM OBJECTIVES STUDY.—In furtherance of*
6 *the program objectives listed in subsection (a) of this sec-*
7 *tion, the Government Accountability Office shall, within*
8 *one year after the date of enactment of this subsection,*
9 *transmit to the Congress a report on the results of a study*
10 *on the scientific and technical merit of major Federal and*
11 *State requirements and standards, including moratoria,*
12 *that delay or impede the further development and commer-*
13 *cialization of nuclear power, and how the Department can*
14 *assist in overcoming such delays or impediments.”.*

15 **SEC. 623. NUCLEAR ENERGY RESEARCH AND DEVELOP-**
16 **MENT PROGRAMS.**

17 *Section 952 of the Energy Policy Act of 2005 (42*
18 *U.S.C. 16272) is amended by striking subsections (c)*
19 *through (e) and inserting the following:*

20 *“(c) REACTOR CONCEPTS.—*

21 *“(1) IN GENERAL.—The Secretary shall carry*
22 *out a program of research, development, demonstra-*
23 *tion, and commercial application to advance nuclear*
24 *power systems as well as technologies to sustain cur-*
25 *rently deployed systems.*

1 “(2) *DESIGNS AND TECHNOLOGIES.*—*In con-*
2 *ducting the program under this subsection, the Sec-*
3 *retary shall examine advanced reactor designs and*
4 *nuclear technologies, including those that—*

5 “(A) *have higher efficiency, lower cost, and*
6 *improved safety compared to reactors in oper-*
7 *ation as of the date of enactment of the America*
8 *COMPETES Reauthorization Act of 2015;*

9 “(B) *utilize passive safety features;*

10 “(C) *minimize proliferation risks;*

11 “(D) *substantially reduce production of*
12 *high-level waste per unit of output;*

13 “(E) *increase the life and sustainability of*
14 *reactor systems currently deployed;*

15 “(F) *use improved instrumentation;*

16 “(G) *are capable of producing large-scale*
17 *quantities of hydrogen or process heat;*

18 “(H) *minimize water usage or use alter-*
19 *natives to water as a cooling mechanism; or*

20 “(I) *use nuclear energy as part of an inte-*
21 *grated energy system.*

22 “(3) *INTERNATIONAL COOPERATION.*—*In car-*
23 *rying out the program under this subsection, the Sec-*
24 *retary shall seek opportunities to enhance the progress*
25 *of the program through international cooperation*

1 *through such organizations as the Generation IV*
2 *International Forum or any other international col-*
3 *laboration the Secretary considers appropriate.*

4 “(4) *EXCEPTIONS.—No funds authorized to be*
5 *appropriated to carry out the activities described in*
6 *this subsection shall be used to fund the activities au-*
7 *thorized under sections 641 through 645.”.*

8 **SEC. 624. SMALL MODULAR REACTOR PROGRAM.**

9 *Section 952 of the Energy Policy Act of 2005 (42*
10 *U.S.C. 16272) is further amended by adding at the end the*
11 *following new subsection:*

12 “(d) *SMALL MODULAR REACTOR PROGRAM.—*

13 “(1) *IN GENERAL.—The Secretary shall carry*
14 *out a small modular reactor program to promote re-*
15 *search, development, demonstration, and commercial*
16 *application of small modular reactors, including*
17 *through cost-shared projects for commercial applica-*
18 *tion of reactor systems designs.*

19 “(2) *CONSULTATION.—The Secretary shall con-*
20 *sult with and utilize the expertise of the Secretary of*
21 *the Navy in establishing and carrying out such pro-*
22 *gram.*

23 “(3) *ADDITIONAL ACTIVITIES.—Activities may*
24 *also include development of advanced computer mod-*
25 *eling and simulation tools, by Federal and non-Fed-*

1 *eral entities, which demonstrate and validate new de-*
 2 *sign capabilities of innovative small modular reactor*
 3 *designs.*

4 “(4) *DEFINITION.*—*For the purposes of this sub-*
 5 *section, the term ‘small modular reactor’ means a nu-*
 6 *clear reactor meeting generally accepted industry*
 7 *standards—*

8 *“(A) with a rated capacity of less than 300*
 9 *electrical megawatts;*

10 *“(B) with respect to which most parts can*
 11 *be factory assembled and shipped as modules to*
 12 *a reactor plant site for assembly; and*

13 *“(C) that can be constructed and operated*
 14 *in combination with similar reactors at a single*
 15 *site.”.*

16 **SEC. 625. FUEL CYCLE RESEARCH AND DEVELOPMENT.**

17 (a) *AMENDMENTS.*—*Section 953 of the Energy Policy*
 18 *Act of 2005 (42 U.S.C. 16273) is amended—*

19 (1) *in the section heading by striking “AD-*
 20 *VANCED FUEL CYCLE INITIATIVE” and inserting*
 21 *“FUEL CYCLE RESEARCH AND DEVELOPMENT”;*

22 (2) *by striking subsection (a);*

23 (3) *by redesignating subsections (b) through (d)*
 24 *as subsections (d) through (f), respectively; and*

1 (4) by inserting before subsection (d), as so reded-
2 ignated by paragraph (3) of this subsection, the fol-
3 lowing new subsections:

4 “(a) *IN GENERAL.*—The Secretary shall conduct a fuel
5 cycle research, development, demonstration, and commercial
6 application program (referred to in this section as the ‘pro-
7 gram’) on fuel cycle options that improve uranium resource
8 utilization, maximize energy generation, minimize nuclear
9 waste creation, improve safety, mitigate risk of prolifera-
10 tion, and improve waste management in support of a na-
11 tional strategy for spent nuclear fuel and the reactor con-
12 cepts research, development, demonstration, and commer-
13 cial application program under section 952(c).

14 “(b) *FUEL CYCLE OPTIONS.*—Under this section the
15 Secretary may consider implementing the following initia-
16 tives:

17 “(1) *OPEN CYCLE.*—Developing fuels, including
18 the use of nonuranium materials and alternate
19 claddings, for use in reactors that increase energy
20 generation, improve safety performance and margins,
21 and minimize the amount of nuclear waste produced
22 in an open fuel cycle.

23 “(2) *RECYCLE.*—Developing advanced recycling
24 technologies, including advanced reactor concepts to
25 improve resource utilization, reduce proliferation

1 *risks, and minimize radiotoxicity, decay heat, and*
2 *mass and volume of nuclear waste to the greatest ex-*
3 *tent possible.*

4 “(3) *ADVANCED STORAGE METHODS.—Devel-*
5 *oping advanced storage technologies for both onsite*
6 *and long-term storage that substantially prolong the*
7 *effective life of current storage devices or that substan-*
8 *tially improve upon existing nuclear waste storage*
9 *technologies and methods, including repositories.*

10 “(4) *FAST TEST REACTOR.—Investigating the*
11 *potential research benefits of a fast test reactor user*
12 *facility to conduct experiments on fuels and materials*
13 *related to fuel forms and fuel cycles that will increase*
14 *fuel utilization, reduce proliferation risks, and reduce*
15 *nuclear waste products.*

16 “(5) *ADVANCED REACTOR INNOVATION.—Devel-*
17 *oping an advanced reactor innovation testbed where*
18 *national laboratories, universities, and industry can*
19 *address advanced reactor design challenges to enable*
20 *construction and operation of privately funded reac-*
21 *tor prototypes to resolve technical uncertainty for*
22 *United States-based designs for future domestic and*
23 *international markets.*

24 “(6) *OTHER TECHNOLOGIES.—Developing any*
25 *other technology or initiative that the Secretary deter-*

1 *mines is likely to advance the objectives of the pro-*
2 *gram.*

3 “(c) *ADDITIONAL ADVANCED RECYCLING AND CROSS-*
4 *CUTTING ACTIVITIES.*—*In addition to and in support of the*
5 *specific initiatives described in paragraphs (1) through (5)*
6 *of subsection (b), the Secretary may support the following*
7 *activities:*

8 “(1) *Development and testing of integrated proc-*
9 *ess flow sheets for advanced nuclear fuel recycling*
10 *processes.*

11 “(2) *Research to characterize the byproducts and*
12 *waste streams resulting from fuel recycling processes.*

13 “(3) *Research and development on reactor con-*
14 *cepts or transmutation technologies that improve re-*
15 *source utilization or reduce the radiotoxicity of waste*
16 *streams.*

17 “(4) *Research and development on waste treat-*
18 *ment processes and separations technologies, advanced*
19 *waste forms, and quantification of proliferation risks.*

20 “(5) *Identification and evaluation of test and ex-*
21 *perimental facilities necessary to successfully imple-*
22 *ment the advanced fuel cycle initiative.*

23 “(6) *Advancement of fuel cycle-related modeling*
24 *and simulation capabilities.*

1 “(7) *Research to understand the behavior of*
2 *high-burnup fuels.*”.

