

RULES COMMITTEE PRINT 114-15
TEXT OF H.R. 1806, AMERICA COMPETES
REAUTHORIZATION ACT OF 2015

**[Showing the text of the bill as ordered reported by the
Committee on Science, Space, and Technology.]**

1 SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

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

4 (b) TABLE OF CONTENTS.—The table of contents for
5 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 edu-
cation.

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 Re-
12 authorization Act of 2010 (42 U.S.C. 6621).

1 **TITLE I—NATIONAL SCIENCE**
2 **FOUNDATION**

3 **SEC. 101. AUTHORIZATION OF APPROPRIATIONS.**

4 (a) FISCAL YEAR 2016.—

5 (1) IN GENERAL.—There are authorized to be
6 appropriated to the Foundation \$7,597,140,000 for
7 fiscal year 2016.

8 (2) SPECIFIC ALLOCATIONS.—Of the amount
9 authorized by paragraph (1)—

10 (A) \$6,186,300,000 shall be made avail-
11 able to carry out research and related activities,
12 including—

13 (i) \$834,800,000 for the Biological
14 Science Directorate;

15 (ii) \$1,050,000,000 for the Computer
16 and Information Science and Engineering
17 Directorate;

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

20 (iv) \$1,200,000,000 for the Geo-
21 sciences Directorate;

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

24 (vi) \$150,000,000 for the Social, Be-
25 havioral, and Economics Directorate, of

1 which \$50,000,000 shall be for the Na-
2 tional Center for Science and Engineering
3 Statistics;

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

6 (viii) \$377,500,000 for Integrative
7 Activities; and

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

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

12 (C) \$200,310,000 shall be made available
13 for major research equipment and facilities con-
14 struction;

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

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

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

21 (b) FISCAL YEAR 2017.—

22 (1) IN GENERAL.—There are authorized to be
23 appropriated to the Foundation \$7,597,140,000 for
24 fiscal year 2017.

1 (2) SPECIFIC ALLOCATIONS.—Of the amount
2 authorized by paragraph (1)—

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4 able to carry out research and related activities,
5 including—

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7 Science Directorate;

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12 ing Directorate;

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14 sciences Directorate;

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16 matical and Physical Science Directorate;

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18 havioral, and Economics Directorate, of
19 which \$50,000,000 shall be for the Na-
20 tional Center for Science and Engineering
21 Statistics;

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23 International Science and Engineering;

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25 Activities; and

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2 Arctic Commission;

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4 for education and human resources;

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6 for major research equipment and facilities con-
7 struction;

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

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

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

14 **SEC. 102. FINDINGS.**

15 Congress finds the following:

16 (1) Taxpayer-supported research investments
17 administered by the Foundation should serve the na-
18 tional interest.

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

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

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

4 (5) Congress applauds the Foundation's rec-
5 ognition that wise stewardship of taxpayer dollars is
6 necessary to maintain and ensure the public's trust
7 for funding of fundamental scientific and engineer-
8 ing research.

9 (6) Other nations are increasing their public in-
10 vestments in basic research in the physical sciences
11 in 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
15 is jeopardized if United States investments in basic
16 research 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
24 education at all levels.

1 (10) The research and education activities of
2 the Foundation promote the discovery, integration,
3 dissemination, and application of new knowledge in
4 service to society and prepare future generations of
5 scientists, mathematicians, and engineers who will
6 be necessary to ensure America's leadership in the
7 global 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-di-
12 rectorate research collaboration and activities to ad-
13 dress these issues and encourage interdisciplinary re-
14 search.

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

18 (13) The Foundation is charged with the re-
19 sponsibilities—

20 (A) to develop and encourage the pursuit
21 of a national policy for the promotion of basic
22 research and education in the sciences;

23 (B) to initiate, support, and conduct basic
24 scientific research and to appraise the impact of

1 research on industrial development and the gen-
2 eral welfare;

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

7 (D) to award scholarships and graduate
8 fellowships in the sciences;

9 (E) to foster the interchange of scientific
10 information among scientists and across sci-
11 entific disciplines;

12 (F) to evaluate scientific research pro-
13 grams undertaken by agencies of the Federal
14 Government, and to correlate the Foundation's
15 scientific research with that undertaken by indi-
16 viduals and by public and private research
17 groups;

18 (G) to communicate effectively to Amer-
19 ican citizens the relevance of public investments
20 in scientific discovery and technological innova-
21 tion to the Nation's security, prosperity, and
22 welfare; and

23 (H) to establish such special commissions
24 as the Board considers necessary.

1 (14) The emerging global economic, scientific,
2 and technical environment challenges long standing
3 assumptions about domestic and international policy,
4 requiring the Foundation to play a more proactive
5 role in sustaining the competitive advantage of the
6 United States through superior research capabilities.

7 **SEC. 103. POLICY OBJECTIVES.**

8 In allocating resources made available under this
9 title, the Foundation shall have the following policy objec-
10 tives:

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

13 (A) increasing the national investment in
14 basic scientific research and increasing inter-
15 disciplinary investment in strategic areas vital
16 to the national interest;

17 (B) balancing the Nation's research port-
18 folio among the life sciences, mathematics, the
19 physical sciences, computer and information
20 science, geosciences, engineering, and social, be-
21 havioral, and economic sciences, all of which are
22 important for the continued development of en-
23 abling technologies necessary for sustained eco-
24 nomic competitiveness;

1 (C) encouraging investments in potentially
2 transformative scientific research to benefit our
3 Nation and its citizens;

4 (D) expanding the pool of scientists and
5 engineers in the United States, including among
6 segments of the population that have been his-
7 torically underrepresented in STEM fields; and

8 (E) modernizing the Nation's research in-
9 frastructure and establishing and maintaining
10 cooperative international relationships with pre-
11 mier research institutions.

12 (2) To increase overall workforce skills by—

13 (A) improving the quality of STEM edu-
14 cation and tools provided both inside and out-
15 side of the classroom, including in kindergarten
16 through grade 12; and

17 (B) expanding STEM training opportuni-
18 ties at institutions of higher education.

19 (3) To strengthen innovation by expanding the
20 focus of competitiveness and innovation at the re-
21 gional and local level.

22 **SEC. 104. DEFINITIONS.**

23 In this title:

24 (1) BOARD.—The term “Board” means the Na-
25 tional Science Board.

1 (2) DIRECTOR.—The term “Director” means
2 the Director of the Foundation.

3 (3) FOUNDATION.—The term “Foundation”
4 means the National Science Foundation established
5 under section 2 of the National Science Foundation
6 Act of 1950 (42 U.S.C. 1861).

7 (4) INSTITUTION OF HIGHER EDUCATION.—The
8 term “institution of higher education” has the
9 meaning given such term in section 101(a) of the
10 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

11 (5) STATE.—The term “State” means one of
12 the several States, the District of Columbia, the
13 Commonwealth of Puerto Rico, the Virgin Islands,
14 Guam, American Samoa, the Commonwealth of the
15 Northern Mariana Islands, or any other territory or
16 possession of the United States.

17 (6) UNITED STATES.—The term “United
18 States” means the several States, the District of Co-
19 lumbia, the Commonwealth of Puerto Rico, the Vir-
20 gin Islands, Guam, American Samoa, the Common-
21 wealth of the Northern Mariana Islands, and any
22 other territory or possession of the United States.

23 **SEC. 105. ACCOUNTABILITY AND TRANSPARENCY.**

24 It is the sense of Congress that—

1 (1) sustained, predictable Federal funding is es-
2 sential to United States leadership in science and
3 technology;

4 (2) building understanding of and confidence in
5 investments in basic research are essential to public
6 support for sustained, predictable Federal funding;
7 and

8 (3) the Foundation should commit itself fully to
9 transparency and accountability and to clear, con-
10 sistent public communication regarding the national
11 interest for each Foundation-awarded grant and co-
12 operative agreement.

13 **SEC. 106. GREATER ACCOUNTABILITY IN FEDERAL FUND-**
14 **ING FOR RESEARCH.**

15 (a) STANDARD FOR AWARD OF GRANTS.—The Foun-
16 dation shall award Federal funding for basic research and
17 education in the sciences through a new research grant
18 or cooperative agreement only if an affirmative determina-
19 tion is made by the Foundation under subsection (b) and
20 written justification relating thereto is published under
21 subsection (c).

22 (b) DETERMINATION.—A determination referred to
23 in subsection (a) is a justification by the responsible Foun-
24 dation official as to how the research grant or cooperative
25 agreement promotes the progress of science in the United

1 States, consistent with the Foundation mission as estab-
2 lished in the National Science Foundation Act of 1950 (42
3 U.S.C. 1861 et seq.), and further—

4 (1) is worthy of Federal funding; and

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

7 (A) increased economic competitiveness in
8 the United States;

9 (B) advancement of the health and welfare
10 of the American public;

11 (C) development of an American STEM
12 workforce that is globally competitive;

13 (D) increased public scientific literacy and
14 public engagement with science and technology
15 in the United States;

16 (E) increased partnerships between aca-
17 demia and industry in the United States;

18 (F) support for the national defense of the
19 United States; or

20 (G) promotion of the progress of science in
21 the United States.

22 (c) WRITTEN JUSTIFICATION.—Public announce-
23 ment of each award of Federal funding described in sub-
24 section (a) shall include a written justification from the
25 responsible Foundation official as to how a grant or coop-

1 erative agreement meets the requirements of subsection
2 (b).

3 (d) IMPLEMENTATION.—A determination under sub-
4 section (b) shall be made after a research grant or cooper-
5 ative agreement proposal has satisfied the Foundation’s
6 reviews for Merit and Broader Impacts. Nothing in this
7 section shall be construed as altering the Foundation’s in-
8 tellectual merit or broader impacts criteria for evaluating
9 grant applications.

10 **SEC. 107. OBLIGATION OF MAJOR RESEARCH EQUIPMENT**
11 **AND FACILITIES CONSTRUCTION FUNDS.**

12 No funds may be obligated for a fiscal year for a con-
13 struction project for the Foundation that has not com-
14 menced before the date of enactment of this Act until 30
15 days after the report required with respect to each such
16 fiscal year under section 14(a)(2) of the National Science
17 Foundation Authorization Act of 2002 (42 U.S.C. 1862n–
18 4(a)(2)) is transmitted to the Congress.

19 **SEC. 108. MANAGEMENT AND OVERSIGHT OF LARGE FA-**
20 **CILITIES.**

21 (a) LARGE FACILITIES OFFICE.—The Director shall
22 maintain a Large Facilities Office within the Office of the
23 Director. The functions of the Large Facilities Office shall
24 be to support the research directorates in the development,

1 implementation, and assessment of major multi-user re-
2 search facilities, including by—

3 (1) serving as the Foundation's primary re-
4 source for all policy or process issues related to the
5 development and implementation of major multi-user
6 research facilities;

7 (2) serving as a Foundation-wide resource on
8 project management, including providing expert as-
9 sistance on nonscientific and nontechnical aspects of
10 project planning, budgeting, implementation, man-
11 agement, and oversight;

12 (3) coordinating and collaborating with research
13 directorates to share best management practices and
14 lessons learned from prior projects; and

15 (4) assessing projects during preconstruction
16 and construction phases for cost and schedule risk.

17 (b) OVERSIGHT OF LARGE FACILITIES.—The Direc-
18 tor shall appoint a senior agency official within the Office
19 of the Director whose primary responsibility is oversight
20 of major multi-user research facilities. The duties of this
21 official shall include—

22 (1) oversight of the development, construction,
23 and operation of major multi-user research facilities
24 across the Foundation;

1 (2) in collaboration with the directors of the re-
2 search directorates and other senior agency officials
3 as appropriate, ensuring that the requirements of
4 section 14(a) of the National Science Foundation
5 Authorization Act of 2002 are satisfied;

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

9 (4) periodically reviewing and updating as nec-
10 essary Foundation policies and guidelines for the de-
11 velopment and construction of major multi-user re-
12 search facilities.

13 (c) POLICIES FOR LARGE FACILITY COSTS.—

14 (1) IN GENERAL.—The Director shall ensure
15 that the Foundation's policies for developing and
16 managing major multi-user research facility con-
17 struction costs are consistent with the best practices
18 described in the March 2009 Government Account-
19 ability Office Report GAO-09-3SP, or any successor
20 report thereto.

21 (2) REPORT.—Not later than 12 months after
22 the date of enactment of this Act, the Director shall
23 submit to Congress the results of a study and a re-
24 port reforming the Foundation's policies on financial
25 management of major multi-user research facilities,

1 including a description of any aspects of the policies
2 that diverge from the best practices recommended in
3 Government Accountability Office Report GAO-09-
4 3SP and the Uniform Guidance in 2 C.F.R. Part
5 200.

6 (3) MANAGEMENT FEES.—

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

16 (B) LIMITATION.—The Foundation may
17 provide management fees under an award only
18 if the awardee has demonstrated that it has
19 limited or no other financial resources for cov-
20 ering the expenses for which the management
21 fees are sought.

22 (C) FINANCIAL INFORMATION.—The
23 Foundation shall require award applicants to
24 provide income and financial information cov-
25 ering a period of no less than three prior years

1 (or in the case of an entity established less than
2 three years prior to the entity's application
3 date, the period beginning on the date of estab-
4 lishment and ending on the application date),
5 including cash on hand and net asset informa-
6 tion, in support of a request for management
7 fees. The Foundation shall also require award-
8 ees to report to the Foundation, within 30 days
9 of receipt, any sources of non-Federal funds re-
10 ceived in excess of \$50,000 during the award
11 period.

12 (D) EXPENSE REPORTING.—The Founda-
13 tion shall require awardees to track and report
14 to the Foundation annually all expenses reim-
15 bursed or otherwise paid for with management
16 fee funds, in accordance with Federal account-
17 ing practices as established in Government Ac-
18 countability Office Report GAO-12-331G, or
19 any successor report thereto.

20 (E) AUDITS.—The Inspector General of
21 the Foundation may audit any Foundation
22 award for compliance with this paragraph.

23 (F) PROHIBITED USES.—An awardee may
24 not use management fees for—

1 (i) costs allowable under Cost Prin-
2 ciples Uniform Guidance in 2 C.F.R. part
3 200, Subpart E, or any successor regula-
4 tion thereto;

5 (ii) alcoholic beverages;

6 (iii) tickets to concerts, or sporting
7 and other entertainment events;

8 (iv) vacation or other travel for non-
9 business purposes;

10 (v) charitable contributions;

11 (vi) social or sporting club member-
12 ships;

13 (vii) meals for nonbusiness purposes;

14 (viii) luxury or personal items;

15 (ix) lobbying, as described in the Uni-
16 form Guidance at 2 C.F.R. 200.450; or

17 (x) any other purpose the Foundation
18 determines is inappropriate.

19 (G) REVIEW.—The Foundation shall re-
20 view management fee usage under each Foun-
21 dation award on at least an annual basis for
22 compliance with this paragraph and the Foun-
23 dation's Large Facilities Manual.

24 (4) REPORT.—Not later than 12 months after
25 the date of enactment of this Act, the Director shall

1 submit to Congress a report describing the Founda-
2 tion's policies for developing and managing major
3 multi-user research facility construction costs, in-
4 cluding a description of any aspects of the policies
5 that diverge from the best practices recommended in
6 Government Accountability Office Report GAO-09-
7 3SP, or any successor report thereto, and the Uni-
8 form Guidance in 2 C.F.R. part 200.

9 **SEC. 109. WHISTLEBLOWER EDUCATION.**

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

12 (b) EDUCATION AND TRAINING.—The Foundation
13 shall provide education and training for Foundation man-
14 agers and staff on the requirements of such section 4712,
15 and provide information on the law to all grantees, con-
16 tractors, and employees of such grantees and contractors.