3 (b) *CONFORMING AMENDMENT.*—*The item relating to*
4 *section 953 in the table of contents of the Energy Policy*
5 *Act of 2005 is amended to read as follows:*

 “*Sec. 953. Fuel cycle research and development.*”.

6 **SEC. 626. NUCLEAR ENERGY ENABLING TECHNOLOGIES**
7 **PROGRAM.**

8 (a) *AMENDMENT.*—*Subtitle E of title IX of the Energy*
9 *Policy Act of 2005 (42 U.S.C. 16271 et seq.) is amended*
10 *by adding at the end the following new section:*

11 **“SEC. 958. NUCLEAR ENERGY ENABLING TECHNOLOGIES.**

12 “(a) *IN GENERAL.*—*The Secretary shall conduct a pro-*
13 *gram to support the integration of activities undertaken*
14 *through the reactor concepts research, development, dem-*
15 *onstration, and commercial application program under sec-*
16 *tion 952(c) and the fuel cycle research and development pro-*
17 *gram under section 953, and support crosscutting nuclear*
18 *energy concepts. Activities commenced under this section*
19 *shall be concentrated on broadly applicable research and de-*
20 *velopment focus areas.*

21 “(b) *ACTIVITIES.*—*Activities conducted under this sec-*
22 *tion may include research involving—*

23 “(1) *advanced reactor materials;*

24 “(2) *advanced radiation mitigation methods;*

1 “(3) *advanced proliferation and security risk as-*
2 *essment methods;*

3 “(4) *advanced sensors and instrumentation;*

4 “(5) *high performance computation modeling,*
5 *including multiphysics, multidimensional modeling*
6 *simulation for nuclear energy systems, and continued*
7 *development of advanced modeling simulation capa-*
8 *bilities through national laboratory, industry, and*
9 *university partnerships for operations and safety per-*
10 *formance improvements of light water reactors for*
11 *currently deployed and near-term reactors and ad-*
12 *vanced reactors and for the development of small*
13 *modular reactors; and*

14 “(6) *any crosscutting technology or trans-*
15 *formative concept aimed at establishing substantial*
16 *and revolutionary enhancements in the performance*
17 *of future nuclear energy systems that the Secretary*
18 *considers relevant and appropriate to the purpose of*
19 *this section.*

20 “(c) *REPORT.—The Secretary shall submit, as part of*
21 *the annual budget submission of the Department, a report*
22 *on the activities of the program conducted under this sec-*
23 *tion, which shall include a brief evaluation of each activi-*
24 *ty’s progress.”.*

1 (b) *CONFORMING AMENDMENT.*—*The table of contents*
 2 *of the Energy Policy Act of 2005 is amended by adding*
 3 *at the end of the items for subtitle E of title IX the following*
 4 *new item:*

“Sec. 958. Nuclear energy enabling technologies.”.

5 **SEC. 627. TECHNICAL STANDARDS COLLABORATION.**

6 (a) *IN GENERAL.*—*The Director of the National Insti-*
 7 *tute of Standards and Technology shall establish a nuclear*
 8 *energy standards committee (in this section referred to as*
 9 *the “technical standards committee”) to facilitate and sup-*
 10 *port, consistent with the National Technology Transfer and*
 11 *Advancement Act of 1995, the development or revision of*
 12 *technical standards for new and existing nuclear power*
 13 *plants and advanced nuclear technologies.*

14 (b) *MEMBERSHIP.*—

15 (1) *IN GENERAL.*—*The technical standards com-*
 16 *mittee shall include representatives from appropriate*
 17 *Federal agencies and the private sector, and be open*
 18 *to materially affected organizations involved in the*
 19 *development or application of nuclear energy-related*
 20 *standards.*

21 (2) *CO-CHAIRS.*—*The technical standards com-*
 22 *mittee shall be co-chaired by a representative from the*
 23 *National Institute of Standards and Technology and*
 24 *a representative from a private sector standards orga-*
 25 *nization.*

1 (c) *DUTIES.*—*The technical standards committee shall,*
2 *in cooperation with appropriate Federal agencies—*

3 (1) *perform a needs assessment to identify and*
4 *evaluate the technical standards that are needed to*
5 *support nuclear energy, including those needed to*
6 *support new and existing nuclear power plants and*
7 *advanced nuclear technologies, including developing*
8 *the technical basis for regulatory frameworks for ad-*
9 *vanced reactors;*

10 (2) *formulate, coordinate, and recommend prior-*
11 *ities for the development of new technical standards*
12 *and the revision of existing technical standards to ad-*
13 *dress the needs identified under paragraph (1);*

14 (3) *facilitate and support collaboration and co-*
15 *operation among standards developers to address the*
16 *needs and priorities identified under paragraphs (1)*
17 *and (2);*

18 (4) *as appropriate, coordinate with other na-*
19 *tional, regional, or international efforts on nuclear*
20 *energy-related technical standards in order to avoid*
21 *conflict and duplication and to ensure global compat-*
22 *ibility; and*

23 (5) *promote the establishment and maintenance*
24 *of a database of nuclear energy-related technical*
25 *standards.*

1 (d) *AUTHORIZATION OF APPROPRIATIONS.*—*To the ex-*
2 *tent provided for in advance by appropriations Acts, the*
3 *Secretary may transfer to the Director of the National In-*
4 *stitute of Standards and Technology not to exceed*
5 *\$1,000,000 for fiscal year 2016 for the Secretary of Com-*
6 *merce to carry out this section from amounts appropriated*
7 *for nuclear energy research and development within the Nu-*
8 *clear Energy Enabling Technologies account for the Depart-*
9 *ment.*

10 **SEC. 628. AVAILABLE FACILITIES DATABASE.**

11 *The Secretary shall prepare a database of non-Federal*
12 *user facilities receiving Federal funds that may be used for*
13 *unclassified nuclear energy research. The Secretary shall*
14 *make this database accessible on the Department's website.*

15 **SEC. 629. NUCLEAR WASTE DISPOSAL.**

16 *To the extent consistent with the requirements of cur-*
17 *rent law, the Department shall be responsible for disposal*
18 *of high-level radioactive waste or spent nuclear fuel gen-*
19 *erated by reactors under the programs authorized in this*
20 *subtitle, or the amendments made by this subtitle.*

1 ***Subtitle D—Energy Efficiency and***
2 ***Renewable Energy Research and***
3 ***Development***

4 ***SEC. 641. ENERGY EFFICIENCY.***

5 *Section 911 of the Energy Policy Act of 2005 (42*
6 *U.S.C. 16191) is amended to read as follows:*

7 ***“SEC. 911. ENERGY EFFICIENCY.***

8 *“(a) OBJECTIVES.—The Secretary shall conduct pro-*
9 *grams of energy efficiency research, development, dem-*
10 *onstration, and commercial application, including activi-*
11 *ties described in this subtitle. Such programs shall*
12 *prioritize activities that industry by itself is not likely to*
13 *undertake because of technical challenges or regulatory un-*
14 *certainty, and take into consideration the following objec-*
15 *tives:*

16 *“(1) Increasing energy efficiency.*

17 *“(2) Reducing the cost of energy.*

18 *“(3) Reducing the environmental impact of en-*
19 *ergy-related activities.*

20 *“(b) PROGRAMS.—Programs under this subtitle shall*
21 *include research, development, demonstration, and commer-*
22 *cial application of—*

23 *“(1) innovative, affordable technologies to im-*
24 *prove the energy efficiency and environmental per-*
25 *formance of vehicles, including weight and drag re-*

1 *duction technologies, technologies, modeling, and sim-*
 2 *ulation for increasing vehicle connectivity and auto-*
 3 *mation, and whole-vehicle design optimization;*

4 *“(2) cost-effective technologies, for new construc-*
 5 *tion and retrofit, to improve the energy efficiency and*
 6 *environmental performance of buildings, using a*
 7 *whole-buildings approach;*

8 *“(3) advanced technologies to improve the energy*
 9 *efficiency, environmental performance, and process ef-*
 10 *iciency of energy-intensive and waste-intensive in-*
 11 *dustries;*

12 *“(4) technologies to improve the energy efficiency*
 13 *of appliances and mechanical systems for buildings in*
 14 *extreme climates, including cogeneration,*
 15 *trigeneration, and polygeneration units;*

16 *“(5) advanced battery technologies; and*

17 *“(6) fuel cell and hydrogen technologies.”.*

18 **SEC. 642. NEXT GENERATION LIGHTING INITIATIVE.**

19 *Section 912 of the Energy Policy Act of 2005 (42*
 20 *U.S.C. 16192) and the item relating thereto in the table*
 21 *of contents of that Act are repealed.*

22 **SEC. 643. BUILDING STANDARDS.**

23 *Section 914 of the Energy Policy Act of 2005 (42*
 24 *U.S.C. 16194) is amended by striking subsection (c).*

1 **SEC. 644. SECONDARY ELECTRIC VEHICLE BATTERY USE**
2 **PROGRAM.**

3 *Section 915 of the Energy Policy Act of 2005 (42*
4 *U.S.C. 16195) and the item relating thereto in the table*
5 *of contents of that Act are repealed.*

6 **SEC. 645. NETWORK FOR MANUFACTURING INNOVATION**
7 **PROGRAM.**

8 *To the extent provided for in advance by appropria-*
9 *tions Acts, the Secretary may transfer to the National Insti-*
10 *tute of Standards and Technology up to \$150,000,000 for*
11 *the period encompassing fiscal years 2015 through 2017*
12 *from amounts appropriated for advanced manufacturing*
13 *research and development under this subtitle (and the*
14 *amendments made by this subtitle) for the Secretary of*
15 *Commerce to carry out the Network for Manufacturing In-*
16 *novation Program authorized under section 34 of the Na-*
17 *tional Institute of Standards and Technology Act (15*
18 *U.S.C. 278s).*

19 **SEC. 646. ADVANCED ENERGY TECHNOLOGY TRANSFER**
20 **CENTERS.**

21 *Section 917 of the Energy Policy Act of 2005 (42*
22 *U.S.C. 16197) is amended—*

23 *(1) in subsection (a)—*

24 *(A) by inserting “and” at the end of para-*
25 *graph (2)(B);*

1 (B) by striking “; and” at the end of para-
2 graph (3) and inserting a period; and

3 (C) by striking paragraph (4);
4 (2) in subsection (b)—

5 (A) by striking paragraph (1);

6 (B) by redesignating paragraphs (2)
7 through (5) as paragraphs (1) through (4), re-
8 spectively; and

9 (C) by striking paragraph (6);
10 (3) by amending subsection (g) to read as fol-
11 lows:

12 “(g) *PROHIBITION.*—None of the funds awarded under
13 this section may be used for the construction of facilities
14 or the deployment of commercially available technologies.”;
15 and

16 (4) by striking subsection (i).

17 **SEC. 647. RENEWABLE ENERGY.**

18 Section 931 of the Energy Policy Act of 2005 (42
19 U.S.C. 16231) is amended to read as follows:

20 **“SEC. 931. RENEWABLE ENERGY.**

21 “(a) *IN GENERAL.*—

22 “(1) *OBJECTIVES.*—The Secretary shall conduct
23 programs of renewable energy research, development,
24 demonstration, and commercial application, includ-
25 ing activities described in this subtitle. Such pro-

1 *grams shall prioritize discovery research and develop-*
2 *ment and take into consideration the following objec-*
3 *tives:*

4 *“(A) Increasing the conversion efficiency of*
5 *all forms of renewable energy through improved*
6 *technologies.*

7 *“(B) Decreasing the cost of renewable en-*
8 *ergy generation and delivery.*

9 *“(C) Promoting the diversity of the energy*
10 *supply.*

11 *“(D) Decreasing the dependence of the*
12 *United States on foreign mineral resources.*

13 *“(E) Decreasing the environmental impact*
14 *of renewable energy-related activities.*

15 *“(F) Increasing the export of renewable gen-*
16 *eration technologies from the United States.*

17 *“(2) PROGRAMS.—*

18 *“(A) SOLAR ENERGY.—The Secretary shall*
19 *conduct a program of research, development,*
20 *demonstration, and commercial application for*
21 *solar energy, including innovations in—*

22 *“(i) photovoltaics;*

23 *“(ii) solar heating;*

24 *“(iii) concentrating solar power;*

1 “(iv) *lighting systems that integrate*
2 *sunlight and electrical lighting in com-*
3 *plement to each other; and*

4 “(v) *development of technologies that*
5 *can be easily integrated into new and exist-*
6 *ing buildings.*

7 “(B) *WIND ENERGY.—The Secretary shall*
8 *conduct a program of research, development,*
9 *demonstration, and commercial application for*
10 *wind energy, including innovations in—*

11 “(i) *low speed wind energy;*

12 “(ii) *testing and verification tech-*
13 *nologies;*

14 “(iii) *distributed wind energy genera-*
15 *tion; and*

16 “(iv) *transformational technologies for*
17 *harnessing wind energy.*

18 “(C) *GEOHERMAL.—The Secretary shall*
19 *conduct a program of research, development,*
20 *demonstration, and commercial application for*
21 *geothermal energy, including technologies for—*

22 “(i) *improving detection of geothermal*
23 *resources;*

24 “(ii) *decreasing drilling costs;*

1 “(iii) decreasing maintenance costs
2 through improved materials;

3 “(iv) increasing the potential for other
4 revenue sources, such as mineral produc-
5 tion; and

6 “(v) increasing the understanding of
7 reservoir life cycle and management.

8 “(D) *HYDROPOWER.*—The Secretary shall
9 conduct a program of research, development,
10 demonstration, and commercial application for
11 technologies that enable the development of new
12 and incremental hydropower capacity, includ-
13 ing:

14 “(i) Advanced technologies to enhance
15 environmental performance and yield great-
16 er energy efficiencies.

17 “(ii) Ocean energy, including wave en-
18 ergy.

19 “(E) *MISCELLANEOUS PROJECTS.*—The Sec-
20 retary shall conduct research, development, dem-
21 onstration, and commercial application pro-
22 grams for—

23 “(i) the combined use of renewable en-
24 ergy technologies with one another and with
25 other energy technologies, including the

1 *combined use of renewable power and fossil*
2 *technologies;*

3 “(ii) *renewable energy technologies for*
4 *cogeneration of hydrogen and electricity;*
5 *and*

6 “(iii) *kinetic hydro turbines.*

7 “(b) *RURAL DEMONSTRATION PROJECTS.—In car-*
8 *rying out this section, the Secretary, in consultation with*
9 *the Secretary of Agriculture, shall give priority to dem-*
10 *onstrations that assist in delivering electricity to rural and*
11 *remote locations including—*

12 “(1) *advanced renewable power technology, in-*
13 *cluding combined use with fossil technologies;*

14 “(2) *biomass; and*

15 “(3) *geothermal energy systems.*

16 “(c) *ANALYSIS AND EVALUATION.—*

17 “(1) *IN GENERAL.—The Secretary shall conduct*
18 *analysis and evaluation in support of the renewable*
19 *energy programs under this subtitle. These activities*
20 *shall be used to guide budget and program decisions,*
21 *and shall include—*

22 “(A) *economic and technical analysis of re-*
23 *newable energy potential, including resource as-*
24 *essment;*

1 “(B) analysis of past program performance,
2 both in terms of technical advances and in mar-
3 ket introduction of renewable energy;

4 “(C) assessment of domestic and inter-
5 national market drivers, including the impacts
6 of any Federal, State, or local grants, loans, loan
7 guarantees, tax incentives, statutory or regu-
8 latory requirements, or other government initia-
9 tives; and

10 “(D) any other analysis or evaluation that
11 the Secretary considers appropriate.