17 **SEC. 110. GRADUATE STUDENT SUPPORT.**

18 (a) SENSE OF CONGRESS.—It is the sense of Con-
19 gress that the essential elements of the NSF Research
20 Traineeship Program, formerly the Integrative Graduate
21 Education and Research Traineeship program, (or any
22 successor thereto) should be maintained, including—

23 (1) collaborative research that transcends tradi-
24 tional disciplinary boundaries to solve large and

1 complex research problems of significant scientific
2 and societal importance; and

3 (2) providing students the opportunity to be-
4 come leaders in the science and engineering of the
5 future.

6 (b) MODELS FOR SUPPORT.—The Director shall
7 enter into an agreement with the National Research Coun-
8 cil to convene a workshop or roundtable to examine models
9 of Federal support for STEM graduate students, includ-
10 ing the Foundation’s Graduate Research Fellowship pro-
11 gram and comparable fellowship programs at other agen-
12 cies, traineeship programs, and the research assistant
13 model.

14 (c) PURPOSE.—The purpose of the workshop or
15 roundtable shall be to compare and evaluate the extent
16 to which each of these models helps to prepare graduate
17 students for diverse careers utilizing STEM degrees, in-
18 cluding at diverse types of institutions of higher education,
19 in industry, and at government agencies and research lab-
20 oratories, and to make recommendations regarding—

21 (1) how current Federal programs and models,
22 including programs and models at the Foundation,
23 can be improved;

1 (2) the appropriateness of the current distribu-
2 tion of funding among the different models at the
3 Foundation and across the agencies; and

4 (3) the appropriateness of creating a new edu-
5 cation and training program for graduate students
6 distinct from programs that provide direct financial
7 support, including the grants authorized in section
8 527 of the America COMPETES Reauthorization
9 Act of 2010 (42 U.S.C. 1862p-15).

10 (d) CRITERIA.—At a minimum, in comparing pro-
11 grams and models, the workshop or roundtable partici-
12 pants shall consider the capacity of such programs or
13 models to provide students with knowledge and skills—

14 (1) to become independent, creative, successful
15 researchers;

16 (2) to participate in large interdisciplinary re-
17 search projects, including in an international con-
18 text;

19 (3) to adhere to the highest standards for re-
20 search ethics;

21 (4) to become high-quality teachers utilizing the
22 most currently available evidence-based pedagogy;

23 (5) in oral and written communication, to both
24 technical and nontechnical audiences;

1 (6) in innovation, entrepreneurship, and busi-
2 ness ethics; and

3 (7) in program management.

4 (e) GRADUATE STUDENT INPUT.—The participants
5 in the workshop or roundtable shall include current or re-
6 cent STEM graduate students.

7 (f) REPORT.—Not later than 1 year after the date
8 of enactment of this Act, the National Research Council
9 shall submit to Congress a summary report of the findings
10 and recommendations of the workshop or roundtable con-
11 vened under this section.

12 **SEC. 111. PERMISSIBLE SUPPORT.**

13 A grant made by the Education and Human Re-
14 sources Directorate to support informal education may be
15 used—

16 (1) to support the participation of underrep-
17 resented students in nonprofit competitions, out-of-
18 school activities, and field experiences related to
19 STEM subjects (such as robotics, science research,
20 invention, mathematics, and technology competi-
21 tions), including—

22 (A) the purchase of parts and supplies
23 needed to participate in such competitions; and

24 (B) incentives and stipends for teachers
25 and instructional leaders who are involved in

1 assisting students and preparing students for
2 such competitions, if such activities fall outside
3 the regular duties and responsibilities of such
4 teachers and instructional leaders; and

5 (2) to broaden underrepresented secondary
6 school students' access to, and interest in, careers
7 that require academic preparation in STEM sub-
8 jects.

9 **SEC. 112. EXPANDING STEM OPPORTUNITIES.**

10 (a) IN GENERAL.—Within the Directorate for Edu-
11 cation and Human Resources (or any successor thereto),
12 under existing programs targeting broadening participa-
13 tion, the Director shall provide grants on a merit-reviewed,
14 competitive basis for research on programming that en-
15 gages underrepresented students in grades kindergarten
16 through 8 in STEM.

17 (b) USE OF FUNDS.—

18 (1) IN GENERAL.—Grants awarded under this
19 section shall be used for research to advance the en-
20 gagement of underrepresented students in grades
21 kindergarten through 8 in STEM through the devel-
22 opment and implementation of innovative before-
23 school, after-school, out-of-school, or summer activi-
24 ties, including programs (if applicable to the target
25 population) provided in a single-gender environment,

1 that are designed to encourage interest, engagement,
2 and skills development of underrepresented students
3 in STEM. Such research shall be conducted in learn-
4 ing environments that actively provide programming
5 to underrepresented students in grades kindergarten
6 through 8 in STEM.

7 (2) PERMITTED ACTIVITIES.—Such activities
8 may include—

9 (A) the development and implementation of
10 programming described in subsection (a) for the
11 purpose of research;

12 (B) the use of a variety of engagement
13 methods, including cooperative and hands-on
14 learning;

15 (C) exposure of underrepresented youth to
16 role models in the fields of STEM, including re-
17 searchers in the National Laboratories, and
18 nearpeer mentors;

19 (D) training of informal learning educators
20 and youth-serving professionals using evidence-
21 based methods consistent with the target stu-
22 dent population being served;

23 (E) education of students on the relevance
24 and significance of STEM careers, provision of
25 academic advice and assistance, and activities

1 designed to help students make real-world con-
2 nections to STEM content activities;

3 (F) the attendance of underrepresented
4 youth at events, competitions, and academic
5 programs to provide content expertise and en-
6 courage career exposure in STEM;

7 (G) activities designed to engage parents of
8 underrepresented youth;

9 (H) innovative strategies to engage under-
10 represented youth, such as using leadership
11 skill outcome measures to encourage youth with
12 the confidence to pursue STEM coursework and
13 academic study;

14 (I) coordination with STEM-rich environ-
15 ments, including other nonprofit, nongovern-
16 mental organizations, classroom and out-of-
17 classroom settings, institutions of higher edu-
18 cation, vocational facilities, corporations, muse-
19 ums, National Laboratories, or science centers;
20 and

21 (J) the acquisition of instructional mate-
22 rials or technology-based tools to conduct appli-
23 cable grant activity.

24 (c) APPLICATION.—An applicant seeking funding
25 under the section shall submit an application at such time,

1 in such manner, and containing such information as may
2 be required. The application shall include, at a minimum,
3 the following:

4 (1) A description of the target audience to be
5 served by the program.

6 (2) A description of the process for recruitment
7 and selection of students, as appropriate.

8 (3) A description of how such research activity
9 may inform programming that engages underrep-
10 resented students in grades kindergarten through 8
11 in STEM.

12 (4) A description of how such research activity
13 may inform programming that promotes student
14 academic achievement in STEM.

15 (5) An evaluation plan that includes, at a min-
16 imum, the use of outcome-oriented measures to de-
17 termine the impact and efficacy of activities being
18 researched.

19 (d) AWARDS.—In awarding grants under this section,
20 the Director shall give priority to applicants which, for the
21 purpose of grant activity, include or partner with a non-
22 profit, nongovernmental organization that has extensive
23 experience and expertise in increasing the participation of
24 underrepresented students in STEM.

25 (e) ACCOUNTABILITY AND DISSEMINATION.—

1 (1) EVALUATION REQUIRED.—Not later than 5
2 years after the date of enactment of this Act, the
3 Director shall evaluate the grants provided under
4 this section. In addition to evaluating the effective-
5 ness of the grant activities, such evaluation shall—

6 (A) use a common set of benchmarks and
7 assessment tools to identify best practices and
8 materials developed or demonstrated by the re-
9 search; and

10 (B) to the extent practicable, combine the
11 research resulting from the grant activity with
12 the current research on serving underrep-
13 resented students in grades kindergarten
14 through 8.

15 (2) REPORT ON EVALUATIONS.—Not later than
16 180 days after the completion of the evaluation
17 under paragraph (1), the Director shall submit to
18 Congress and make widely available to the public a
19 report that includes—

20 (A) the results of the evaluation; and

21 (B) any recommendations for administra-
22 tive and legislative action that could optimize
23 the effectiveness of the program.

24 (f) COORDINATION.—In carrying out this section, the
25 Director shall consult, cooperate, and coordinate, to en-

1 hance program effectiveness and to avoid duplication, with
2 the programs and policies of other relevant Federal agen-
3 cies.

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

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

8 (1) whether any of such programs duplicate tar-
9 get groups, services provided, fields of focus, or ob-
10 jectives; and

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

13 (b) REPORT.—Not later than 1 year after the date
14 of enactment of this Act, and annually thereafter as part
15 of the annual budget submission to Congress, the Director
16 shall complete a report on the review carried out under
17 this section and shall submit the report to the Committee
18 on Science, Space, and Technology and the Committee on
19 Appropriations of the House of Representatives, and to
20 the Committee on Commerce, Science, and Transpor-
21 tation, the Committee on Health, Education, Labor, and
22 Pensions, and the Committee on Appropriations of the
23 Senate, and shall make the report widely available to the
24 public.

1 **SEC. 114. RECOMPETITION OF AWARDS.**

2 (a) FINDINGS.—The Congress finds that—

3 (1) the merit-reviewed competition of grant and
4 award proposals is a hallmark of the Foundation
5 grant and award making process;

6 (2) the majority of Foundation-funded multi-
7 user research facilities have transitioned to five-year
8 cooperative agreements, and every five years the pro-
9 gram officer responsible for the facility makes a rec-
10 ommendation to the National Science Board as to
11 the renewal, recompetition, or termination of sup-
12 port for the facility; and

13 (3) requiring the recompetition of expiring
14 awards is based on the conviction that competition
15 is most likely to ensure the effective stewardship of
16 Foundation funds for supporting research and edu-
17 cation.

18 (b) RECOMPETITION.—The Director shall ensure that
19 the system for recompetition of Maintenance and Oper-
20 ations of facilities, equipment and instrumentation is fair,
21 consistent, and transparent and is applied in a manner
22 that renews grants and awards in a timely manner. The
23 Director shall periodically evaluate whether the criteria of
24 the system are being applied in a manner that is trans-
25 parent, reliable, and valid.

1 **SEC. 115. SENSE OF THE CONGRESS REGARDING INDUSTRY**
2 **INVESTMENT IN STEM EDUCATION.**

3 It is the sense of Congress that—

4 (1) in order to bolster the STEM workforce
5 pipeline, many industry sectors are becoming in-
6 volved in K-12 initiatives and supporting under-
7 graduate and graduate work in STEM subject areas
8 and fields;

9 (2) partnerships with education providers,
10 STEM focused competitions, and other opportunities
11 have become important aspects of private sector ef-
12 forts to strengthen the STEM workforce;

13 (3) understanding the work that private sector
14 organizations are undertaking in STEM fields
15 should inform the Federal Government's role in
16 STEM education; and

17 (4) successful private sector STEM initiatives,
18 as reflected by measurements of relevant outcomes,
19 should be encouraged and supported by the Founda-
20 tion.

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

22 (a) PROHIBITION.—The findings and conclusions of
23 any article authored by a principal investigator receiving
24 a research grant from the Foundation, using the results
25 of the research conducted under the grant, that is pub-
26 lished in a peer-reviewed publication, otherwise made pub-

1 licly available, or incorporated in an application for a re-
2 search grant or grant extension from the Foundation may
3 not contain any falsification, fabrication, or plagiarism, as
4 established in the Foundation's Research Misconduct reg-
5 ulation (45 C.F.R. 689).

6 (b) PUBLICATION.—The Director shall make publicly
7 available any finding that research misconduct (as defined
8 in 45 C.F.R. 689) has been committed, including the
9 name of the principal investigator, within 30 days of the
10 final administration action of the Foundation.

11 **SEC. 117. RESEARCH REPRODUCIBILITY AND REPLICA-**
12 **TION.**

13 (a) SENSE OF CONGRESS.—It is the sense of Con-
14 gress that—

15 (1) the gold standard of good science is the
16 ability of a researcher or research lab to reproduce
17 a published method and finding;

18 (2) there is growing concern that some pub-
19 lished research findings cannot be reproduced or
20 replicated, which can negatively affect the public's
21 trust in science;

22 (3) there are a complex set of factors affecting
23 reproducibility and replication; and

24 (4) the increasing interdisciplinary nature and
25 complexity of scientific research may be a contrib-

1 uting factor to issues with research reproducibility
2 and replication.

3 (b) REPORT.—The Director shall—

4 (1) not later than 45 days after the date of en-
5 actment of this Act, enter into an agreement with
6 the National Research Council to provide, within 18
7 months after the date of enactment of this Act, a re-
8 port to assess research and data reproducibility and
9 replicability issues in interdisciplinary research and
10 to make recommendations on how to improve rigor
11 and transparency in scientific research; and

12 (2) not later than 60 days after receiving the
13 results of the assessment under paragraph (1), sub-
14 mit a report to the Committee on Science, Space,
15 and Technology of the House of Representatives and
16 the Committee on Commerce, Science, and Trans-
17 portation of the Senate on the findings of the assess-
18 ment, together with the agreement or disagreement
19 of the Director and Board with each of its findings
20 and recommendations.

21 **SEC. 118. RESEARCH GRANT CONDITIONS.**

22 The Foundation shall establish procedures to ensure
23 that—

24 (1) a research grant awarded by the Founda-
25 tion to a principal investigator supports a scope of

1 work not otherwise being directly funded by grants
2 provided by other Federal agencies;

3 (2) a principal investigator includes in any ap-
4 plication for a research grant awarded by the Foun-
5 dation a list of all Federal research funding received
6 by the principal investigator, as well as any funding
7 that is being requested as of that time;

8 (3) unpublished research results used to sup-
9 port a grant proposal made to the Foundation do
10 not include any knowing misrepresentations of data;

11 (4) principal investigators who receive Founda-
12 tion research grant funding under more than one
13 grant at the same time have sufficient resources to
14 conduct the proposed research under each of those
15 grants appropriately under the terms of the grant;
16 and

17 (5) barriers to early career and new investigator
18 applicants are addressed, including taking into ac-
19 count the broader accomplishments and potential of
20 the individual investigator in addition to the poten-
21 tial impact of the project.

22 **SEC. 119. COMPUTING RESOURCES STUDY.**

23 Not later than 1 year after the date of enactment
24 of this Act, the Comptroller General shall transmit to the
25 Congress a report detailing the results of a study on the

1 use of scientific computing resources funded by the Foun-
2 dation at institutions of higher education. Such study shall
3 assess—

4 (1) efficiencies that can be achieved by using
5 shared scientific computing resources for projects
6 that have similar scientific computing requirements
7 or projects where specialized software solutions could
8 be shared with other practitioners in the scientific
9 community;

10 (2) efficiencies that can be achieved by using
11 shared hardware that can be cost effectively pro-
12 cured from cloud computing services;

13 (3) efficiencies that can be achieved by using
14 shared software from an open source repository or
15 platform; and

16 (4) cost savings that could be achieved by po-
17 tential sharing of scientific computing resources
18 across all Foundation grants.

19 **SEC. 120. SCIENTIFIC BREAKTHROUGH PRIZES.**

20 The Director shall place a high priority on designing
21 and administering pilot programs for scientific break-
22 through prizes, in conjunction with private entities, that
23 are consistent with Office of Science and Technology Pol-
24 icy guidelines. Breakthrough prizes shall center around
25 technological breakthroughs that are of strategic impor-

1 tance to the Nation, and have the capacity to spur new
2 economic growth.