12 “(2) *FUNDING.*—The Secretary may designate
13 up to 1 percent of the funds appropriated for car-
14 rying out this subtitle for analysis and evaluation ac-
15 tivities under this subsection.

16 “(3) *SUBMITTAL TO CONGRESS.*—This analysis
17 and evaluation shall be submitted to the Committee
18 on Science, Space, and Technology of the House of
19 Representatives and the Committee on Energy and
20 Natural Resources of the Senate at least 30 days be-
21 fore each annual budget request is submitted to Con-
22 gress.”.

23 **SEC. 648. BIOENERGY PROGRAM.**

24 Section 932 of the Energy Policy Act of 2005 (42
25 U.S.C. 16232) is amended to read as follows:

1 **“SEC. 932. BIOENERGY PROGRAM.**

2 “(a) *PROGRAM.*—*The Secretary shall conduct a pro-*
3 *gram of research, development, demonstration, and commer-*
4 *cial application for bioenergy, including innovations in—*

5 “(1) *biopower energy systems;*

6 “(2) *biofuels;*

7 “(3) *bioproducts;*

8 “(4) *integrated biorefineries that may produce*
9 *biopower, biofuels, and bioproducts; and*

10 “(5) *cross-cutting research and development in*
11 *feedstocks.*

12 “(b) *BIOFUELS AND BIOPRODUCTS.*—*The goals of the*
13 *biofuels and bioproducts programs shall be to develop, in*
14 *partnership with industry and institutions of higher edu-*
15 *cation—*

16 “(1) *advanced biochemical and thermochemical*
17 *conversion technologies capable of making fuels from*
18 *lignocellulosic feedstocks that are price-competitive*
19 *with fossil-based fuels and fully compatible with ei-*
20 *ther internal combustion engines or fuel cell-powered*
21 *vehicles;*

22 “(2) *advanced conversion of biomass to biofuels*
23 *and bioproducts as part of integrated biorefineries*
24 *based on either biochemical processes, thermochemical*
25 *processes, or hybrids of these processes; and*

1 “(3) *other advanced processes that will enable the*
 2 *development of cost-effective bioproducts, including*
 3 *biofuels.*

4 “(c) *RETROFIT TECHNOLOGIES FOR THE DEVELOP-*
 5 *MENT OF ETHANOL FROM CELLULOSIC MATERIALS.—The*
 6 *Secretary shall establish a program of research, develop-*
 7 *ment, demonstration, and commercial application for tech-*
 8 *nologies and processes to enable biorefineries that exclu-*
 9 *sively use corn grain or corn starch as a feedstock to*
 10 *produce ethanol to be retrofitted to accept a range of bio-*
 11 *mass, including lignocellulosic feedstocks.*

12 “(d) *LIMITATIONS.—None of the funds authorized for*
 13 *carrying out this section may be used to fund commercial*
 14 *biofuels production for defense purposes.*

15 “(e) *DEFINITIONS.—In this section:*

16 “(1) *BIOMASS.—The term ‘biomass’ means—*

17 “(A) *any organic material grown for the*
 18 *purpose of being converted to energy;*

19 “(B) *any organic byproduct of agriculture*
 20 *(including wastes from food production and*
 21 *processing) that can be converted into energy; or*

22 “(C) *any waste material that can be con-*
 23 *verted to energy, is segregated from other waste*
 24 *materials, and is derived from—*

1 “(i) any of the following forest-related
2 resources: mill residues, precommercial
3 thinnings, slash, brush, or otherwise non-
4 merchantable material;

5 “(ii) wood waste materials, including
6 waste pallets, crates, dunnage, manufac-
7 turing and construction wood wastes (other
8 than pressure-treated, chemically treated, or
9 painted wood wastes), and landscape or
10 right-of-way tree trimmings, but not includ-
11 ing municipal solid waste, gas derived from
12 the biodegradation of municipal solid waste,
13 or paper that is commonly recycled; or

14 “(iii) solids derived from waste water
15 treatment processes.

16 “(2) *LIGNOCELLULOSIC FEEDSTOCK*.—The term
17 ‘lignocellulosic feedstock’ means any portion of a
18 plant or coproduct from conversion, including crops,
19 trees, forest residues, grasses, and agricultural resi-
20 dues not specifically grown for food, including from
21 barley grain, grapeseed, rice bran, rice hulls, rice
22 straw, soybean matter, cornstover, and sugarcane ba-
23 gasse.”.

1 **SEC. 649. CONCENTRATING SOLAR POWER RESEARCH PRO-**
 2 **GRAM.**

3 *Section 934 of the Energy Policy Act of 2005 (42*
 4 *U.S.C. 16234) and the item relating thereto in the table*
 5 *of contents of that Act are repealed.*

6 **SEC. 650. RENEWABLE ENERGY IN PUBLIC BUILDINGS.**

7 *Section 935 of the Energy Policy Act of 2005 (42*
 8 *U.S.C. 16235) and the item relating thereto in the table*
 9 *of contents of that Act are repealed.*

10 ***Subtitle E—Fossil Energy Research***
 11 ***and Development***

12 **SEC. 661. FOSSIL ENERGY.**

13 *Section 961 of Energy Policy Act of 2005 (42 U.S.C.*
 14 *16291) is amended to read as follows:*

15 **“SEC. 961. FOSSIL ENERGY.**

16 **“(a) IN GENERAL.—***The Secretary shall carry out re-*
 17 *search, development, demonstration, and commercial appli-*
 18 *cation programs in fossil energy, including activities under*
 19 *this subtitle, with the goal of improving the efficiency, effec-*
 20 *tiveness, and environmental performance of fossil energy*
 21 *production, upgrading, conversion, and consumption. Such*
 22 *programs shall take into consideration the following objec-*
 23 *tives:*

24 **“(1) Increasing the energy conversion efficiency**
 25 **of all forms of fossil energy through improved tech-**
 26 **nologies.**

1 “(2) *Decreasing the cost of all fossil energy pro-*
2 *duction, generation, and delivery.*

3 “(3) *Promoting diversity of energy supply.*

4 “(4) *Decreasing the dependence of the United*
5 *States on foreign energy supplies.*

6 “(5) *Decreasing the environmental impact of en-*
7 *ergy-related activities.*

8 “(6) *Increasing the export of fossil energy-related*
9 *equipment, technology, and services from the United*
10 *States.*

11 “(b) *OBJECTIVES.—To the maximum extent prac-*
12 *ticable, the Secretary shall seek to—*

13 “(1) *leverage existing programs;*

14 “(2) *consolidate and coordinate activities*
15 *throughout the Department to promote collaboration*
16 *and crosscutting approaches;*

17 “(3) *ensure activities are undertaken in a man-*
18 *ner that does not duplicate other activities within the*
19 *Department or other Federal Government activities;*
20 *and*

21 “(4) *identify programs that may be more effec-*
22 *tively left to the States, industry, nongovernmental*
23 *organizations, institutions of higher education, or*
24 *other stakeholders.*

25 “(c) *LIMITATIONS.—*

1 “(1) *USES*.—None of the funds authorized for
2 *carrying out this section may be used for Fossil En-*
3 *ergy Environmental Restoration.*

4 “(2) *INSTITUTIONS OF HIGHER EDUCATION*.—
5 *Not less than 20 percent of the funds appropriated for*
6 *carrying out section 964 of this Act for each fiscal*
7 *year shall be dedicated to research and development*
8 *carried out at institutions of higher education.*

9 “(3) *USE FOR REGULATORY ASSESSMENTS OR*
10 *DETERMINATIONS*.—*The results of any research, devel-*
11 *opment, demonstration, or commercial application*
12 *projects or activities of the Department authorized*
13 *under this subtitle may not be used for regulatory as-*
14 *sessments or determinations by Federal regulatory*
15 *authorities.*

16 “(d) *ASSESSMENTS*.—

17 “(1) *CONSTRAINTS AGAINST BRINGING RE-*
18 *SOURCES TO MARKET*.—*Not later than 1 year after*
19 *the date of enactment of the America COMPETES*
20 *Reauthorization Act of 2015, the Secretary shall*
21 *transmit to Congress an assessment of the technical,*
22 *institutional, policy, and regulatory constraints to*
23 *bringing new domestic fossil resources to market.*

24 “(2) *TECHNOLOGY CAPABILITIES*.—*Not later*
25 *than 2 years after the date of enactment of the Amer-*

9 (a) *IN GENERAL*.—Section 962 of the Energy Policy
10 *Act of 2005* (42 U.S.C. 16292) is amended—

12 (A) in paragraph (10), by striking “and”
13 at the end;

(B) in paragraph (11), by striking the period at the end and inserting a semicolon; and

17 “(12) *specific additional programs to address*
18 *water use and reuse;*

19 “(13) the testing, including the construction of
20 testing facilities, of high temperature materials for
21 use in advanced systems for combustion or use of coal;
22 and

“(14) innovations to application of existing coal
conversion systems designed to increase efficiency of

1 *conversion, flexibility of operation, and other modi-*
2 *fications to address existing usage requirements.”;*

3 *(2) by redesignating subsections (b) through (d)*
4 *as subsections (c) through (e), respectively;*

5 *(3) by inserting after subsection (a) the fol-*
6 *lowing:*

7 “(b) *TRANSFORMATIONAL COAL TECHNOLOGY PRO-*
8 *GRAM.—*

9 “(1) *IN GENERAL.—As part of the program es-*
10 *tablished under subsection (a), the Secretary may*
11 *carry out a program designed to undertake research,*
12 *development, demonstration, and commercial applica-*
13 *tion of technologies, including the accelerated develop-*
14 *ment of—*

15 “(A) *chemical looping technology;*

16 “(B) *supercritical carbon dioxide power*
17 *generation cycles;*

18 “(C) *pressurized oxycombustion, including*
19 *new and retrofit technologies; and*

20 “(D) *other technologies that are character-*
21 *ized by the use of—*

22 “(i) *alternative energy cycles;*

23 “(ii) *thermionic devices using waste*
24 *heat;*

25 “(iii) *fuel cells;*

1 “(iv) replacement of chemical processes
2 with biotechnology;

3 “(v) nanotechnology;

4 “(vi) new materials in applications
5 (other than extending cycles to higher tem-
6 perature and pressure), such as membranes
7 or ceramics;

8 “(vii) carbon utilization, such as in
9 construction materials, using low quality
10 energy to reconvert back to a fuel, or manu-
11 factured food;

12 “(viii) advanced gas separation con-
13 cepts; and

14 “(ix) other technologies, including—

15 “(I) modular, manufactured com-
16 ponents; and

17 “(II) innovative production or re-
18 search techniques, such as using 3-D
19 printer systems, for the production of
20 early research and development proto-
21 types.

22 “(2) *COST SHARE*.—In carrying out the program
23 described in paragraph (1), the Secretary shall enter
24 into partnerships with private entities to share the
25 costs of carrying out the program. The Secretary may

1 *reduce the non-Federal cost share requirement if the*
 2 *Secretary determines that the reduction is necessary*
 3 *and appropriate considering the technological risks*
 4 *involved in the project.”; and*

5 *(4) in subsection (c) (as so redesignated) by*
 6 *striking paragraph (1) and inserting the following:*

7 *“(1) IN GENERAL.—In carrying out programs*
 8 *authorized by this section, the Secretary shall identify*
 9 *cost and performance goals for coal-based technologies*
 10 *that would permit the continued cost-competitive use*
 11 *of coal for the production of electricity, chemical feed-*
 12 *stocks, transportation fuels, and other marketable*
 13 *products.”.*

14 *(b) ADVISORY COMMITTEE; AUTHORIZATION OF AP-*
 15 *PROPRIATIONS.—Section 963 of the Energy Policy Act of*
 16 *2005 (42 U.S.C. 16293) is amended—*

17 *(1) by amending paragraph (6) of subsection (c)*
 18 *to read as follows:*

19 *“(6) ADVISORY COMMITTEE.—*

20 *“(A) IN GENERAL.—Subject to subpara-*
 21 *graph (B), the Secretary shall establish an advi-*
 22 *sory committee to undertake, not less frequently*
 23 *than once every 3 years, a review and prepare*
 24 *a report on the progress being made by the De-*
 25 *partment of Energy to achieve the goals de-*

1 *scribed in subsections (a) and (b) of section 962*
 2 *and subsection (b) of this section.*

3 “(B) *MEMBERSHIP REQUIREMENTS.*—*Mem-*
 4 *bers of the advisory committee established under*
 5 *subparagraph (A) shall be appointed by the Sec-*
 6 *retary.’’; and*

7 *(2) by amending subsection (d) to read as fol-*
 8 *lows:*

9 “(d) *STUDY OF CARBON DIOXIDE PIPELINES.*—*Not*
 10 *later than 1 year after the date of enactment of the America*
 11 *COMPETES Reauthorization Act of 2015, the Secretary*
 12 *shall transmit to Congress the results of a study to assess*
 13 *the cost and feasibility of engineering, permitting, building,*
 14 *maintaining, regulating, and insuring a national system*
 15 *of carbon dioxide pipelines.’’.*

16 **SEC. 663. HIGH EFFICIENCY GAS TURBINES RESEARCH AND**
 17 **DEVELOPMENT.**

18 (a) *IN GENERAL.*—*The Secretary, through the Office*
 19 *of Fossil Energy, shall carry out a multiyear, multiphase*
 20 *program of research, development, demonstration, and com-*
 21 *mercial application to innovate technologies to maximize*
 22 *the efficiency of gas turbines used in power generation sys-*
 23 *tems.*

24 (b) *PROGRAM ELEMENTS.*—*The program under this*
 25 *section shall—*

1 (1) *support innovative engineering and detailed*
2 *gas turbine design for megawatt-scale and utility-*
3 *scale electric power generation, including—*

4 (A) *high temperature materials, including*
5 *superalloys, coatings, and ceramics;*

6 (B) *improved heat transfer capability;*

7 (C) *manufacturing technology required to*
8 *construct complex three-dimensional geometry*
9 *parts with improved aerodynamic capability;*

10 (D) *combustion technology to produce high-*
11 *er firing temperature while lowering nitrogen*
12 *oxide and carbon monoxide emissions per unit of*
13 *output;*

14 (E) *advanced controls and systems integra-*
15 *tion;*

16 (F) *advanced high performance compressor*
17 *technology; and*

18 (G) *validation facilities for the testing of*
19 *components and subsystems;*

20 (2) *include technology demonstration through*
21 *component testing, subscale testing, and full scale test-*
22 *ing in existing fleets;*

23 (3) *include field demonstrations of the developed*
24 *technology elements so as to demonstrate technical*
25 *and economic feasibility; and*

1 (4) *assess overall combined cycle and simple*
2 *cycle system performance.*

3 (c) *PROGRAM GOALS.—The goals of the multiphase*
4 *program established under subsection (a) shall be—*

5 (1) *in phase I—*

6 (A) *to develop the conceptual design of ad-*
7 *vanced high efficiency gas turbines that can*
8 *achieve at least 62 percent combined cycle effi-*
9 *ciency or 47 percent simple cycle efficiency on a*
10 *lower heating value basis; and*

11 (B) *to develop and demonstrate the tech-*
12 *nology required for advanced high efficiency gas*
13 *turbines that can achieve at least 62 percent*
14 *combined cycle efficiency or 47 percent simple*
15 *cycle efficiency on a lower heating value basis;*
16 *and*

17 (2) *in phase II, to develop the conceptual design*
18 *for advanced high efficiency gas turbines that can*
19 *achieve at least 65 percent combined cycle efficiency*
20 *or 50 percent simple cycle efficiency on a lower heat-*
21 *ing value basis.*

22 (d) *PROPOSALS.—Within 180 days after the date of*
23 *enactment of this Act, the Secretary shall solicit grant and*
24 *contract proposals from industry, small businesses, univer-*
25 *sities, and other appropriate parties for conducting activi-*

1 *ties under this section. In selecting proposals, the Secretary*
 2 *shall emphasize—*

3 *(1) the extent to which the proposal will stimu-*
 4 *late the creation or increased retention of jobs in the*
 5 *United States; and*

6 *(2) the extent to which the proposal will promote*
 7 *and enhance United States technology leadership.*

8 *(e) COMPETITIVE AWARDS.—The provision of funding*
 9 *under this section shall be on a competitive basis with an*
 10 *emphasis on technical merit.*