3 **SEC. 121. ROTATING PERSONNEL.**

4 In order to control the costs to the Foundation of
5 individuals employed pursuant to the Intergovernmental
6 Personnel Act of 1970 (42 U.S.C. 4701 note)—

7 (1) the Foundation shall provide to Congress a
8 written justification and waiver by the Deputy Di-
9 rector in instances in which such an individual is to
10 be paid at a rate that exceeds the maximum rate of
11 pay for the Senior Executive Service, including, if
12 applicable, adjustment for the certified Senior Exec-
13 utive Service Performance Appraisal System;

14 (2) the Foundation shall provide to Congress a
15 written justification and waiver by the Director in
16 instances in which such an individual is to be paid
17 at a rate that exceeds the annual salary rate of the
18 Vice President of the United States; and

19 (3) the Foundation shall provide an annual re-
20 port to Congress on the costs to the Foundation of
21 employing such individuals, including—

22 (A) the timeliness and completeness of
23 Foundation actions in response to recommenda-
24 tions and findings from the Office of Inspector

1 General related to the employment of such indi-
2 viduals;

3 (B) actions taken by the Foundation to re-
4 duce the cost to the Foundation of the employ-
5 ment of such individuals at pay levels that ex-
6 ceed the threshold described in paragraph (1);

7 (C) the value to the Foundation of employ-
8 ing individuals pursuant to the Intergovern-
9 mental Personnel Act of 1970 (42 U.S.C. 4701
10 note) whose pay is set below the threshold de-
11 scribed in paragraph (1); and

12 (D) the value to the Foundation of employ-
13 ing individuals who are not permanent employ-
14 ees whose pay requires a justification and waiv-
15 er under paragraph (1) or (2).

16 **SEC. 122. SENSE OF CONGRESS REGARDING INNOVATION**
17 **CORPS.**

18 It is the sense of Congress that—

19 (1) the Foundation's Innovation Corps (I-
20 Corps) was established to foster a national innova-
21 tion ecosystem by encouraging institutions, sci-
22 entists, engineers, and entrepreneurs to identify and
23 explore the innovation and commercial potential of
24 Foundation-funded research well beyond the labora-
25 tory;

1 (2) the Foundation's I-Corps includes invest-
2 ment in entrepreneurship and commercialization
3 education, training, and mentoring, ultimately lead-
4 ing to the practical deployment of technologies,
5 products, processes, and services that improve the
6 Nation's competitiveness, promote economic growth,
7 and benefit society; and

8 (3) by building networks of entrepreneurs, edu-
9 cators, mentors, institutions, and collaborations, and
10 supporting specialized education and training, I-
11 Corps is at the leading edge of a strong, lasting
12 foundation for an American innovation ecosystem.

13 **SEC. 123. BRAIN RESEARCH THROUGH ADVANCING INNO-**
14 **VATIVE NEUROTECHNOLOGIES INITIATIVE.**

15 The Foundation shall support research activities re-
16 lated to the Brain Research through Advancing Innovative
17 Neurotechnologies Initiative. The Foundation is encour-
18 aged to work in conjunction with the Interagency Working
19 Group on Neuroscience (IWGN) to determine how to use
20 the data infrastructure of the Foundation and other appli-
21 cable agencies to help neuroscientists collect, standardize,
22 manage, and analyze the large amounts of data that will
23 result from research attempting to understand how the
24 brain functions.

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

2 (a) AMENDMENTS.—Section 10A of the National
3 Science Foundation Authorization Act of 2002 (42 U.S.C.
4 1862n—1a) is amended—

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

7 (2) in subsection (c)—

8 (A) by striking “and” at the end of para-
9 graph (2)(B);

10 (B) in paragraph (3)—

11 (i) by inserting “for teachers with
12 master’s degrees in their field” after
13 “Teaching Fellowships”; and

14 (ii) by striking the period at the end
15 of subparagraph (B) and inserting “;
16 and”; and

17 (C) by adding at the end the following new
18 paragraph:

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

23 “(A) offering academic courses leading to
24 a master’s degree and leadership training to
25 prepare individuals to become master teachers
26 in elementary and secondary schools; and

1 “(B) offering programs both during and
2 after matriculation in the program for which
3 the fellowship is received to enable fellows to
4 become highly effective mathematics and
5 science teachers, including mentoring, training,
6 induction, and professional development activi-
7 ties, to fulfill the service requirements of this
8 section, including the requirements of sub-
9 section (e), and to exchange ideas with others
10 in their fields.”;

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

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

15 (5) by inserting after subsection (f) the fol-
16 lowing new subsection:

17 “(g) SUPPORT FOR MASTER TEACHING FELLOWS
18 WHILE ENROLLED IN A MASTER’S DEGREE PROGRAM.—
19 A National Science Foundation Master Teacher Fellow
20 may receive a maximum of 1 year of fellowship support
21 while enrolled in a master’s degree program as described
22 in subsection (c)(4)(A), except that if such fellow is en-
23 rolled in a part-time program, such amount shall be pro-
24 rated according to the length of the program.”.

1 (b) DEFINITION.—Section 10(i)(5) of the National
2 Science Foundation Authorization Act of 2002 (42 U.S.C.
3 1862n—1(i)(5)) is amended by inserting “computer
4 science,” after “means a science,”.

5 **SEC. 125. INFORMAL STEM EDUCATION.**

6 (a) GRANTS.—The Director, through the Directorate
7 for Education and Human Resources, shall continue to
8 award competitive, merit-reviewed grants to support—

9 (1) research and development of innovative out-
10 of-school STEM learning and emerging STEM
11 learning environments in order to improve STEM
12 learning outcomes and engagement in STEM; and

13 (2) research that advances the field of informal
14 STEM education.

15 (b) USES OF FUNDS.—Activities supported by grants
16 under this section may encompass a single STEM dis-
17 cipline, multiple STEM disciplines, or integrative STEM
18 initiatives and shall include—

19 (1) research and development that improves our
20 understanding of learning and engagement in infor-
21 mal environments, including the role of informal en-
22 vironments in broadening participation in STEM;
23 and

24 (2) design and testing of innovative STEM
25 learning models, programs, and other resources for

1 informal learning environments to improve STEM
2 learning outcomes and increase engagement for K-
3 12 students, K-12 teachers, and the general public,
4 including design and testing of the scalability of
5 models, programs, and other resources.

6 **SEC. 126. EXPERIMENTAL PROGRAM TO STIMULATE COM-**
7 **PETITIVE RESEARCH.**

8 The Foundation shall continue to operate a robust
9 Experimental Program to Stimulate Competitive Research
10 (EPSCoR). The EPSCoR program helps ensure that aca-
11 demic research institutions in more than half the States
12 develop a strong research infrastructure and participate
13 fully in federally funded research activities. The program
14 should be a high priority for the Foundation.

15 **TITLE II—SCIENCE, TECH-**
16 **NOLOGY, ENGINEERING, AND**
17 **MATHEMATICS**

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

19 (a) FINDINGS.—Congress finds the following:

20 (1) According to the National Science Board's
21 Science and Engineering Indicators, the science and
22 engineering workforce has shown sustained growth
23 for more than half a century, and workers with
24 science and engineering degrees tend to earn more
25 than comparable workers in other fields.

1 (2) According to the Program for International
2 Student Assessment 2012 results, America lags be-
3 hind many other nations in STEM education. Amer-
4 ican students rank 21st in science and 26th in
5 mathematics.

6 (3) Junior Achievement USA and ING found a
7 decrease of 25 percent in the percentage of teenage
8 students interested in STEM careers.

9 (4) According to a 2007 report from the De-
10 partment of Labor, industries and firms dependent
11 on a strong science and mathematics workforce have
12 launched a variety of programs that target K-12
13 students and undergraduate and graduate students
14 in STEM fields.

15 (5) The Federal Government spends nearly \$3
16 billion annually on STEM education related program
17 and activities, but encouraging STEM education ac-
18 tivities beyond the scope of the Federal Government,
19 including privately sponsored competitions and pro-
20 grams in our schools, is crucial to the future tech-
21 nical and economic competitiveness of the United
22 States.

23 (b) SENSE OF CONGRESS.—It is the sense of Con-
24 gress that—

1 (1) more effective coordination and adoption of
2 performance measurement based on objective out-
3 comes for federally supported STEM programs is
4 needed;

5 (2) leveraging private and nonprofit invest-
6 ments in STEM education will be essential to
7 strengthening the Federal STEM portfolio;

8 (3) strengthening the Federal STEM portfolio
9 may require program consolidations and termi-
10 nations, but such changes should be based on evi-
11 dence with stakeholder input;

12 (4) coordinating STEM programs and activities
13 across the Federal Government in order to limit du-
14 plication and engage stakeholders in STEM pro-
15 grams and related activities for which objective out-
16 comes can be measured will bolster results of Fed-
17 eral STEM education programs, improve the return
18 on taxpayers' investments in STEM education pro-
19 grams, and in turn strengthen the United States
20 economy; and

21 (5) as the Committee on STEM Education im-
22 plements the 5-year Strategic Plan for Federal
23 STEM education required under section 101(b)(5)
24 of the America COMPETES Reauthorization Act of
25 2010 (42 U.S.C. 6621(b)(5)), STEM education

1 stakeholders must be engaged and outcome-based
2 evaluation metrics should be considered in the co-
3 ordination and consolidation efforts for the Federal
4 STEM portfolio.

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

6 (a) ESTABLISHMENT.—The President shall establish
7 or designate a STEM Education Advisory Panel that in-
8 corporates key stakeholders from the education and indus-
9 try sectors. The co-chairs shall be members of the Presi-
10 dent’s Council of Advisors on Science and Technology.

11 (b) QUALIFICATIONS.—The Advisory Panel estab-
12 lished or designated by the President under subsection (a)
13 shall consist primarily of members from academic institu-
14 tions, nonprofit organizations, and industry and shall in-
15 clude in-school, out-of-school, and informal educational
16 practitioners. Members of the Advisory Panel shall be
17 qualified to provide advice and information on STEM edu-
18 cation research, development, training, implementation,
19 interventions, professional development, or workforce
20 needs or concerns. In selecting or designating an Advisory
21 Panel, the President may also seek and give consideration
22 to recommendations from the Congress, industry, the sci-
23 entific community (including the National Academy of
24 Sciences, scientific professional societies, and academia),

1 State and local governments, and other appropriate orga-
2 nizations.

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

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

18 (2) the management, coordination, and imple-
19 mentation of STEM education programs and activi-
20 ties across the Federal Government;

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

24 (4) ways to leverage private and nonprofit
25 STEM investments and encourage public-private

1 partnerships to strengthen STEM education and
2 help build the STEM workforce pipeline;

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

7 (6) ways to better vertically and horizontally in-
8 tegrate Federal STEM programs and activities from
9 pre-K through graduate study and the workforce,
10 and from in-school to out-of-school in order to im-
11 prove transitions for students moving through the
12 STEM pipeline;

13 (7) whether societal and workforce concerns are
14 adequately addressed by current Federal STEM
15 education programs and activities;

16 (8) the extent to which Federal STEM edu-
17 cation programs and activities are contributing to
18 recruitment and retention of women and underrep-
19 resented students in the STEM education and work-
20 force pipeline; and

21 (9) ways to encourage geographic diversity in
22 STEM education and the workforce pipeline.

23 (d) REPORTS.—The Advisory Panel shall report, not
24 less frequently than once every 3 fiscal years, to the Presi-
25 dent and Congress on its assessments under subsection

1 (c) and its recommendations for ways to improve Federal
2 STEM education programs. The first report under this
3 subsection shall be submitted within 1 year after the date
4 of enactment of this Act.

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

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

19 Section 101 of the America COMPETES Reauthor-
20 ization Act of 2010 (42 U.S.C. 6621) is amended—

21 (1) in the first subsection (b)—

22 (A) by redesignating paragraphs (3)
23 through (6) as paragraphs (5) through (8), re-
24 spectively;

1 (B) by inserting after paragraph (2) the
2 following new paragraphs:

3 “(3) collaborate with the STEM Education Ad-
4 visory Panel established under section 202 of the
5 America COMPETES Reauthorization Act of 2015
6 and other outside stakeholders to ensure the engage-
7 ment of the STEM education community;

8 “(4) review evaluation measures used for Fed-
9 eral STEM education programs;”; and

10 (C) in paragraph (8), as so redesignated
11 by subparagraph (A) of this paragraph, by
12 striking “, periodically update,”; and

13 (2) in the second subsection (b) and in sub-
14 section (c), by striking “subsection (b)(5)” and in-
15 serting “subsection (b)(7)”.

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

17 (a) ESTABLISHMENT.—The Director of the National
18 Science Foundation shall establish within the Directorate
19 for Education and Human Resources a STEM Education
20 Coordinating Office, which shall have a Director and staff
21 that shall include career employees detailed from Federal
22 agencies that fund STEM education programs and activi-
23 ties.

24 (b) RESPONSIBILITIES.—The STEM Education Co-
25 ordinating Office shall—

1 (1) provide technical and administrative support
2 to—

3 (A) the Committee on STEM Education,
4 especially in its coordination of Federal STEM
5 programs and strategic planning responsibil-
6 ities;

7 (B) the Advisory Panel established under
8 section 202; and

9 (C) Federal agencies with STEM edu-
10 cation programs;

11 (2) periodically update and maintain the inven-
12 tory of federally sponsored STEM education pro-
13 grams and activities established under section
14 101(b)(8) of the America COMPETES Reauthoriza-
15 tion Act of 2010 (42 U.S.C. 6621); and

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

22 (c) REPORT.—The Director of the STEM Education
23 Coordinating Office shall transmit a report annually to
24 Congress not later than 60 days after the submission of

1 the President's budget request. The annual report shall
2 include—

3 (1) any updates to the inventory required under
4 subsection (b)(2);

5 (2) a description of all consolidations and ter-
6 minations of Federal STEM education programs im-
7 plemented in the previous fiscal year, including an
8 explanation of the reasons for consolidations and
9 terminations;

10 (3) recommendations for consolidations and ter-
11 minations of STEM education programs or activities
12 in the upcoming fiscal year;

13 (4) a description of any significant new STEM
14 Education public-private partnerships; and

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

21 (d) RESPONSIBILITIES OF NSF.—The Director of
22 the National Science Foundation shall encourage and
23 monitor the efforts of the STEM Education Coordinating
24 Office to ensure that the Coordinating Office is carrying
25 out its responsibilities under subsection (b) appropriately.

1 **TITLE III—OFFICE OF SCIENCE**
2 **AND TECHNOLOGY POLICY**

3 **SEC. 301. AUTHORIZATION OF APPROPRIATIONS.**

4 There are authorized to be appropriated for the Of-
5 fice of Science and Technology Policy—

6 (1) \$4,550,000 for fiscal year 2016; and

7 (2) \$4,550,000 for fiscal year 2017.

8 **SEC. 302. REGULATORY EFFICIENCY.**

9 (a) SENSE OF CONGRESS.—It is the sense of Con-
10 gress that—

11 (1) high and increasing administrative burdens
12 and costs in Federal research administration, par-
13 ticularly in the higher education sector where most
14 federally sponsored research is performed, are erod-
15 ing funds available to carry out basic scientific re-
16 search;

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

21 (3) post-award administrative costs have grown
22 as Federal research agencies have continued to im-
23 pose agency-unique compliance and reporting re-
24 quirements on researchers and research institutions;

1 (4) facilities and administration costs at re-
2 search universities can exceed 50 percent of the total
3 value of Federal research grants, and it is estimated
4 that nearly 30 percent of the funds invested annu-
5 ally in federally funded research is consumed by pa-
6 perwork and other administrative processes required
7 by Federal agencies; and

8 (5) it is a matter of critical importance to
9 American competitiveness that administrative costs
10 of federally funded research be streamlined so that
11 a higher proportion of taxpayer dollars flow into di-
12 rect research activities.

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

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

24 (2) minimize the regulatory burden on United
25 States institutions of higher education performing

1 federally funded research while maintaining account-
2 ability for Federal tax dollars; and

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

6 (c) STAKEHOLDER INPUT.—In carrying out the re-
7 sponsibilities under subsection (b), the working group
8 shall take into account input and recommendations from
9 non-Federal stakeholders, including federally funded and
10 nonfederally funded researchers, institutions of higher
11 education, scientific disciplinary societies and associations,
12 nonprofit research institutions, industry, including small
13 businesses, federally funded research and development
14 centers, and others with a stake in ensuring effectiveness,
15 efficiency, and accountability in the performance of sci-
16 entific research.

17 (d) REPORT.—Not later than 1 year after the date
18 of enactment of this Act, and annually thereafter for 3
19 years, the Director shall report to the Committee on
20 Science, Space, and Technology of the House of Rep-
21 resentatives and the Committee on Commerce, Science,
22 and Transportation of the Senate on what steps have been
23 taken to carry out the recommendations of the working
24 group established under subsection (b).

1 **SEC. 303. COORDINATION OF INTERNATIONAL SCIENCE**
2 **AND TECHNOLOGY PARTNERSHIPS.**

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

11 (b) **NSTC BODY LEADERSHIP.**—The body estab-
12 lished under subsection (a) shall be co-chaired by senior
13 level officials from the Office of Science and Technology
14 Policy and the Department of State.

15 (c) **RESPONSIBILITIES.**—The body established under
16 subsection (a) shall—

17 (1) plan and coordinate interagency inter-
18 national science and technology cooperative research
19 and training activities and partnerships supported or
20 managed by Federal agencies and work with other
21 National Science and Technology Council commit-
22 tees to help plan and coordinate the international
23 component of national science and technology prior-
24 ities;

25 (2) establish Federal priorities and policies for
26 aligning, as appropriate, international science and

1 technology cooperative research and training activi-
2 ties and partnerships supported or managed by Fed-
3 eral agencies with the foreign policy goals of the
4 United States;

5 (3) identify opportunities for new international
6 science and technology cooperative research and
7 training partnerships that advance both the science
8 and technology and the foreign policy priorities of
9 the United States;

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

15 (5) identify broad issues that influence the abil-
16 ity of United States scientists and engineers to col-
17 laborate with foreign counterparts, including bar-
18 riers to collaboration and access to scientific infor-
19 mation.

20 (d) REPORT TO CONGRESS.—The Director of the Of-
21 fice of Science and Technology Policy shall transmit a re-
22 port, to be updated every 2 years, to the Committee on
23 Science, Space, and Technology and the Committee on
24 Foreign Affairs of the House of Representatives, and to
25 the Committee on Commerce, Science, and Transportation

1 and the Committee on Foreign Relations of the Senate.
2 The report shall also be made available to the public on
3 the reporting agency's website. The report shall contain
4 a description of—

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

7 (2) the ongoing and new partnerships estab-
8 lished 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
14 foreign counterparts.

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

1 the purpose of the trip, Office of Science and Technology
2 Policy participants on the trip, total Office of Science and
3 Technology Policy costs associated with the trip, and de-
4 tails of all international meetings, including meeting par-
5 ticipants and topics addressed.

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

7 (a) PILOT PROGRAM AUTHORITY.—The heads of
8 Federal science agencies, in consultation with the Director
9 of the Office of Science and Technology Policy, shall con-
10 duct appropriate pilot programs to validate alternative re-
11 search funding models, including—

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

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

18 (b) NON-FEDERAL PARTNERS.—A pilot program
19 may be conducted under this section through an agree-
20 ment, grant, or contractual relationship with a non-Fed-
21 eral entity regarding the design, administration, and fund-
22 ing of the program.

23 (c) PRIZE COMPETITION JUDGES.—

24 (1) REQUIREMENTS.—Judges for a prize com-
25 petition carried out under this section shall not be

1 required to be Federal employees. An individual who
2 serves as a judge for a prize competition carried out
3 under this section who is not a Federal employee
4 shall be required to sign an agreement, developed by
5 the Office of Science and Technology Policy, with re-
6 spect to nondisclosure, conflict of interest, and judg-
7 ing code of conduct requirements.

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

14 (3) REPORT TO CONGRESS.—Not later than 30
15 days after the Office of Science and Technology Pol-
16 icy completes development of an agreement under
17 paragraph (1), it shall transmit a report to Congress
18 describing the requirements of such agreement.

19 (d) PUBLIC NOTICE.—The heads of Federal science
20 agencies shall widely advertise prize competitions to be
21 conducted under this section to ensure maximum partici-
22 pation.

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

1 (1) the National Aeronautics and Space Admin-
2 istration;

3 (2) the National Science Foundation;

4 (3) the National Institute of Standards and
5 Technology; and

6 (4) the National Weather Service.

7 (f) REPORT TO CONGRESS.—Not later than 1 year
8 after the date of enactment of this Act, and annually
9 thereafter as part of the annual budget submission to Con-
10 gress, the Director of the Office of Science and Technology
11 Policy shall transmit to the Congress a report on pro-
12 grams identified and conducted under subsection (a).

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

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

16 (1) in subsection (c)—

17 (A) by inserting “competition” after “sec-
18 tion, a prize”;

19 (B) by inserting “types” after “following”;
20 and

21 (C) in paragraph (4), by striking “prizes”
22 and inserting “prize competitions”;

23 (2) in subsection (f)—

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

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

6 (3) in subsection (g), by striking “prize” and
7 inserting “cash prize purse”;

8 (4) in subsection (h), by inserting “prize” be-
9 fore “competition” both places it appears;

10 (5) in subsection (i)—

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

13 (B) in paragraph (2)(A), by inserting
14 “prize” before “competition” both places it ap-
15 pears;

16 (C) by redesignating paragraph (3) as
17 paragraph (4); and

18 (D) by inserting after paragraph (2) the
19 following new paragraph:

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

1 (6) in subsection (k)—

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

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

6 (7) in subsection (l), by striking all after “may
7 enter into” and inserting “a grant, contract, cooper-
8 ative agreement, or other agreement with a private
9 sector for-profit or nonprofit entity to administer the
10 prize competition, subject to the provisions of this
11 section.”;

12 (8) in subsection (m)—

13 (A) by amending paragraph (1) to read as
14 follows:

15 “(1) IN GENERAL.—Support for a prize com-
16 petition under this section, including financial sup-
17 port for the design and administration of a prize
18 competition or funds for a cash prize purse, may
19 consist of Federal appropriated funds and funds
20 provided by private sector for-profit and nonprofit
21 entities. The head of an agency may accept funds
22 from other Federal agencies, private sector for-profit
23 entities, and nonprofit entities to support such prize
24 competitions. The head of an agency may not give

1 any special consideration to any private sector for-
2 profit or nonprofit entity in return for a donation.”;

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

5 (C) in paragraph (3)(A)—

6 (i) by striking “No prize” and insert-
7 ing “No prize competition”; and

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

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

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

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

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

18 (9) in subsection (n), by inserting “for both for-
19 profit and nonprofit entities,” after “contract vehi-
20 cle”;

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

24 (11) in subsection (p)(2)—

1 (A) in subparagraph (C), by striking “cash
2 prizes” both places it occurs and inserting
3 “cash prize purses”; and

4 (B) by adding at the end the following new
5 subparagraph:

6 “(G) PLAN.—A description of crosscutting
7 topical areas and agency-specific mission needs
8 that may be the strongest opportunities for
9 prize competitions during the upcoming 2 fiscal
10 years.”.

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

12 Title II of the National Science and Technology Pol-
13 icy, Organization, and Priorities Act of 1976 (42 U.S.C.
14 6611 et seq.) is amended by adding at the end the fol-
15 lowing new section:

16 “UNITED STATES CHIEF TECHNOLOGY OFFICER

17 “SEC. 210. (a) APPOINTMENT.—The President may
18 appoint a United States Chief Technology Officer. Not
19 later than 1 year after the date of enactment of the Amer-
20 ica COMPETES Reauthorization Act of 2015, such offi-
21 cer shall be one of the Associate Directors of the Office
22 of Science and Technology Policy.

23 “(b) DUTIES.—The duties of the United States Chief
24 Technology Officer should include—

25 “(1) advising the President and the Director of
26 the Office of Science and Technology Policy on Fed-

1 eral information systems, technology, data, and in-
2 novation policies and initiatives;

3 “(2) promoting an improved exchange of infor-
4 mation among the Federal Government, the public,
5 and Congress;

6 “(3) promoting the use of innovative techno-
7 logical approaches across the Federal Government to
8 ensure a modern information technology infrastruc-
9 ture;

10 “(4) working with the Chief Technology Offi-
11 cers and Chief Information Officers of all Federal
12 agencies to ensure the use of best technologies and
13 security practices for information systems;

14 “(5) establishing a working group with such Of-
15 ficers to exchange best practices about information
16 systems;

17 “(6) promoting transparency and accountability
18 across the Federal Government for all technological
19 implementation by working with agencies to ensure
20 that each arm of the Federal Government, including
21 the executive branch, makes its records open and ac-
22 cessible;

23 “(7) promoting security and privacy protection
24 policies for all Federal information technology sys-

1 tems that are consistent with Federal law, regula-
2 tions, and current best practices;

3 “(8) promoting technological interoperability of
4 key Government functions;

5 “(9) in consultation with the Office of Manage-
6 ment and Budget, providing an annual report to the
7 President, the Director of the Office of Science and
8 Technology Policy, and Congress on the current
9 state of information systems of all Federal agencies,
10 including—

11 “(A) the status of information systems, in-
12 cluding potential technology and security con-
13 cerns about these information systems in all
14 Federal agencies;

15 “(B) a review of all Federal websites with
16 third-party embedded tools that—

17 “(i) identifies each embedded tool,
18 who it belongs to, and the data it collects;
19 and

20 “(ii) addresses effects on cybersecu-
21 rity and consumer privacy, including
22 whether each website provides prominent
23 notice to consumers about the presence of
24 the tool and whether the consumer may
25 opt-out of the tool;

1 “(C) the amount of money being spent on
2 various technologies; and

3 “(D) technology recommendations and best
4 practices; and

5 “(10) such other functions and activities as the
6 President and Director of the Office of Science and
7 Technology Policy may assign.

8 “(c) REPORT.—In the absence of a United States
9 Chief Technology Officer, the Director of the Office of
10 Science and Technology Policy shall be responsible for
11 providing the report required under subsection (b)(9).”.

12 **SEC. 307. NATIONAL RESEARCH COUNCIL STUDY ON TECH-**
13 **NOLOGY FOR EMERGENCY NOTIFICATIONS**
14 **ON UNIVERSITY CAMPUSES.**

15 (a) IN GENERAL.—Not later than 90 days after the
16 date of enactment of this Act, the Director of the Office
17 of Science and Technology Policy shall enter into an ar-
18 rangement with the National Research Council to conduct
19 and complete a study to identify and review technologies
20 employed at institutions of higher education to provide no-
21 tifications to students, faculty, and other personnel during
22 emergency situations in accordance with the requirements
23 of existing law. The study shall address—

24 (1) the timeliness of notifications during emer-
25 gency situations provided by various technologies;

1 (2) the durability of such technologies in deliv-
2 ering such notifications to students, faculty, and
3 other personnel; and

4 (3) the limitations exhibited by such tech-
5 nologies to successfully deliver notifications not more
6 than 30 seconds after the institution of higher edu-
7 cation transmits such notifications.

8 (b) REPORT REQUIRED.—Not later than 1 year after
9 the date on which the National Research Council enters
10 into the arrangement required by subsection (a), the Di-
11 rector of the Office of Science and Technology Policy shall
12 submit to Congress a report on the study conducted under
13 such subsection.

14 **TITLE IV—NATIONAL INSTITUTE**
15 **OF STANDARDS AND TECH-**
16 **NOLOGY**

17 **SEC. 401. AUTHORIZATION OF APPROPRIATIONS.**

18 (a) FISCAL YEAR 2016.—

19 (1) IN GENERAL.—There are authorized to be
20 appropriated to the Secretary of Commerce
21 \$933,700,000 for the National Institute of Stand-
22 ards and Technology for fiscal year 2016.

23 (2) SPECIFIC ALLOCATIONS.—Of the amount
24 authorized by paragraph (1)—

1 (A) \$744,700,000 shall be for scientific
2 and technical research and services laboratory
3 activities;

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

6 (C) \$130,000,000 shall be for industrial
7 technology services activities, of which
8 \$125,000,000 shall be for the Manufacturing
9 Extension Partnership program under sections
10 25 and 26 of the National Institute of Stand-
11 ards and Technology Act (15 U.S.C. 278k and
12 278I) and \$5,000,000 shall be for the Network
13 for Manufacturing Innovation Program under
14 section 34 of the National Institute of Stand-
15 ards and Technology Act (15 U.S.C. 278s).

16 (b) FISCAL YEAR 2017.—

17 (1) IN GENERAL.—There are authorized to be
18 appropriated to the Secretary of Commerce
19 \$933,700,000 for the National Institute of Stand-
20 ards and Technology for fiscal year 2017.

21 (2) SPECIFIC ALLOCATIONS.—Of the amount
22 authorized by paragraph (1)—

23 (A) \$744,700,000 shall be for scientific
24 and technical research and services laboratory
25 activities;

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

3 (C) \$130,000,000 shall be for industrial
4 technology services activities, of which
5 \$125,000,000 shall be for the Manufacturing
6 Extension Partnership program under sections
7 25 and 26 of the National Institute of Stand-
8 ards and Technology Act (15 U.S.C. 278k and
9 278I) and \$5,000,000 shall be for the Network
10 for Manufacturing Innovation Program under
11 section 34 of the National Institute of Stand-
12 ards and Technology Act (15 U.S.C. 278s).

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

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

16 (1) in subsection (b)—

17 (A) in the matter preceding paragraph (1),
18 by striking “authorized to take” and inserting
19 “authorized to serve as the President’s principal
20 adviser on standards policy pertaining to the
21 Nation’s technological competitiveness and in-
22 novation ability and to take”;

23 (B) in paragraph (3), by striking “compare
24 standards” and all that follows through “Fed-
25 eral Government” and inserting “facilitate

1 standards-related information sharing and co-
2 operation between Federal agencies”; and

3 (C) in paragraph (13), by striking “Fed-
4 eral, State, and local” and all that follows
5 through “private sector” and inserting “tech-
6 nical standards activities and conformity assess-
7 ment activities of Federal, State, and local gov-
8 ernments with private sector”; and
9 (2) in subsection (c)—

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

12 (B) by redesignating paragraph (23) as
13 paragraph (25); and

14 (C) by inserting after paragraph (22) the
15 following:

16 “(23) participate in and support scientific and
17 technical conferences;

18 “(24) perform pre-competitive measurement
19 science and technology research in partnership with
20 institutions of higher education and industry to pro-
21 mote United States industrial competitiveness; and”.

22 **SEC. 403. VISITING COMMITTEE ON ADVANCED TECH-**
23 **NOLOGY.**

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

1 (1) in subsection (a)—

2 (A) by striking “15 members” and insert-
3 ing “not fewer than 11 members”;

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

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

7 “The Committee may consult with the National
8 Research Council in making recommendations
9 regarding general policy for the Institute.”; and

10 (2) in subsection (h)(1), by striking “, including
11 the Program established under section 28,”.

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

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

15 (1) by striking “of the Government; and” and
16 inserting “of the Government;”; and

17 (2) by striking “United States Code.” and in-
18 serting “United States Code; and (i) the protection
19 of Institute buildings and other plant facilities,
20 equipment, and property, and of employees, associ-
21 ates, visitors, or other persons located therein or as-
22 sociated therewith, notwithstanding any other provi-
23 sion of law.”.

1 **SEC. 405. EDUCATION AND OUTREACH.**

2 The National Institute of Standards and Technology
3 Act (15 U.S.C. 271 et seq.) is amended by striking sec-
4 tions 18, 19, and 19A and inserting the following:

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

6 “(a) IN GENERAL.—The Director may support, pro-
7 mote, and coordinate activities and efforts to enhance pub-
8 lic awareness and understanding of measurement sciences,
9 standards, and technology by the general public, industry,
10 and academia in support of the Institute’s mission.

11 “(b) RESEARCH FELLOWSHIPS.—

12 “(1) IN GENERAL.—The Director may award
13 research fellowships and other forms of financial and
14 logistical assistance, including direct stipend awards,
15 to—

16 “(A) students at institutions of higher edu-
17 cation within the United States who show
18 promise as present or future contributors to the
19 mission of the Institute; and

20 “(B) United States citizens for research
21 and technical activities of the Institute.