11 *(f) COST SHARING.—Section 988 of the Energy Policy*
 12 *Act of 2005 (42 U.S.C. 16352) shall apply to an award*
 13 *of financial assistance made under this section.*

14 ***Subtitle F—Advanced Research***
 15 ***Projects Agency—Energy***

16 ***SEC. 671. ARPA–E AMENDMENTS.***

17 *Section 5012 of the America COMPETES Act (42*
 18 *U.S.C. 16538) is amended—*

19 *(1) by amending paragraph (1) of subsection (c)*
 20 *to read as follows:*

21 *“(1) IN GENERAL.—The goals of ARPA–E shall*
 22 *be to enhance the economic and energy security of the*
 23 *United States and to ensure that the United States*
 24 *maintains a technological lead through the develop-*
 25 *ment of advanced energy technologies.”;*

1 (2) in subsection (i)(1), by inserting “ARPA-E
 2 shall not provide funding for a project unless the pro-
 3 spective grantee demonstrates sufficient attempts to
 4 secure private financing or indicates that the project
 5 is not independently commercially viable.” after “rel-
 6 evant research agencies.”;

7 (3) in subsection (l)(1), by inserting “and once
 8 every 6 years thereafter,” after “operation for 6
 9 years,”; and

10 (4) by redesignating subsection (n) as subsection
 11 (o) and inserting after subsection (m) the following
 12 new subsection:

13 “(n) *PROTECTION OF PROPRIETARY INFORMATION.*—

14 “(1) *IN GENERAL.*—The following categories of
 15 information collected by the Advanced Research
 16 Projects Agency–Energy from recipients of financial
 17 assistance awards shall be considered privileged and
 18 confidential and not subject to disclosure pursuant to
 19 section 552 of title 5, United States Code:

20 “(A) Plans for commercialization of tech-
 21 nologies developed under the award, including
 22 business plans, technology to market plans, mar-
 23 ket studies, and cost and performance models.

24 “(B) Investments provided to an awardee
 25 from third parties, such as venture capital, hedge

1 *fund, or private equity firms, including amounts*
 2 *and percentage of ownership of the awardee pro-*
 3 *vided in return for such investments.*

4 “(C) *Additional financial support that the*
 5 *awardee plans to invest or has invested into the*
 6 *technology developed under the award, or that*
 7 *the awardee is seeking from third parties.*

8 “(D) *Revenue from the licensing or sale of*
 9 *new products or services resulting from the re-*
 10 *search conducted under the award.*

11 “(2) *EFFECT OF SUBSECTION.—Nothing in this*
 12 *subsection affects—*

13 “(A) *the authority of the Secretary to use*
 14 *information without publicly disclosing such in-*
 15 *formation; or*

16 “(B) *the responsibility of the Secretary to*
 17 *transmit information to Congress as required by*
 18 *law.”.*

19 ***Subtitle G—Authorization of*** 20 ***Appropriations***

21 ***SEC. 681. AUTHORIZATION OF APPROPRIATIONS.***

22 “(a) *ELECTRICITY DELIVERY AND ENERGY RELI-*
 23 *ABILITY RESEARCH AND DEVELOPMENT.—There are au-*
 24 *thorized to be appropriated to the Secretary for research,*
 25 *development, demonstration, and commercial application*

1 *for electrical delivery and energy reliability technology ac-*
2 *tivities within the Office of Electricity \$113,000,000 for*
3 *each of fiscal years 2016 and 2017.*

4 *(b) NUCLEAR ENERGY.—*

5 *(1) IN GENERAL.—There are authorized to be ap-*
6 *propriated to the Secretary for research, development,*
7 *demonstration, and commercial application for nu-*
8 *clear energy technology activities within the Office of*
9 *Nuclear Energy \$504,600,000 for each of fiscal years*
10 *2016 and 2017.*

11 *(2) LIMITATION.—Any amounts made available*
12 *pursuant to the authorization of appropriations*
13 *under paragraph (1) shall not be derived from the*
14 *Nuclear Waste Fund established under section 302(c)*
15 *of the Nuclear Waste Policy Act of 1982 (42 U.S.C.*
16 *10222(c)).*

17 *(c) ENERGY EFFICIENCY AND RENEWABLE ENERGY.—*
18 *There are authorized to be appropriated to the Secretary*
19 *for research, development, demonstration, and commercial*
20 *application for energy efficiency and renewable energy tech-*
21 *nology activities within the Office of Energy Efficiency and*
22 *Renewable Energy \$1,198,500,000 for each of fiscal years*
23 *2016 and 2017.*

24 *(d) FOSSIL ENERGY.—There are authorized to be ap-*
25 *propriated to the Secretary for research, development, dem-*

1 onstration, and commercial application for fossil energy
 2 technology activities within the Office of Fossil Energy
 3 \$605,000,000 for each of fiscal years 2016 and 2017.

4 (e) ARPA-E.—There are authorized to be appro-
 5 priated to the Secretary for the Advanced Research Projects
 6 Agency–Energy \$140,000,000 for each of fiscal years 2016
 7 and 2017.

8 ***Subtitle H—Definitions***

9 **SEC. 691. DEFINITIONS.**

10 *In this title—*

11 (1) the term “Department” means the Depart-
 12 ment of Energy; and

13 (2) the term “Secretary” means the Secretary of
 14 Energy.

15 ***TITLE VII—DEPARTMENT OF EN- 16 ERGY TECHNOLOGY TRANS- 17 FER***

18 ***Subtitle A—In General***

19 **SEC. 701. DEFINITIONS.**

20 *In this title:*

21 (1) DEPARTMENT.—The term “Department”
 22 means the Department of Energy.

23 (2) NATIONAL LABORATORY.—The term “Na-
 24 tional Laboratory” means a Department of Energy
 25 nonmilitary national laboratory, including—

- 1 (A) *Ames Laboratory;*
- 2 (B) *Argonne National Laboratory;*
- 3 (C) *Brookhaven National Laboratory;*
- 4 (D) *Fermi National Accelerator Laboratory;*
- 5 (E) *Idaho National Laboratory;*
- 6 (F) *Lawrence Berkeley National Labora-*
- 7 *tory;*
- 8 (G) *National Energy Technology Labora-*
- 9 *tory;*
- 10 (H) *National Renewable Energy Labora-*
- 11 *tory;*
- 12 (I) *Oak Ridge National Laboratory;*
- 13 (J) *Pacific Northwest National Laboratory;*
- 14 (K) *Princeton Plasma Physics Laboratory;*
- 15 (L) *Savannah River National Laboratory;*
- 16 (M) *Stanford Linear Accelerator Center;*
- 17 (N) *Thomas Jefferson National Accelerator*
- 18 *Facility; and*
- 19 (O) *any laboratory operated by the Na-*
- 20 *tional Nuclear Security Administration, but*
- 21 *only with respect to the civilian energy activities*
- 22 *thereof.*
- 23 (3) *SECRETARY.—The term “Secretary” means*
- 24 *the Secretary of Energy.*

1 **SEC. 702. SAVINGS CLAUSE.**

2 *Nothing in this title or an amendment made by this*
 3 *title abrogates or otherwise affects the primary responsibil-*
 4 *ities of any National Laboratory to the Department.*

5 **Subtitle B—Innovation Manage-**
 6 **ment at Department of Energy**

7 **SEC. 711. UNDER SECRETARY FOR SCIENCE AND ENERGY.**

8 *(a) IN GENERAL.—Section 202(b) of the Department*
 9 *of Energy Organization Act (42 U.S.C. 7132(b)) is amend-*
 10 *ed—*

11 *(1) by striking “Under Secretary for Science”*
 12 *each place it appears and inserting “Under Secretary*
 13 *for Science and Energy”; and*

14 *(2) in paragraph (4)—*

15 *(A) in subparagraph (F), by striking “and”*
 16 *at the end;*

17 *(B) in subparagraph (G), by striking the*
 18 *period at the end and inserting a semicolon; and*

19 *(C) by inserting after subparagraph (G) the*
 20 *following:*

21 *“(H) establish appropriate linkages between of-*
 22 *fices under the jurisdiction of the Under Secretary;*
 23 *and*