22 “(2) SELECTION.—The Director shall select
23 persons to receive such fellowships and assistance on
24 the basis of ability and of the relevance of the pro-
25 posed work to the mission and programs of the In-
26 stitute.

1 “(3) DEFINITION.—For the purposes of this
2 subsection, financial and logistical assistance in-
3 cludes, notwithstanding section 1345 of title 31,
4 United States Code, or any contrary provision of
5 law, temporary housing and local transportation to
6 and from the Institute facilities.

7 “(c) POST-DOCTORAL FELLOWSHIP PROGRAM.—The
8 Director shall establish and conduct a post-doctoral fellow-
9 ship program, subject to the availability of appropriations,
10 that shall include not fewer than 20 fellows per fiscal year.
11 In evaluating applications for fellowships under this sub-
12 section, the Director shall give consideration to the goal
13 of promoting the participation of underrepresented stu-
14 dents in research areas supported by the Institute.”.

15 **SEC. 406. PROGRAMMATIC PLANNING REPORT.**

16 Section 23(d) of the National Institute of Standards
17 and Technology Act (15 U.S.C. 278i(d)) is amended by
18 adding at the end the following: “The 3-year pro-
19 grammatic planning document shall also describe how the
20 Director is addressing recommendations from the Visiting
21 Committee on Advanced Technology established under
22 section 10.”.

1 **SEC. 407. ASSESSMENTS BY THE NATIONAL RESEARCH**
2 **COUNCIL.**

3 (a) NATIONAL ACADEMY OF SCIENCES REVIEW.—

4 Not later than 6 months after the date of enactment of
5 this Act, the Director of the National Institute of Stand-
6 ards and Technology shall enter into a contract with the
7 National Academy of Sciences to conduct a single, com-
8 prehensive review of the Institute's laboratory programs.

9 The review shall—

10 (1) assess the technical merits and scientific
11 caliber of the research conducted at the laboratories;

12 (2) examine the strengths and weaknesses of
13 the 2010 laboratory reorganization on the Institute's
14 ability to fulfill its mission;

15 (3) evaluate how cross-cutting research and de-
16 velopment activities are planned, coordinated, and
17 executed across the laboratories; and

18 (4) assess how the laboratories are engaging in-
19 dustry, including the incorporation of industry need,
20 into the research goals and objectives of the Insti-
21 tute.

22 (b) ADDITIONAL ASSESSMENTS.—Section 24 of the
23 National Institute of Standards and Technology Act (15
24 U.S.C. 278j) is amended to read as follows:

1 **“SEC. 24. ASSESSMENTS BY THE NATIONAL RESEARCH**
2 **COUNCIL.**

3 “(a) IN GENERAL.—The Institute shall contract with
4 the National Research Council to perform and report on
5 assessments of the technical quality and impact of the
6 work conducted at Institute laboratories.

7 “(b) SCHEDULE.—Two laboratories shall be assessed
8 under subsection (a) each year, and each laboratory shall
9 be assessed at least once every 3 years.

10 “(c) SUMMARY REPORT.—Beginning in the year
11 after the first assessment is conducted under subsection
12 (a), and once every two years thereafter, the Institute shall
13 contract with the National Research Council to prepare
14 a report that summarizes the findings common across the
15 individual assessment reports.

16 “(d) ADDITIONAL ASSESSMENTS.—The Institute, at
17 the discretion of the Director, also may contract with the
18 National Research Council to conduct additional assess-
19 ments of Institute programs and projects that involve col-
20 laboration across the Institute laboratories and centers
21 and assessments of selected scientific and technical topics.

22 “(e) CONSULTATION WITH VISITING COMMITTEE ON
23 ADVANCED TECHNOLOGY.—The National Research Coun-
24 cil may consult with the Visiting Committee on Advanced
25 Technology established under section 10 in performing the
26 assessments under this section.

1 “(f) REPORTS.—Not later than 30 days after the
2 completion of each assessment, the Institute shall transmit
3 the report on such assessment to the Committee on
4 Science, Space, and Technology of the House of Rep-
5 resentatives and the Committee on Commerce, Science,
6 and Transportation of the Senate.”.

7 **SEC. 408. HOLLINGS MANUFACTURING EXTENSION PART-**
8 **NERSHIP.**

9 Section 25 of the National Institute of Standards and
10 Technology Act (15 U.S.C. 278k) is amended to read as
11 follows:

12 **“SEC. 25. HOLLINGS MANUFACTURING EXTENSION PART-**
13 **NERSHIP.**

14 “(a) ESTABLISHMENT AND PURPOSE.—

15 “(1) IN GENERAL.—The Secretary, through the
16 Director and, if appropriate, through other officials,
17 shall provide assistance for the creation and support
18 of manufacturing extension centers, to be known as
19 the ‘Hollings Manufacturing Extension Centers’, for
20 the transfer of manufacturing technology and best
21 business practices (in this Act referred to as the
22 ‘Centers’). The program under this section shall be
23 known as the ‘Hollings Manufacturing Extension
24 Partnership’.

1 “(2) AFFILIATIONS.—Such Centers shall be af-
2 filiated with any United States-based public or non-
3 profit institution or organization, or group thereof,
4 that applies for and is awarded financial assistance
5 under this section.

6 “(3) OBJECTIVE.—The objective of the Centers
7 is to enhance competitiveness, productivity, and
8 technological performance in United States manufac-
9 turing through—

10 “(A) the transfer of manufacturing tech-
11 nology and techniques developed at the Insti-
12 tute to Centers and, through them, to manufac-
13 turing companies throughout the United States;

14 “(B) the participation of individuals from
15 industry, institutions of higher education, State
16 governments, other Federal agencies, and, when
17 appropriate, the Institute in cooperative tech-
18 nology transfer activities;

19 “(C) efforts to make new manufacturing
20 technology and processes usable by United
21 States-based small and medium-sized compa-
22 nies;

23 “(D) the active dissemination of scientific,
24 engineering, technical, and management infor-
25 mation about manufacturing to industrial firms,

1 including small and medium-sized manufac-
2 turing companies;

3 “(E) the utilization, when appropriate, of
4 the expertise and capability that exists in Fed-
5 eral laboratories other than the Institute;

6 “(F) the provision to community colleges
7 and area career and technical education schools
8 of information about the job skills needed in
9 small and medium-sized manufacturing busi-
10 nesses in the regions they serve; and

11 “(G) promoting and expanding certifi-
12 cation systems offered through industry, asso-
13 ciations, and local colleges, when appropriate.

14 “(b) ACTIVITIES.—The activities of the Centers shall
15 include—

16 “(1) the establishment of automated manufac-
17 turing systems and other advanced production tech-
18 nologies, based on Institute-supported research, for
19 the purpose of demonstrations and technology trans-
20 fer;

21 “(2) the active transfer and dissemination of re-
22 search findings and Center expertise to a wide range
23 of companies and enterprises, particularly small and
24 medium-sized manufacturers; and

1 “(3) the facilitation of collaborations and part-
2 nerships between small and medium-sized manufac-
3 turing companies and community colleges and area
4 career and technical education schools to help such
5 colleges and schools better understand the specific
6 needs of manufacturers and to help manufacturers
7 better understand the skill sets that students learn
8 in the programs offered by such colleges and schools.

9 “(c) OPERATIONS.—

10 “(1) FINANCIAL SUPPORT.—The Secretary may
11 provide financial support to any Center created
12 under subsection (a). The Secretary may not provide
13 to a Center more than 50 percent of the capital and
14 annual operating and maintenance funds required to
15 create and maintain such Center.

16 “(2) REGULATIONS.—The Secretary shall im-
17 plement, review, and update the sections of the Code
18 of Federal Regulations related to this section at
19 least once every 3 years.

20 “(3) APPLICATION.—

21 “(A) IN GENERAL.—Any nonprofit institu-
22 tion, or consortium thereof, or State or local
23 government, may submit to the Secretary an
24 application for financial support under this sec-

1 tion, in accordance with the procedures estab-
2 lished by the Secretary.

3 “(B) COST SHARING.—In order to receive
4 assistance under this section, an applicant for
5 financial assistance under subparagraph (A)
6 shall provide adequate assurances that non-
7 Federal assets obtained from the applicant and
8 the applicant’s partnering organizations will be
9 used as a funding source to meet not less than
10 50 percent of the costs incurred. For purposes
11 of the preceding sentence, the costs incurred
12 means the costs incurred in connection with the
13 activities undertaken to improve the competi-
14 tiveness, management, productivity, and techno-
15 logical performance of small and medium-sized
16 manufacturing companies.

17 “(C) AGREEMENTS WITH OTHER ENTI-
18 TIES.—In meeting the 50 percent requirement,
19 it is anticipated that a Center will enter into
20 agreements with other entities such as private
21 industry, institutions of higher education, and
22 State governments to accomplish programmatic
23 objectives and access new and existing resources
24 that will further the impact of the Federal in-

1 vestment made on behalf of small and medium-
2 sized manufacturing companies.

3 “(D) LEGAL RIGHTS.—Each applicant
4 under subparagraph (A) shall also submit a
5 proposal for the allocation of the legal rights as-
6 sociated with any invention which may result
7 from the proposed Center’s activities.

8 “(4) MERIT REVIEW.—The Secretary shall sub-
9 ject each such application to merit review. In mak-
10 ing a decision whether to approve such application
11 and provide financial support under this section, the
12 Secretary shall consider, at a minimum, the fol-
13 lowing:

14 “(A) The merits of the application, par-
15 ticularly those portions of the application re-
16 garding technology transfer, training and edu-
17 cation, and adaptation of manufacturing tech-
18 nologies to the needs of particular industrial
19 sectors.

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

21 “(C) Geographical diversity and extent of
22 service area.

23 “(D) The percentage of funding and
24 amount of in-kind commitment from other
25 sources.

1 “(5) EVALUATION.—

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

7 “(B) COMPOSITION.—Each such evalua-
8 tion panel shall be composed of private experts,
9 none of whom shall be connected with the in-
10 volved Center, and Federal officials.

11 “(C) CHAIR.—An official of the Institute
12 shall chair the panel.

13 “(D) PERFORMANCE MEASUREMENT.—
14 Each evaluation panel shall measure the in-
15 volved Center’s performance against the objec-
16 tives specified in this section.

17 “(E) POSITIVE EVALUATION.—If the eval-
18 uation is positive, the Secretary may provide
19 continued funding through the sixth year.

20 “(F) PROBATION.—The Secretary shall
21 not provide funding unless the Center has re-
22 ceived a positive evaluation. A Center that has
23 not received a positive evaluation by the evalua-
24 tion panel shall be notified by the panel of the
25 deficiencies in its performance and shall be

1 placed on probation for one year, after which
2 time the panel shall reevaluate the Center. If
3 the Center has not addressed the deficiencies
4 identified by the panel, or shown a significant
5 improvement in its performance, the Director
6 shall conduct a new competition to select an op-
7 erator for the Center or may close the Center.

8 “(G) ADDITIONAL FINANCIAL SUPPORT.—
9 After the sixth year, a Center may receive addi-
10 tional financial support under this section if it
11 has received a positive evaluation through an
12 independent review, under procedures estab-
13 lished by the Institute.

14 “(H) EIGHT-YEAR REVIEW.—A Center
15 shall undergo an independent review in the 8th
16 year of operation. Each evaluation panel shall
17 measure the Center’s performance against the
18 objectives specified in this section. A Center
19 that has not received a positive evaluation as a
20 result of an independent review shall be notified
21 by the Program of the deficiencies in its per-
22 formance and shall be placed on probation for
23 one year, after which time the Program shall
24 reevaluate the Center. If the Center has not ad-
25 dressed the deficiencies identified by the review,

1 or shown a significant improvement in its per-
2 formance, the Director shall conduct a new
3 competition to select an operator for the Center
4 or may close the Center.

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

13 “(J) REPORTS.—

14 “(i) PLAN.—Not later than 180 days
15 after the date of enactment of the America
16 COMPETES Reauthorization Act of 2015,
17 the Director shall transmit to the Com-
18 mittee on Science, Space, and Technology
19 of the House of Representatives and the
20 Committee on Commerce, Science, and
21 Transportation of the Senate a plan as to
22 how the Institute will conduct reviews, as-
23 sessments, and reapplication competitions
24 under this paragraph.

1 “(ii) INDEPENDENT ASSESSMENT.—

2 The Director shall contract with an inde-
3 pendent organization to perform an assess-
4 ment of the implementation of the re-
5 application competition process under this
6 paragraph within 3 years after the trans-
7 mittal of the report under clause (i). The
8 organization conducting the assessment
9 under this clause may consult with the
10 MEP Advisory Board.

11 “(iii) COMPARISON OF CENTERS.—

12 Not later than 2 years after the date of en-
13 actment of the America COMPETES Re-
14 authorization Act of 2015, the Director
15 shall transmit to the Committee on
16 Science, Space, and Technology of the
17 House of Representatives and the Com-
18 mittee on Commerce, Science, and Trans-
19 portation of the Senate a report providing
20 information on the first and second years
21 of operations for centers operating from
22 new competitions or recompetition as com-
23 pared to longstanding centers. The report
24 shall provide detail on the engagement in
25 services provided by Centers and the char-

1 acteristics of services provided, including
2 volume and type of services, so that the
3 Committees can evaluate whether the cost-
4 sharing ratio has an effect on the services
5 provided at Centers.

6 “(6) PATENT RIGHTS.—The provisions of chap-
7 ter 18 of title 35, United States Code, shall apply,
8 to the extent not inconsistent with this section, to
9 the promotion of technology from research by Cen-
10 ters under this section except for contracts for such
11 specific technology extension or transfer services as
12 may be specified by statute or by the Director.

13 “(7) PROTECTION OF CENTER CLIENT CON-
14 FIDENTIAL INFORMATION.—Section 552 of title 5,
15 United States Code, shall apply to the following in-
16 formation obtained by the Federal Government on a
17 confidential basis in connection with the activities of
18 any participant involved in the Hollings Manufac-
19 turing Extension Partnership:

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

24 “(B) Trade secrets possessed by any client
25 of a Center.

1 “(8) ADVISORY BOARDS.—Each Center’s advi-
2 sory boards shall institute a conflict of interest pol-
3 icy, approved by the Director, that ensures the
4 Board represents local small and medium-sized man-
5 ufacturers in the Center’s region. Board Members
6 may not serve as a vendor or provide services to the
7 Center, nor may they serve on more than one Cen-
8 ter’s oversight board simultaneously.

9 “(d) ACCEPTANCE OF FUNDS.—

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

18 “(2) ALLOCATION OF FUNDS.—

19 “(A) FUNDS ACCEPTED FROM OTHER FED-
20 ERAL DEPARTMENTS OR AGENCIES.—The Di-
21 rector shall determine whether funds accepted
22 from other Federal departments or agencies
23 shall be counted in the calculation of the Fed-
24 eral share of capital and annual operating and
25 maintenance costs under subsection (c).

1 “(B) FUNDS ACCEPTED FROM THE PRI-
2 VATE SECTOR.—Funds accepted from the pri-
3 vate sector under section 2(c)(7), if allocated to
4 a Center, may not be considered in the calcula-
5 tion of the Federal share under subsection (c)
6 of this section.

7 “(e) MEP ADVISORY BOARD.—

8 “(1) ESTABLISHMENT.—There is established
9 within the Institute a Manufacturing Extension
10 Partnership Advisory Board (in this subsection re-
11 ferred to as the ‘MEP Advisory Board’).

12 “(2) MEMBERSHIP.—

13 “(A) IN GENERAL.—The MEP Advisory
14 Board shall consist of not fewer than 10 mem-
15 bers broadly representative of stakeholders, to
16 be appointed by the Director. At least 2 mem-
17 bers shall be employed by or on an advisory
18 board for the Centers, at least 1 member shall
19 represent a community college, and at least 5
20 other members shall be from United States
21 small businesses in the manufacturing sector.
22 No member shall be an employee of the Federal
23 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.—
9 Any person who has completed two consecutive
10 full terms of service on the MEP Advisory
11 Board shall thereafter be ineligible for appoint-
12 ment during the one-year period following the
13 expiration 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
18 Extension Partnership programs, plans, and
19 policies;

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
25 Partnership program plans.

1 “(4) FEDERAL ADVISORY COMMITTEE ACT AP-
2 PLICABILITY.—

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 pacity, 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
13 transmittal to Congress within 30 days after the
14 submission to Congress of the President’s annual
15 budget request in each year. Such report shall ad-
16 dress the status of the program established pursuant
17 to this section and comment on the relevant sections
18 of the programmatic planning document and updates
19 thereto transmitted to Congress by the Director
20 under subsections (c) and (d) of section 23.

21 “(f) COMPETITIVE GRANT PROGRAM.—

22 “(1) ESTABLISHMENT.—The Director shall es-
23 tablish, within the Hollings Manufacturing Exten-
24 sion Partnership, under this section and section 26,
25 a program of competitive awards among participants

1 described in paragraph (2) for the purposes de-
2 scribed in 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
15 the competition may be identified, which may vary
16 from year to year, depending on the needs of manu-
17 facturers and the success of previous competitions.
18 Centers may be reimbursed for costs incurred under
19 the program.

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

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

7 “(A) improve the competitiveness of indus-
8 tries in the region in which the Center or Cen-
9 ters are located;

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

12 “(C) promote the transfer and commer-
13 cialization of research and technology from in-
14 stitutions of higher education, national labora-
15 tories, and nonprofit research institutes.

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

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

1 United States manufacturers in the global market-
2 place.

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

5 “(g) EVALUATION OF OBSTACLES UNIQUE TO SMALL
6 MANUFACTURERS.—The Director shall—

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

10 “(2) implement a comprehensive plan to train
11 the Centers to address such obstacles; and

12 “(3) facilitate improved communication between
13 the Centers to assist such manufacturers in imple-
14 menting appropriate, targeted solutions to such ob-
15 stacles.

16 “(h) DEFINITIONS.—In this section—

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

22 “(2) the term ‘community college’ means an in-
23 stitution of higher education (as defined under sec-
24 tion 101(a) of the Higher Education Act of 1965
25 (20 U.S.C. 1001(a))) at which the highest degree

1 that is predominately awarded to students is an as-
2 sociate's degree.”.

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

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

6 (1) by striking subsection (g); and

7 (2) in subsection (k)—

8 (A) in paragraph (3), by inserting “and”
9 after the semicolon at the end;

10 (B) in paragraph (4)(B), by striking “;
11 and” at the end and inserting a period; and

12 (C) by striking paragraph (5).

13 **SEC. 410. MODIFICATIONS TO GRANTS AND COOPERATIVE**
14 **AGREEMENTS.**

15 Section 8(a) of the Stevenson-Wydler Technology In-
16 novation Act of 1980 (15 U.S.C. 3706(a)) is amended by
17 striking “The total amount of any such grant or coopera-
18 tive agreement may not exceed 75 percent of the total cost
19 of the program.”.

20 **SEC. 411. INFORMATION SYSTEMS STANDARDS CONSULTA-**
21 **TION.**

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

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

2 It is the Sense of Congress that—

3 (1) partnerships that facilitate basic scientific
4 research between the United States and Israel ad-
5 vance technology development, innovation, and com-
6 mercialization leading to growth in various sectors,
7 including manufacturing, and creating benefits for
8 both nations;

9 (2) joint research and development agreements
10 carried out through government organizations like
11 the National Institute of Standards and Technology
12 support these efforts;

13 (3) partnerships between the United States and
14 Israel that further the basic scientific enterprise
15 should be encouraged; and

16 (4) the National Institute of Standards and
17 Technology should continue to facilitate scientific
18 collaborations between Israel and United States’
19 technical agencies working in measurement science
20 and standardization.

21 **TITLE V—DEPARTMENT OF**
22 **ENERGY SCIENCE**

23 **SEC. 501. MISSION.**

24 Section 209 of the Department of Energy Organiza-
25 tion Act (42 U.S.C. 7139) is amended by adding at the
26 end the following:

1 “(c) MISSION.—The mission of the Office of Science
2 shall be the delivery of scientific discoveries, capabilities,
3 and major scientific tools to transform the understanding
4 of nature and to advance the energy, economic, and na-
5 tional security of the United States. In support of this
6 mission, the Director shall carry out programs on basic
7 energy sciences, advanced scientific computing research,
8 high energy physics, biological and environmental re-
9 search, fusion energy sciences, and nuclear physics, includ-
10 ing as provided under subtitle A of title V of the America
11 COMPETES Reauthorization Act of 2015, through activi-
12 ties focused on—

13 “(1) fundamental scientific discoveries through
14 the study of matter and energy;

15 “(2) science in the national interest, includ-
16 ing—

17 “(A) advancing an agenda for American
18 energy security through research on energy pro-
19 duction, storage, transmission, efficiency, and
20 use; and

21 “(B) advancing our understanding of the
22 Earth’s climate through research in atmos-
23 pheric and environmental sciences; and

24 “(3) National Scientific User Facilities to de-
25 liver the 21st century tools of science, engineering,

1 and technology and provide the Nation's researchers
2 with the most advanced tools of modern science in-
3 cluding accelerators, colliders, supercomputers, light
4 sources and neutron sources, and facilities for study-
5 ing materials science.

6 “(d) COORDINATION WITH OTHER DEPARTMENT OF
7 ENERGY PROGRAMS.—The Under Secretary for Science
8 and Energy shall ensure the coordination of Office of
9 Science activities and programs with other activities of the
10 Department.”.

11 **SEC. 502. BASIC ENERGY SCIENCES.**

12 (a) PROGRAM.—The Director shall carry out a pro-
13 gram in basic energy sciences, including materials sciences
14 and engineering, chemical sciences, physical biosciences,
15 and geosciences, for the purpose of providing the scientific
16 foundations for new energy technologies.

17 (b) MISSION.—The mission of the program described
18 in subsection (a) shall be to support fundamental research
19 to understand, predict, and ultimately control matter and
20 energy at the electronic, atomic, and molecular levels in
21 order to provide the foundations for new energy tech-
22 nologies and to support Department missions in energy,
23 environment, and national security.

24 (c) BASIC ENERGY SCIENCES USER FACILITIES.—
25 The Director shall carry out a subprogram for the develop-

1 ment, construction, operation, and maintenance of na-
2 tional user facilities to support the program under this
3 section. As practicable, these facilities shall serve the
4 needs of the Department, industry, the academic commu-
5 nity, and other relevant entities to create and examine new
6 materials and chemical processes for the purposes of ad-
7 vancing new energy technologies and improving the com-
8 petitiveness of the United States. These facilities shall in-
9 clude—

- 10 (1) x-ray light sources;
- 11 (2) neutron sources;
- 12 (3) nanoscale science research centers; and
- 13 (4) other facilities the Director considers appro-
14 priate, consistent with section 209 of the Depart-
15 ment of Energy Organization Act (42 U.S.C. 7139).

16 (d) LIGHT SOURCE LEADERSHIP INITIATIVE.—

17 (1) ESTABLISHMENT.—In support of the sub-
18 program authorized in subsection (c), the Director
19 shall establish an initiative to sustain and advance
20 global leadership of light source user facilities.

21 (2) LEADERSHIP STRATEGY.—Not later than 9
22 months after the date of enactment of this Act, and
23 biennially thereafter, the Director shall prepare, in
24 consultation with relevant stakeholders, and submit
25 to the Committee on Science, Space, and Technology

1 of the House of Representatives and the Committee
2 on Energy and Natural Resources of the Senate a
3 light source leadership strategy that—

4 (A) identifies, prioritizes, and describes
5 plans for the development, construction, and op-
6 eration of light sources over the next decade;

7 (B) describes plans for optimizing manage-
8 ment and use of existing light source facilities;
9 and

10 (C) assesses the international outlook for
11 light source user facilities and describes plans
12 for United States cooperation in such projects.

13 (3) ADVISORY COMMITTEE FEEDBACK AND
14 RECOMMENDATIONS.—Not later than 45 days after
15 submission of the strategy described in paragraph
16 (2), the Basic Energy Sciences Advisory Committee
17 shall provide the Director, the Committee on
18 Science, Space, and Technology of the House of
19 Representatives, and the Committee on Energy and
20 Natural Resources of the Senate a report of the Ad-
21 visory Committee's analyses, findings, and rec-
22 ommendations for improving the strategy, including
23 a review of the most recent budget request for the
24 initiative.

1 (4) PROPOSED BUDGET.—The Director shall
2 transmit annually to Congress a proposed budget
3 corresponding to the activities identified in the strat-
4 egy.

5 (e) ACCELERATOR RESEARCH AND DEVELOP-
6 MENT.—The Director shall carry out research and devel-
7 opment on advanced accelerator and storage ring tech-
8 nologies relevant to the development of Basic Energy
9 Sciences user facilities, in consultation with the Office of
10 Science’s High Energy Physics and Nuclear Physics pro-
11 grams.

12 (f) ENERGY FRONTIER RESEARCH CENTERS.—

13 (1) IN GENERAL.—The Director shall carry out
14 a program to provide awards, on a competitive,
15 merit-reviewed basis, to multi-institutional collabora-
16 tions or other appropriate entities to conduct funda-
17 mental and use-inspired energy research to accel-
18 erate scientific breakthroughs.

19 (2) COLLABORATIONS.—A collaboration receiv-
20 ing an award under this subsection may include mul-
21 tiple types of institutions and private sector entities.

22 (3) SELECTION AND DURATION.—

23 (A) IN GENERAL.—A collaboration under
24 this subsection shall be selected for a period of
25 5 years. An Energy Frontier Research Center

1 already in existence and supported by the Di-
2 rector on the date of enactment of this Act may
3 continue to receive support for a period of 5
4 years beginning on the date of establishment of
5 that center.

6 (B) REAPPLICATION.—After the end of the
7 period described in subparagraph (A), an
8 awardee may reapply for selection for a second
9 period of 5 years on a competitive, merit-re-
10 viewed basis.

11 (C) TERMINATION.—Consistent with the
12 existing authorities of the Department, the Di-
13 rector may terminate an underperforming cen-
14 ter for cause during the performance period.

15 (4) NO FUNDING FOR CONSTRUCTION.—No
16 funding provided pursuant to this subsection may be
17 used for the construction of new buildings or facili-
18 ties.

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

20 (a) PROGRAM.—The Director shall carry out a re-
21 search, development, and demonstration program to ad-
22 vance computational and networking capabilities to ana-
23 lyze, model, simulate, and predict complex phenomena rel-
24 evant to the development of new energy technologies and
25 the competitiveness of the United States.

1 (b) FACILITIES.—The Director, as part of the pro-
2 gram described in subsection (a), shall develop and main-
3 tain world-class computing and network facilities for
4 science and deliver critical research in applied mathe-
5 matics, computer science, and advanced networking to
6 support the Department’s missions.

7 (c) DEFINITIONS.—Section 2 of the Department of
8 Energy High-End Computing Revitalization Act of 2004
9 (15 U.S.C. 5541) is amended by striking paragraphs (1)
10 through (5) and inserting the following:

11 “(1) CO-DESIGN.—The term ‘co-design’ means
12 the joint development of application algorithms,
13 models, and codes with computer technology archi-
14 tectures and operating systems to maximize effective
15 use of high-end computing systems.

16 “(2) DEPARTMENT.—The term ‘Department’
17 means the Department of Energy.

18 “(3) EXASCALE.—The term ‘exascale’ means
19 computing system performance at or near 10 to the
20 18th power floating point operations per second.

21 “(4) HIGH-END COMPUTING SYSTEM.—The
22 term ‘high-end computing system’ means a com-
23 puting system with performance that substantially
24 exceeds that of systems that are commonly available
25 for advanced scientific and engineering applications.

1 “(5) INSTITUTION OF HIGHER EDUCATION.—

2 The term ‘institution of higher education’ has the
3 meaning given the term in section 2 of the Energy
4 Policy Act of 2005 (42 U.S.C. 15801).

5 “(6) LEADERSHIP SYSTEM.—The term ‘leader-
6 ship system’ means a high-end computing system
7 that is among the most advanced in the world in
8 terms of performance in solving scientific and engi-
9 neering problems.

10 “(7) NATIONAL LABORATORY.—The term ‘Na-
11 tional Laboratory’ means any one of the seventeen
12 laboratories owned by the Department.

13 “(8) SECRETARY.—The term ‘Secretary’ means
14 the Secretary of Energy.

15 “(9) SOFTWARE TECHNOLOGY.—The term
16 ‘software technology’ includes optimal algorithms,
17 programming environments, tools, languages, and
18 operating systems for high-end computing systems.”.

19 (d) DEPARTMENT OF ENERGY HIGH-END COM-
20 PUTING RESEARCH AND DEVELOPMENT PROGRAM.—Sec-
21 tion 3 of the Department of Energy High-End Computing
22 Revitalization Act of 2004 (15 U.S.C. 5542) is amended—
23 (1) in subsection (a)—

1 (A) in paragraph (1), by striking “pro-
2 gram” and inserting “coordinated program
3 across the Department”;

4 (B) by striking “and” at the end of para-
5 graph (1);

6 (C) by striking the period at the end of
7 paragraph (2) and inserting “; and”; and

8 (D) by adding at the end the following new
9 paragraph:

10 “(3) partner with universities, National Labora-
11 tories, and industry to ensure the broadest possible
12 application of the technology developed in this pro-
13 gram to other challenges in science, engineering,
14 medicine, and industry.”;

15 (2) in subsection (b)(2), by striking “vector”
16 and all that follows through “architectures” and in-
17 serting “computer technologies that show promise of
18 substantial reductions in power requirements and
19 substantial gains in parallelism of multicore proc-
20 essors, concurrency, memory and storage, band-
21 width, and reliability”; and

22 (3) by striking subsection (d) and inserting the
23 following:

24 “(d) EXASCALE COMPUTING PROGRAM.—

1 “(1) IN GENERAL.—The Secretary shall con-
2 duct a coordinated research program to develop
3 exascale computing systems to advance the missions
4 of the Department.

5 “(2) EXECUTION.—The Secretary shall,
6 through competitive merit review, establish two or
7 more National Laboratory-industry-university part-
8 nerships to conduct integrated research, develop-
9 ment, and engineering of multiple exascale architec-
10 tures, and—

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

13 “(B) develop those advancements in hard-
14 ware and software technology required to fully
15 realize the potential of an exascale production
16 system in addressing Department target appli-
17 cations and solving scientific problems involving
18 predictive modeling and simulation and large-
19 scale data analytics and management; and

20 “(C) explore the use of exascale computing
21 technologies to advance a broad range of
22 science and engineering.

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

1 “(A) provide, on a competitive, merit-re-
2 viewed basis, access for researchers in United
3 States industry, institutions of higher edu-
4 cation, National Laboratories, and other Fed-
5 eral agencies to these exascale systems, as ap-
6 propriate; and

7 “(B) conduct outreach programs to in-
8 crease the readiness for the use of such plat-
9 forms by domestic industries, including manu-
10 facturers.

11 “(4) REPORTS.—

12 “(A) INTEGRATED STRATEGY AND PRO-
13 GRAM MANAGEMENT PLAN.—The Secretary
14 shall submit to Congress, not later than 90
15 days after the date of enactment of the America
16 COMPETES Reauthorization Act of 2015, a
17 report outlining an integrated strategy and pro-
18 gram management plan, including target dates
19 for prototypical and production exascale plat-
20 forms, interim milestones to reaching these tar-
21 gets, functional requirements, roles and respon-
22 sibilities of National Laboratories and industry,
23 acquisition strategy, and estimated resources
24 required, to achieve this exascale system capa-
25 bility. The report shall include the Secretary’s

1 plan for Departmental organization to manage
2 and execute the Exascale Computing Program,
3 including definition of the roles and responsibil-
4 ities within the Department to ensure an inte-
5 grated program across the Department. The re-
6 port shall also include a plan for ensuring bal-
7 ance and prioritizing across ASCR subprograms
8 in a flat or slow-growth budget environment.