24 *“(I) perform such functions and duties as the*
 25 *Secretary shall prescribe, consistent with this sec-*
 26 *tion.”.*

1 (b) *CONFORMING AMENDMENTS.*—

2 (1) *Section 3164(b)(1) of the Department of En-*
 3 *ergy Science Education Enhancement Act (42 U.S.C.*
 4 *7381a(b)(1)) is amended by striking “Under Sec-*
 5 *retary for Science” and inserting “Under Secretary*
 6 *for Science and Energy”.*

7 (2) *Section 641(h)(2) of the United States En-*
 8 *ergy Storage Competitiveness Act of 2007 (42 U.S.C.*
 9 *17231(h)(2)) is amended by striking “Under Sec-*
 10 *retary for Science” and inserting “Under Secretary*
 11 *for Science and Energy”.*

12 **SEC. 712. TECHNOLOGY TRANSFER AND TRANSITIONS AS-**
 13 **SESSMENT.**

14 *Not later than 1 year after the date of enactment of*
 15 *this Act, and annually thereafter, the Secretary shall trans-*
 16 *mit to the Committee on Science, Space, and Technology*
 17 *of the House of Representatives and the Committee on En-*
 18 *ergy and Natural Resources of the Senate a report which*
 19 *shall include—*

20 (1) *an assessment of the Department’s current*
 21 *ability to carry out the goals of section 1001 of the*
 22 *Energy Policy Act of 2005 (42 U.S.C. 16391), includ-*
 23 *ing an assessment of the role and effectiveness of the*
 24 *Director of the Office of Technology Transitions; and*

1 (2) *recommended departmental policy changes*
2 *and legislative changes to section 1001 of the Energy*
3 *Policy Act of 2005 (42 U.S.C. 16391) to improve the*
4 *Department's ability to successfully transfer new en-*
5 *ergy technologies to the private sector.*

6 **SEC. 713. SENSE OF CONGRESS.**

7 *It is the sense of the Congress that the Secretary should*
8 *encourage the National Laboratories and federally funded*
9 *research and development centers to inform small businesses*
10 *of the opportunities and resources that exist pursuant to*
11 *this title.*

12 **SEC. 714. NUCLEAR ENERGY INNOVATION.**

13 *Not later than 180 days after the date of enactment*
14 *of this Act, the Secretary, in consultation with the National*
15 *Laboratories, relevant Federal agencies, and other stake-*
16 *holders, shall transmit to the Committee on Science, Space,*
17 *and Technology of the House of Representatives and the*
18 *Committee on Energy and Natural Resources of the Senate*
19 *a report assessing the Department's capabilities to author-*
20 *ize, host, and oversee privately funded fusion and non-light*
21 *water reactor prototypes and related demonstration facili-*
22 *ties at Department-owned sites. For purposes of this report,*
23 *the Secretary shall consider the Department's capabilities*
24 *to facilitate privately-funded prototypes up to 20*

1 megawatts thermal output. The report shall address the fol-
2 lowing:

3 (1) The Department's safety review and oversight
4 capabilities.

5 (2) Potential sites capable of hosting research,
6 development, and demonstration of prototype reactors
7 and related facilities for the purpose of reducing tech-
8 nical risk.

9 (3) The Department's and National Labora-
10 tories' existing physical and technical capabilities rel-
11 evant to research, development, and oversight.

12 (4) The efficacy of the Department's available
13 contractual mechanisms, including cooperative re-
14 search and development agreements, work for others
15 agreements, and agreements for commercializing tech-
16 nology.

17 (5) Potential cost structures related to physical
18 security, decommissioning, liability, and other long-
19 term project costs.

20 (6) Other challenges or considerations identified
21 by the Secretary, including issues related to potential
22 cases of demonstration reactors up to 2 gigawatts of
23 thermal output.

1 ***Subtitle C—Cross-Sector Partner-***
 2 ***ships and Grant Competitiveness***

3 ***SEC. 721. AGREEMENTS FOR COMMERCIALIZING TECH-***
 4 ***NOLOGY PILOT PROGRAM.***

5 (a) *IN GENERAL.*—The Secretary shall carry out the
 6 *Agreements for Commercializing Technology pilot program*
 7 *of the Department, as announced by the Secretary on De-*
 8 *cember 8, 2011, in accordance with this section.*

9 (b) *TERMS.*—Each agreement entered into pursuant to
 10 *the pilot program referred to in subsection (a) shall provide*
 11 *to the contractor of the applicable National Laboratory, to*
 12 *the maximum extent determined to be appropriate by the*
 13 *Secretary, increased authority to negotiate contract terms,*
 14 *such as intellectual property rights, payment structures,*
 15 *performance guarantees, and multiparty collaborations.*

16 (c) *ELIGIBILITY.*—

17 (1) *IN GENERAL.*—Any director of a National
 18 *Laboratory may enter into an agreement pursuant to*
 19 *the pilot program referred to in subsection (a).*

20 (2) *AGREEMENTS WITH NON-FEDERAL ENTI-*
 21 *TIES.*—To carry out paragraph (1) and subject to
 22 *paragraph (3), the Secretary shall permit the direc-*
 23 *tors of the National Laboratories to execute agree-*
 24 *ments with a non-Federal entity, including a non-*
 25 *Federal entity already receiving Federal funding that*

1 *will be used to support activities under agreements*
2 *executed pursuant to paragraph (1), provided that*
3 *such funding is solely used to carry out the purposes*
4 *of the Federal award.*

5 (3) *RESTRICTION.—The requirements of chapter*
6 *18 of title 35, United States Code (commonly known*
7 *as the “Bayh-Dole Act”) shall apply if—*

8 (A) *the agreement is a funding agreement*
9 *(as that term is defined in section 201 of that*
10 *title); and*

11 (B) *at least 1 of the parties to the funding*
12 *agreement is eligible to receive rights under that*
13 *chapter.*

14 (d) *SUBMISSION TO SECRETARY.—Each affected direc-*
15 *tor of a National Laboratory shall submit to the Secretary,*
16 *with respect to each agreement entered into under this sec-*
17 *tion—*

18 (1) *a summary of information relating to the*
19 *relevant project;*

20 (2) *the total estimated costs of the project;*

21 (3) *estimated commencement and completion*
22 *dates of the project; and*

23 (4) *other documentation determined to be appro-*
24 *priate by the Secretary.*

1 (e) *CERTIFICATION.*—*The Secretary shall require the*
2 *contractor of the affected National Laboratory to certify*
3 *that each activity carried out under a project for which an*
4 *agreement is entered into under this section—*

5 (1) *is not in direct competition with the private*
6 *sector; and*

7 (2) *does not present, or minimizes, any apparent*
8 *conflict of interest, and avoids or neutralizes any ac-*
9 *tual conflict of interest, as a result of the agreement*
10 *under this section.*

11 (f) *EXTENSION.*—*The pilot program referred to in sub-*
12 *section (a) shall be extended until October 31, 2017.*

13 (g) *REPORTS.*—

14 (1) *OVERALL ASSESSMENT.*—*Not later than 60*
15 *days after the date described in subsection (f), the*
16 *Secretary, in coordination with directors of the Na-*
17 *tional Laboratories, shall submit to the Committee on*
18 *Science, Space, and Technology of the House of Rep-*
19 *resentatives and the Committee on Energy and Nat-*
20 *ural Resources of the Senate a report that—*

21 (A) *assesses the overall effectiveness of the*
22 *pilot program referred to in subsection (a);*

23 (B) *identifies opportunities to improve the*
24 *effectiveness of the pilot program;*

1 (C) assesses the potential for program ac-
 2 tivities to interfere with the responsibilities of the
 3 National Laboratories to the Department; and

4 (D) provides a recommendation regarding
 5 the future of the pilot program.

6 (2) *TRANSPARENCY.*—The Secretary, in coordi-
 7 nation with directors of the National Laboratories,
 8 shall submit to the Committee on Science, Space, and
 9 Technology of the House of Representatives and the
 10 Committee on Energy and Natural Resources of the
 11 Senate an annual report that accounts for all
 12 incidences of, and provides a justification for, non-
 13 Federal entities using funds derived from a Federal
 14 contract or award to carry out agreements pursuant
 15 to this section.