9 “(B) STATUS REPORTS.—At the time of
10 the budget submission of the Department for
11 each fiscal year, the Secretary shall submit a
12 report to Congress that describes the status of
13 milestones and costs in achieving the objectives
14 of the exascale computing program.

15 “(C) EXASCALE MERIT REPORT.—At least
16 18 months prior to the initiation of construction
17 or installation of any exascale-class computing
18 facility, the Secretary shall transmit a plan to
19 the Congress detailing—

20 “(i) the proposed facility’s cost projec-
21 tions and capabilities to significantly accel-
22 erate the development of new energy tech-
23 nologies;

24 “(ii) technical risks and challenges
25 that must be overcome to achieve success-

1 ful completion and operation of the facility;
2 and
3 “(iii) an independent assessment of
4 the scientific and technological advances
5 expected from such a facility relative to
6 those expected from a comparable invest-
7 ment in expanded research and applica-
8 tions at terascale-class and petascale-class
9 computing facilities, including an evalua-
10 tion of where investments should be made
11 in the system software and algorithms to
12 enable these advances.”.

13 **SEC. 504. HIGH ENERGY PHYSICS.**

14 (a) PROGRAM.—The Director shall carry out a re-
15 search program on the fundamental constituents of matter
16 and energy and the nature of space and time.

17 (b) SENSE OF CONGRESS.—It is the sense of the
18 Congress that—

19 (1) the Director should incorporate the findings
20 and recommendations of the Particle Physics Project
21 Prioritization Panel’s report entitled “Building for
22 Discovery: Strategic Plan for U.S. Particle Physics
23 in the Global Context”, into the Department’s plan-
24 ning process as part of the program described in
25 subsection (a);

1 (2) the Director should prioritize domestically
2 hosted research projects that will maintain the
3 United States position as a global leader in particle
4 physics and attract the world's most talented physi-
5 cists and foreign investment for international col-
6 laboration; and

7 (3) the nations that lead in particle physics by
8 hosting international teams dedicated to a common
9 scientific goal attract the world's best talent and in-
10 spire future generations of physicists and tech-
11 nologists.

12 (c) NEUTRINO RESEARCH.—As part of the program
13 described in subsection (a), the Director shall carry out
14 research activities on rare decay processes and the nature
15 of the neutrino, which may include collaborations with the
16 National Science Foundation or international collabora-
17 tions.

18 (d) DARK ENERGY AND DARK MATTER RE-
19 SEARCH.—As part of the program described in subsection
20 (a), the Director shall carry out research activities on the
21 nature of dark energy and dark matter, which may include
22 collaborations with the National Aeronautics and Space
23 Administration or the National Science Foundation, or
24 international collaborations.

1 (e) ACCELERATOR RESEARCH AND DEVELOP-
2 MENT.—The Director shall carry out research and devel-
3 opment in advanced accelerator concepts and technologies,
4 including laser technologies, to reduce the necessary scope
5 and cost for the next generation of particle accelerators.
6 The Director shall ensure access to national laboratory ac-
7 celerator facilities, infrastructure, and technology for
8 users and developers of accelerators that advance applica-
9 tions in energy and the environment, medicine, industry,
10 national security, and discovery science.

11 (f) INTERNATIONAL COLLABORATION.—The Direc-
12 tor, as practicable and in coordination with other appro-
13 priate Federal agencies as necessary, shall ensure the ac-
14 cess of United States researchers to the most advanced
15 accelerator facilities and research capabilities in the world,
16 including the Large Hadron Collider.

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

18 (a) PROGRAM.—The Director shall carry out a pro-
19 gram of research, development, and demonstration in the
20 areas of biological systems science and climate and envi-
21 ronmental science to support the energy and environ-
22 mental missions of the Department.

23 (b) PRIORITY RESEARCH.—In carrying out this sec-
24 tion, the Director shall prioritize fundamental research on

1 biological systems and genomics science with the greatest
2 potential to enable scientific discovery.

3 (c) ASSESSMENT.—Not later than 12 months after
4 the date of enactment of this Act, the Comptroller General
5 shall submit a report to Congress identifying climate
6 science-related initiatives under this section that overlap
7 or duplicate initiatives of other Federal agencies and the
8 extent of such overlap or duplication.

9 (d) LIMITATION.—The Director shall not approve
10 new climate science-related initiatives to be carried out
11 through the Office of Science without making a determina-
12 tion that such work is unique and not duplicative of work
13 by other Federal agencies. Not later than 3 months after
14 receiving the assessment required under subsection (c),
15 the Director shall cease those climate science-related ini-
16 tiatives identified in the assessment as overlapping or du-
17 plicative, unless the Director justifies that such work is
18 critical to achieving American energy security.

19 (e) LOW DOSE RADIATION RESEARCH PROGRAM.—

20 (1) IN GENERAL.—The Director of the Depart-
21 ment of Energy Office of Science shall carry out a
22 research program on low dose radiation. The pur-
23 pose of the program is to enhance the scientific un-
24 derstanding of and reduce uncertainties associated

1 with the effects of exposure to low dose radiation in
2 order to inform improved risk management methods.

3 (2) STUDY.—Not later than 60 days after the
4 date of enactment of this Act, the Director shall
5 enter into an agreement with the National Acad-
6 emies to conduct a study assessing the current sta-
7 tus and development of a long-term strategy for low
8 dose radiation research. Such study shall be com-
9 pleted not later than 18 months after the date of en-
10 actment of this Act. The study shall be conducted in
11 coordination with Federal agencies that perform ion-
12 izing radiation effects research and shall leverage
13 the most current studies in this field. Such study
14 shall—

15 (A) identify current scientific challenges
16 for understanding the long-term effects of ion-
17 izing radiation;

18 (B) assess the status of current low dose
19 radiation research in the United States and
20 internationally;

21 (C) formulate overall scientific goals for
22 the future of low-dose radiation research in the
23 United States;

24 (D) recommend a long-term strategic and
25 prioritized research agenda to address scientific

1 research goals for overcoming the identified sci-
2 entific challenges in coordination with other re-
3 search efforts;

4 (E) define the essential components of a
5 research program that would address this re-
6 search agenda within the universities and the
7 National Laboratories; and

8 (F) assess the cost-benefit effectiveness of
9 such a program.

10 (3) RESEARCH PLAN.—Not later than 90 days
11 after the completion of the study performed under
12 paragraph (2) the Secretary of Energy shall deliver
13 to the Committee on Science, Space, and Technology
14 of the House of Representatives and the Committee
15 on Energy and Natural Resources of the Senate a
16 5-year research plan that responds to the study’s
17 findings and recommendations and identifies and
18 prioritizes research needs.

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

22 (5) RULE OF CONSTRUCTION.—Nothing in this
23 subsection shall be construed to subject any research
24 carried out by the Director under the research pro-
25 gram under this subsection to any limitations de-

1 scribed in section 977(e) of the Energy Policy Act
2 of 2005 (42 U.S.C. 16317(e)).

3 **SEC. 506. FUSION ENERGY.**

4 (a) PROGRAM.—The Director shall carry out a fusion
5 energy sciences research program to expand the funda-
6 mental understanding of plasmas and matter at very high
7 temperatures and densities and to build the scientific
8 foundation necessary to enable fusion power.

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

12 (1) the Director, in coordination with the As-
13 sistant Secretary for Nuclear Energy of the Depart-
14 ment, shall carry out research and development ac-
15 tivities to identify, characterize, and demonstrate
16 materials that can endure the neutron, plasma, and
17 heat fluxes expected in a fusion power system; and

18 (2) the Secretary shall—

19 (A) provide an assessment of the need for
20 a facility or facilities that can examine and test
21 potential fusion and next generation fission ma-
22 terials and other enabling technologies relevant
23 to the development of fusion power; and

24 (B) provide an assessment of whether a
25 single new facility that substantially addresses

1 magnetic fusion and next generation fission ma-
2 terials research needs is feasible, in conjunction
3 with the expected capabilities of facilities oper-
4 ational as of the date of enactment of this Act.

5 (c) TOKAMAK RESEARCH AND DEVELOPMENT.—

6 (1) IN GENERAL.—As part of the program de-
7 scribed in subsection (a), the Director shall support
8 research and development activities and facility oper-
9 ations to optimize the tokamak approach to fusion
10 energy.

11 (2) ITER.—

12 (A) REPORT.—Not later than 1 year after
13 the date of enactment of this Act, the Secretary
14 shall submit to Congress a report providing an
15 assessment of—

16 (i) the most recent schedule for ITER
17 that has been approved by the ITER
18 Council; and

19 (ii) progress of the ITER Council and
20 the ITER Director General toward imple-
21 mentation of the recommendations of the
22 Third Biennial International Organization
23 Management Assessment Report.

24 (B) FAIRNESS IN COMPETITION FOR SO-
25 LICITATIONS FOR INTERNATIONAL PROJECT AC-

1 TIVITIES.—Section 33 of the Atomic Energy
2 Act of 1954 (42 U.S.C. 2053) is amended by
3 adding at the end the following: “For purposes
4 of this section, with respect to international re-
5 search projects, the term ‘private facilities or
6 laboratories’ shall refer to facilities or labora-
7 tories located in the United States.”.

8 (C) SENSE OF CONGRESS.—It is the sense
9 of Congress that the United States should sup-
10 port a robust, diverse fusion program. It is fur-
11 ther the sense of Congress that developing the
12 scientific basis for fusion, providing research re-
13 sults key to the success of ITER, and training
14 the next generation of fusion scientists are of
15 critical importance to the United States and
16 should in no way be diminished by participation
17 of the United States in the ITER project.

18 (d) INERTIAL FUSION ENERGY RESEARCH AND DE-
19 VELOPMENT PROGRAM.—The Secretary shall carry out a
20 program of research and technology development in iner-
21 tial fusion for energy applications, including ion beam,
22 laser, and pulsed power fusion systems.

23 (e) ALTERNATIVE AND ENABLING CONCEPTS.—

24 (1) IN GENERAL.—As part of the program de-
25 scribed in subsection (a), the Director shall support

1 research and development activities and facility oper-
2 ations at United States universities, national labora-
3 tories, and private facilities for a portfolio of alter-
4 native and enabling fusion energy concepts that may
5 provide solutions to significant challenges to the es-
6 tablishment of a commercial magnetic fusion power
7 plant, prioritized based on the ability of the United
8 States to play a leadership role in the international
9 fusion research community. Fusion energy concepts
10 and activities explored under this paragraph may in-
11 clude—

12 (A) high magnetic field approaches facili-
13 tated by high temperature superconductors;

14 (B) advanced stellarator concepts;

15 (C) non-tokamak confinement configura-
16 tions operating at low magnetic fields;

17 (D) magnetized target fusion energy con-
18 cepts;

19 (E) liquid metals to address issues associ-
20 ated with fusion plasma interactions with the
21 inner wall of the encasing device;

22 (F) immersion blankets for heat manage-
23 ment and fuel breeding;

24 (G) advanced scientific computing activi-
25 ties; and

1 (H) other promising fusion energy con-
2 cepts identified by the Director.

3 (2) COORDINATION WITH ARPA-E.—The Under
4 Secretary and the Director shall coordinate with the
5 Director of the Advanced Research Projects Agency–
6 Energy (in this paragraph referred to as “ARPA–
7 E”) to—

8 (A) assess the potential for any fusion en-
9 ergy project supported by ARPA-E to rep-
10 resent a promising approach to a commercially
11 viable fusion power plant;

12 (B) determine whether the results of any
13 fusion energy project supported by ARPA-E
14 merit the support of follow-on research activi-
15 ties carried out by the Office of Science; and

16 (C) avoid unintentional duplication of ac-
17 tivities.

18 (f) GENERAL PLASMA SCIENCE AND APPLICA-
19 TIONS.—Not later than 2 years after the date of enact-
20 ment of this Act, the Secretary shall provide to Congress
21 an assessment of opportunities in which the United States
22 can provide world-leading contributions to advancing plas-
23 ma science and non-fusion energy applications, and iden-
24 tify opportunities for partnering with other Federal agen-
25 cies both within and outside of the Department of Energy.

1 (g) IDENTIFICATION OF PRIORITIES.—

2 (1) REPORT.—Not later than 2 years after the
3 date of enactment of this Act, the Secretary shall
4 transmit to Congress a report on the Department's
5 proposed fusion energy research and development
6 activities over the following 10 years under at least
7 3 realistic budget scenarios, including a scenario
8 based on 3 percent annual growth in the non-ITER
9 portion of the budget for fusion energy research and
10 development activities. The report shall—

11 (A) identify specific areas of fusion energy
12 research and enabling technology development
13 in which the United States can and should es-
14 tablish or solidify a lead in the global fusion en-
15 ergy development effort;

16 (B) identify priorities for initiation of facil-
17 ity construction and facility decommissioning
18 under each of those scenarios; and

19 (C) assess the ability of the United States
20 fusion workforce to carry out the activities iden-
21 tified in subparagraphs (A) and (B), including
22 the adequacy of college and university programs
23 to train the leaders and workers of the next
24 generation of fusion energy researchers.

1 (2) PROCESS.—In order to develop the report
2 required under paragraph (1), the Secretary shall le-
3 verage best practices and lessons learned from the
4 process used to develop the most recent report of the
5 Particle Physics Project Prioritization Panel of the
6 High Energy Physics Advisory Panel. No member of
7 the Fusion Energy Sciences Advisory Committee
8 shall be excluded from participating in developing or
9 voting on final approval of the report required under
10 paragraph (1).

11 **SEC. 507. NUCLEAR PHYSICS.**

12 (a) PROGRAM.—The Director shall carry out a pro-
13 gram of experimental and theoretical research, and sup-
14 port associated facilities, to discover, explore, and under-
15 stand all forms of nuclear matter.

16 (b) ISOTOPE DEVELOPMENT AND PRODUCTION FOR
17 RESEARCH APPLICATIONS.—The Director shall carry out
18 a program for the production of isotopes, including the
19 development of techniques to produce isotopes, that the
20 Secretary determines are needed for research, medical, in-
21 dustrial, or other purposes. In making this determination,
22 the Secretary shall—

23 (1) ensure that, as has been the policy of the
24 United States since the publication in 1965 of Fed-
25 eral Register notice 30 Fed. Reg. 3247, isotope pro-

1 duction activities do not compete with private indus-
2 try unless critical national interests necessitate the
3 Federal Government's involvement;

4 (2) ensure that activities undertaken pursuant
5 to this section, to the extent practicable, promote the
6 growth of a robust domestic isotope production in-
7 dustry; and

8 (3) consider any relevant recommendations
9 made by Federal advisory committees, the National
10 Academies, and interagency working groups in which
11 the Department participates.

12 **SEC. 508. SCIENCE LABORATORIES INFRASTRUCTURE PRO-**
13 **GRAM.**

14 (a) PROGRAM.—The Director shall carry out a pro-
15 gram to improve the safety, efficiency, and mission readi-
16 ness of infrastructure at Office of Science laboratories.
17 The program shall include projects to—

18 (1) renovate or replace space that does not
19 meet research needs;

20 (2) replace facilities that are no longer cost ef-
21 fective to renovate or operate;

22 (3) modernize utility systems to prevent failures
23 and ensure efficiency;

24 (4) remove excess facilities to allow safe and ef-
25 ficient operations; and

1 (5) construct modern facilities to conduct ad-
2 vanced research in controlled environmental condi-
3 tions.

4 (b) APPROACH.—In carrying out this section, the Di-
5 rector shall utilize all available approaches and mecha-
6 nisms, including capital line items, minor construction
7 projects, energy savings performance contracts, utility en-
8 ergy service contracts, alternative financing, and expense
9 funding, as appropriate.