16 **SEC. 722. PUBLIC-PRIVATE PARTNERSHIPS FOR COMMER-**
 17 **CIALIZATION.**

18 (a) *IN GENERAL.*—Subject to subsections (b) and (c),
 19 the Secretary shall delegate to directors of the National Lab-
 20 oratories signature authority with respect to any agreement
 21 described in subsection (b) the total cost of which (including
 22 the National Laboratory contributions and project recipient
 23 cost share) is less than \$1,000,000.

24 (b) *AGREEMENTS.*—Subsection (a) applies to—

1 (1) *a cooperative research and development*
2 *agreement;*

3 (2) *a non-Federal work-for-others agreement; and*

4 (3) *any other agreement determined to be appro-*
5 *priate by the Secretary, in collaboration with the di-*
6 *rectors of the National Laboratories.*

7 (c) *ADMINISTRATION.*—

8 (1) *ACCOUNTABILITY.*—*The director of the af-*
9 *ected National Laboratory and the affected contractor*
10 *shall carry out an agreement under this section in ac-*
11 *cordance with applicable policies of the Department,*
12 *including by ensuring that the agreement does not*
13 *compromise any national security, economic, or envi-*
14 *ronmental interest of the United States.*

15 (2) *CERTIFICATION.*—*The director of the affected*
16 *National Laboratory and the affected contractor shall*
17 *certify that each activity carried out under a project*
18 *for which an agreement is entered into under this sec-*
19 *tion does not present, or minimizes, any apparent*
20 *conflict of interest, and avoids or neutralizes any ac-*
21 *tual conflict of interest, as a result of the agreement*
22 *under this section.*

23 (3) *AVAILABILITY OF RECORDS.*—*On entering an*
24 *agreement under this section, the director of a Na-*
25 *tional Laboratory shall submit to the Secretary for*

1 *monitoring and review all records of the National*
 2 *Laboratory relating to the agreement.*

3 (4) *RATES.*—*The director of a National Labora-*
 4 *tory may charge higher rates for services performed*
 5 *under a partnership agreement entered into pursuant*
 6 *to this section, regardless of the full cost of recovery,*
 7 *if such funds are used exclusively to support further*
 8 *research and development activities at the respective*
 9 *National Laboratory.*

10 (d) *EXCEPTION.*—*This section does not apply to any*
 11 *agreement with a majority foreign-owned company.*

12 (e) *CONFORMING AMENDMENT.*—*Section 12 of the Ste-*
 13 *venson-Wydler Technology Innovation Act of 1980 (15*
 14 *U.S.C. 3710a) is amended—*

15 (1) *in subsection (a)—*

16 (A) *by redesignating paragraphs (1) and*
 17 (2) *as subparagraphs (A) and (B), respectively,*
 18 *and indenting the subparagraphs appropriately;*

19 (B) *by striking “Each Federal agency” and*
 20 *inserting the following:*

21 “(1) *IN GENERAL.*—*Except as provided in para-*
 22 *graph (2), each Federal agency”;* and

23 (C) *by adding at the end the following:*

24 “(2) *EXCEPTION.*—*Notwithstanding paragraph*
 25 (1), *in accordance with section 722(a) of the America*

1 *COMPETES Reauthorization Act of 2015, approval*
 2 *by the Secretary of Energy shall not be required for*
 3 *any technology transfer agreement proposed to be en-*
 4 *tered into by a National Laboratory of the Depart-*
 5 *ment of Energy, the total cost of which (including the*
 6 *National Laboratory contributions and project recipi-*
 7 *ent cost share) is less than \$1,000,000.”; and*

8 (2) *in subsection (b), by striking “subsection*
 9 *(a)(1)” each place it appears and inserting “sub-*
 10 *section (a)(1)(A)”.*

11 **SEC. 723. INCLUSION OF EARLY-STAGE TECHNOLOGY DEM-**
 12 **ONSTRATION IN AUTHORIZED TECHNOLOGY**
 13 **TRANSFER ACTIVITIES.**

14 *Section 1001 of the Energy Policy Act of 2005 (42*
 15 *U.S.C. 16391) is amended by—*

16 (1) *redesignating subsection (g) as subsection (h);*
 17 *and*

18 (2) *inserting after subsection (f) the following:*

19 *“(g) EARLY-STAGE TECHNOLOGY DEMONSTRATION.—*
 20 *The Secretary shall permit the directors of the National*
 21 *Laboratories to use funds authorized to support technology*
 22 *transfer within the Department to carry out early-stage and*
 23 *pre-commercial technology demonstration activities to re-*
 24 *move technology barriers that limit private sector interest*
 25 *and demonstrate potential commercial applications of any*

1 *research and technologies arising from National Laboratory*
 2 *activities.”.*

3 **SEC. 724. FUNDING COMPETITIVENESS FOR INSTITUTIONS**
 4 **OF HIGHER EDUCATION AND OTHER NON-**
 5 **PROFIT INSTITUTIONS.**

6 *Section 988(b) of the Energy Policy Act of 2005 (42*
 7 *U.S.C. 16352(b)) is amended—*

8 *(1) in paragraph (1), by striking “Except as*
 9 *provided in paragraphs (2) and (3)” and inserting*
 10 *“Except as provided in paragraphs (2), (3), and (4)”;*
 11 *and*

12 *(2) by adding at the end the following:*

13 *“(4) EXEMPTION FOR INSTITUTIONS OF HIGHER*
 14 *EDUCATION AND OTHER NONPROFIT INSTITUTIONS.—*

15 *“(A) IN GENERAL.—Paragraph (1) shall*
 16 *not apply to a research or development activity*
 17 *performed by an institution of higher education*
 18 *or nonprofit institution (as defined in section 4*
 19 *of the Stevenson-Wydler Technology Innovation*
 20 *Act of 1980 (15 U.S.C. 3703)).*

21 *“(B) TERMINATION DATE.—The exemption*
 22 *under subparagraph (A) shall apply during the*
 23 *6-year period beginning on the date of enactment*
 24 *of this paragraph.”.*

1 **SEC. 725. PARTICIPATION IN THE INNOVATION CORPS PRO-**
2 **GRAM.**

3 *The Secretary may enter into an agreement with the*
4 *Director of the National Science Foundation to enable re-*
5 *searchers funded by the Department to participate in the*
6 *National Science Foundation Innovation Corps program.*

7 ***Subtitle D—Assessment of Impact***

8 **SEC. 731. REPORT BY GOVERNMENT ACCOUNTABILITY OF-**
9 **FICE.**

10 *Not later than 3 years after the date of enactment of*
11 *this Act, the Comptroller General of the United States shall*
12 *submit to Congress a report—*

13 *(1) describing the results of the projects developed*
14 *under sections 721, 722, and 723, including informa-*
15 *tion regarding—*

16 *(A) partnerships initiated as a result of*
17 *those projects and the potential linkages pre-*
18 *sented by those partnerships with respect to na-*
19 *tional priorities and other taxpayer-funded re-*
20 *search; and*

21 *(B) whether the activities carried out under*
22 *those projects result in—*

23 *(i) fiscal savings;*

24 *(ii) expansion of National Laboratory*
25 *capabilities;*

1 (iii) increased efficiency of technology
2 transfers; or

3 (iv) an increase in general efficiency of
4 the National Laboratory system; and

5 (2) assess the scale, scope, efficacy, and impact
6 of the Department's efforts to promote technology
7 transfer and private sector engagement at the Na-
8 tional Laboratories, and make recommendations on
9 how the Department can improve these activities.

10 **TITLE VIII—SENSE OF**
11 **CONGRESS**

12 **SEC. 801. SENSE OF CONGRESS.**

13 *It is the sense of Congress that climate change is real.*

Union Calendar No. 75

114TH CONGRESS
1ST Session

H. R. 1806

[Report No. 114-107, Part I]

A BILL

To provide for technological innovation through the prioritization of Federal investment in basic research, fundamental scientific discovery, and development to improve the competitiveness of the United States, and for other purposes.

MAY 8, 2015

Reported from the Committee on Science, Space, and
Technology with an amendment

MAY 8, 2015

The Committees on Oversight and Government Reform
and Education and the Workforce discharged; com-
mitted to the Committee of the Whole House on the
State of the Union and ordered to be printed