10 **SEC. 509. DOMESTIC MANUFACTURING.**

11 Not later than 1 year after the date of enactment
12 of this Act, the Secretary shall transmit to the Committee
13 on Science, Space, and Technology of the House of Rep-
14 resentatives and the Committee on Energy and Natural
15 Resources of the Senate a report on the current ability
16 of domestic manufacturers to meet the procurement re-
17 quirements for major ongoing projects funded by the Of-
18 fice of Science of the Department, including a calculation
19 of the percentage of equipment acquired from domestic
20 manufacturers for this purpose.

21 **SEC. 510. AUTHORIZATION OF APPROPRIATIONS.**

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

1 (1) \$1,850,000,000 shall be for Basic Energy
2 Science;

3 (2) \$788,000,000 shall be for High Energy
4 Physics;

5 (3) \$550,000,000 shall be for Biological and
6 Environmental Research;

7 (4) \$624,700,000 shall be for Nuclear Physics;

8 (5) \$621,000,000 shall be for Advanced Sci-
9 entific Computing Research;

10 (6) \$488,000,000 shall be for Fusion Energy
11 Sciences;

12 (7) \$113,600,000 shall be for Science Labora-
13 tories Infrastructure;

14 (8) \$181,000,000 shall be for Science Program
15 Direction;

16 (9) \$103,000,000 shall be for Safeguards and
17 Security; and

18 (10) \$20,500,000 shall be for Workforce Devel-
19 opment for Teachers and Scientists.

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

23 (1) \$1,850,000,000 shall be for Basic Energy
24 Science;

1 (2) \$788,000,000 shall be for High Energy
2 Physics;

3 (3) \$550,000,000 shall be for Biological and
4 Environmental Research;

5 (4) \$624,700,000 shall be for Nuclear Physics;

6 (5) \$621,000,000 shall be for Advanced Sci-
7 entific Computing Research;

8 (6) \$488,000,000 shall be for Fusion Energy
9 Sciences;

10 (7) \$113,600,000 shall be for Science Labora-
11 tories Infrastructure;

12 (8) \$181,000,000 shall be for Science Program
13 Direction;

14 (9) \$103,000,000 shall be for Safeguards and
15 Security; and

16 (10) \$20,500,000 shall be for Workforce Devel-
17 opment for Teachers and Scientists.

18 **SEC. 511. DEFINITIONS.**

19 In this title—

20 (1) the term “Department” means the Depart-
21 ment of Energy;

22 (2) the term “Director” means the Director of
23 the Office of Science of the Department; and

24 (3) the term “Secretary” means the Secretary
25 of Energy.

1 **TITLE VI—DEPARTMENT OF EN-**
2 **ERGY APPLIED RESEARCH**
3 **AND DEVELOPMENT**

4 **Subtitle A—Crosscutting Research**
5 **and Development**

6 **SEC. 601. CROSSCUTTING RESEARCH AND DEVELOPMENT.**

7 (a) CROSSCUTTING RESEARCH AND DEVELOP-
8 MENT.—The Secretary shall, through the Under Secretary
9 for Science and Energy, utilize the capabilities of the De-
10 partment to identify strategic opportunities for collabo-
11 rative research, development, demonstration, and commer-
12 cial application of innovative science and technologies
13 for—

14 (1) advancing the understanding of the energy-
15 water-land use nexus;

16 (2) modernizing the electric grid by improving
17 energy transmission and distribution systems secu-
18 rity and resiliency;

19 (3) utilizing supercritical carbon dioxide in elec-
20 tric power generation;

21 (4) subsurface technology and engineering;

22 (5) high performance computing;

23 (6) cybersecurity; and

24 (7) critical challenges identified through com-
25 prehensive energy studies, evaluations, and reviews.

1 (b) CROSSCUTTING APPROACHES.—To the maximum
2 extent practicable, the Secretary shall seek to leverage ex-
3 isting programs, and consolidate and coordinate activities,
4 throughout the Department to promote collaboration and
5 crosscutting approaches within programs.

6 (c) ADDITIONAL ACTIONS.—The Secretary shall—

7 (1) prioritize activities that promote the utiliza-
8 tion of all affordable domestic resources;

9 (2) develop a rigorous and realistic planning,
10 evaluation, and technical assessment framework for
11 setting objective, long-term strategic goals and eval-
12 uating progress that ensures the integrity and inde-
13 pendence to insulate planning from political influ-
14 ence and the flexibility to adapt to market dynamics;

15 (3) ensure that activities shall be undertaken in
16 a manner that does not duplicate other activities
17 within the Department or other Federal Government
18 activities; and

19 (4) identify programs that may be more effec-
20 tively left to the States, industry, nongovernmental
21 organizations, institutions of higher education, or
22 other stakeholders.

1 **SEC. 602. STRATEGIC RESEARCH PORTFOLIO ANALYSIS**
2 **AND COORDINATION PLAN.**

3 Section 994 of Energy Policy Act of 2005 (42 U.S.C.
4 16358) is amended to read as follows:

5 **“SEC. 994. STRATEGIC RESEARCH PORTFOLIO ANALYSIS**
6 **AND COORDINATION PLAN.**

7 “(a) IN GENERAL.—The Secretary shall periodically
8 review all of the science and technology activities of the
9 Department in a strategic framework that takes into ac-
10 count the frontiers of science to which the Department
11 can contribute, the national needs relevant to the Depart-
12 ment’s statutory missions, and global energy dynamics.

13 “(b) COORDINATION ANALYSIS AND PLAN.—As part
14 of the review under subsection (a), the Secretary shall de-
15 velop a plan to improve coordination and collaboration in
16 research, development, demonstration, and commercial ap-
17 plication activities across Department organizational
18 boundaries.

19 “(c) PLAN CONTENTS.—The plan shall describe—

20 “(1) cross-cutting scientific and technical issues
21 and research questions that span more than one pro-
22 gram or major office of the Department;

23 “(2) how the applied technology programs of
24 the Department are coordinating their activities, and
25 addressing those questions;

1 “(3) ways in which the technical interchange
2 within the Department, particularly between the Of-
3 fice of Science and the applied technology programs,
4 can be enhanced, including limited ways in which the
5 research agendas of the Office of Science and the
6 applied programs can better interact and assist each
7 other;

8 “(4) a description of how the Secretary will en-
9 sure that the Department’s overall research agenda
10 include, in addition to fundamental, curiosity-driven
11 research, fundamental research related to topics of
12 concern to the applied programs, and applications in
13 Departmental technology programs of research re-
14 sults generated by fundamental, curiosity-driven re-
15 search;

16 “(5) critical assessments of any ongoing pro-
17 grams that have experienced sub-par performance or
18 cost over-runs of 10 percent or more over one or
19 more years; and

20 “(6) activities that may be more effectively left
21 to the States, industry, nongovernmental organiza-
22 tions, institutions of higher education, or other
23 stakeholders.

24 “(d) PLAN TRANSMITTAL.—Not later than 1 year
25 after the date of enactment of the America COMPETES

1 Reauthorization Act of 2015, and every 4 years thereafter,
2 the Secretary shall transmit to the Committee on Science,
3 Space, and Technology of the House of Representatives
4 and the Committee on Energy and Natural Resources of
5 the Senate the results of the review under subsection (a)
6 and the coordination plan under subsection (b).”.

7 **SEC. 603. STRATEGY FOR FACILITIES AND INFRASTRUC-**
8 **TURE.**

9 (a) AMENDMENTS.—Section 993 of the Energy Pol-
10 icy Act of 2005 (42 U.S.C. 16357) is amended—

11 (1) by amending the section heading to read as
12 follows: “**STRATEGY FOR FACILITIES AND IN-**
13 **FRASTRUCTURE**”; and

14 (2) in subsection (b)(1), by striking “2008”
15 and inserting “2018”.

16 (b) TABLE OF CONTENTS AMENDMENT.—The item
17 relating to section 993 in the table of contents of the En-
18 ergy Policy Act of 2005 is amended to read as follows:
“Sec. 993. Strategy for facilities and infrastructure.”.

19 **Subtitle B—Electricity Delivery**
20 **and Energy Reliability Research**
21 **and Development**

22 **SEC. 611. DISTRIBUTED ENERGY AND ELECTRIC ENERGY**
23 **SYSTEMS.**

24 Section 921 of the Energy Policy Act of 2005 (42
25 U.S.C. 16211) is amended to read as follows:

1 **“SEC. 921. DISTRIBUTED ENERGY AND ELECTRIC ENERGY**
2 **SYSTEMS.**

3 “(a) IN GENERAL.—The Secretary shall carry out
4 programs of research, development, demonstration, and
5 commercial application on distributed energy resources
6 and systems reliability and efficiency, to improve the reli-
7 ability and efficiency of distributed energy resources and
8 systems, integrating advanced energy technologies with
9 grid connectivity, including activities described in this sub-
10 title. The programs shall address advanced energy tech-
11 nologies and systems and advanced grid security, resil-
12 iency, and reliability technologies.

13 “(b) OBJECTIVES.—To the maximum extent prac-
14 ticable, the Secretary shall seek to—

15 “(1) leverage existing programs;

16 “(2) consolidate and coordinate activities
17 throughout the Department to promote collaboration
18 and crosscutting approaches;

19 “(3) ensure activities are undertaken in a man-
20 ner that does not duplicate other activities within
21 the Department or other Federal Government activi-
22 ties; and

23 “(4) identify programs that may be more effec-
24 tively left to the States, industry, nongovernmental
25 organizations, institutions of higher education, or
26 other stakeholders.”.

1 **SEC. 612. ELECTRIC TRANSMISSION AND DISTRIBUTION RE-**
2 **SEARCH AND DEVELOPMENT.**

3 (a) AMENDMENTS.—Section 925 of the Energy Pol-
4 icy Act of 2005 (42 U.S.C. 16215) is amended—

5 (1) by amending the section heading to read as
6 follows: “**ELECTRIC TRANSMISSION AND DIS-**
7 **TRIBUTION RESEARCH AND DEVELOPMENT**”;

8 (2) by amending subsection (a) to read as fol-
9 lows:

10 “(a) PROGRAM.—The Secretary shall establish a
11 comprehensive research, development, and demonstration
12 program to ensure the reliability, efficiency, and environ-
13 mental integrity of electrical transmission and distribution
14 systems, which shall include innovations for—

15 “(1) advanced energy delivery technologies, en-
16 ergy storage technologies, materials, and systems;

17 “(2) advanced grid reliability and efficiency
18 technology development;

19 “(3) technologies contributing to significant
20 load reductions;

21 “(4) advanced metering, load management, and
22 control technologies;

23 “(5) technologies to enhance existing grid com-
24 ponents;

25 “(6) the development and use of high-tempera-
26 ture superconductors to—

1 “(A) enhance the reliability, operational
2 flexibility, or power-carrying capability of elec-
3 tric transmission or distribution systems; or

4 “(B) increase the efficiency of electric en-
5 ergy generation, transmission, distribution, or
6 storage systems;

7 “(7) integration of power systems, including
8 systems to deliver high-quality electric power, elec-
9 tric power reliability, and combined heat and power;

10 “(8) supply of electricity to the power grid by
11 small scale, distributed, and residential-based power
12 generators;

13 “(9) the development and use of advanced grid
14 design, operation, and planning tools; and

15 “(10) any other infrastructure technologies, as
16 appropriate.”; and

17 (3) by amending subsection (c) to read as fol-
18 lows:

19 “(c) IMPLEMENTATION.—

20 “(1) CONSORTIUM.—The Secretary shall con-
21 sider implementing the program under this section
22 using a consortium of participants from industry, in-
23 stitutions of higher education, and National Labora-
24 tories.

1 “(2) OBJECTIVES.—To the maximum extent
2 practicable the Secretary shall seek to—

3 “(A) leverage existing programs;

4 “(B) consolidate and coordinate activities,
5 throughout the Department to promote collabo-
6 ration and crosscutting approaches;

7 “(C) ensure activities are undertaken in a
8 manner that does not duplicate other activities
9 within the Department or other Federal Gov-
10 ernment activities; and

11 “(D) identify programs that may be more
12 effectively left to the States, industry, non-
13 governmental organizations, institutions of
14 higher education, or other stakeholders.”.

15 (b) TABLE OF CONTENTS AMENDMENT.—The item
16 relating to section 925 in the table of contents of the En-
17 ergy Policy Act of 2005 is amended to read as follows:

 “Sec. 925. Electric transmission and distribution research and development.”.

18 **Subtitle C—Nuclear Energy**
19 **Research and Development**

20 **SEC. 621. OBJECTIVES.**

21 Section 951 of the Energy Policy Act of 2005 (42
22 U.S.C. 16271) is amended—

23 (1) by amending subsection (a) to read as fol-
24 lows:

1 “(a) IN GENERAL.—The Secretary shall conduct pro-
2 grams of civilian nuclear energy research, development,
3 demonstration, and commercial application, including ac-
4 tivities described in this subtitle. Such programs shall take
5 into consideration the following objectives:

6 “(1) Enhancing nuclear power’s viability as
7 part of the United States energy portfolio.

8 “(2) Reducing used nuclear fuel and nuclear
9 waste products generated by civilian nuclear energy.

10 “(3) Supporting technological advances in areas
11 that industry by itself is not likely to undertake be-
12 cause of technical and financial uncertainty.

13 “(4) Providing the technical means to reduce
14 the likelihood of nuclear proliferation.

15 “(5) Maintaining a cadre of nuclear scientists
16 and engineers.

17 “(6) Maintaining National Laboratory and uni-
18 versity nuclear programs, including their infrastruc-
19 ture.

20 “(7) Supporting both individual researchers and
21 multidisciplinary teams of researchers to pioneer
22 new approaches in nuclear energy, science, and tech-
23 nology.

1 “(8) Developing, planning, constructing, acquir-
2 ing, and operating special equipment and facilities
3 for the use of researchers.

4 “(9) Supporting technology transfer and other
5 appropriate activities to assist the nuclear energy in-
6 dustry, and other users of nuclear science and engi-
7 neering, including activities addressing reliability,
8 availability, productivity, component aging, safety,
9 and security of nuclear power plants.

10 “(10) Reducing the environmental impact of
11 nuclear energy-related activities.

12 “(11) Researching and developing technologies
13 and processes to meet Federal and State require-
14 ments and standards for nuclear power systems.”;

15 (2) by striking subsections (b) through (d); and

16 (3) by redesignating subsection (e) as sub-
17 section (b).

18 **SEC. 622. PROGRAM OBJECTIVES STUDY.**

19 Section 951 of the Energy Policy Act of 2005 (42
20 U.S.C. 16271) is further amended by adding at the end
21 the following new subsection:

22 “(c) PROGRAM OBJECTIVES STUDY.—In furtherance
23 of the program objectives listed in subsection (a) of this
24 section, the Government Accountability Office shall, within
25 one year after the date of enactment of this subsection,

1 transmit to the Congress a report on the results of a study
2 on the scientific and technical merit of major Federal and
3 State requirements and standards, including moratoria,
4 that delay or impede the further development and com-
5 mercialization of nuclear power, and how the Department
6 can assist in overcoming such delays or impediments.”.

7 **SEC. 623. NUCLEAR ENERGY RESEARCH AND DEVELOP-**
8 **MENT PROGRAMS.**

9 Section 952 of the Energy Policy Act of 2005 (42
10 U.S.C. 16272) is amended by striking subsections (c)
11 through (e) and inserting the following:

12 “(c) REACTOR CONCEPTS.—

13 “(1) IN GENERAL.—The Secretary shall carry
14 out a program of research, development, demonstra-
15 tion, and commercial application to advance nuclear
16 power systems as well as technologies to sustain cur-
17 rently deployed systems.

18 “(2) DESIGNS AND TECHNOLOGIES.—In con-
19 ducting the program under this subsection, the Sec-
20 retary shall examine advanced reactor designs and
21 nuclear technologies, including those that—

22 “(A) have higher efficiency, lower cost, and
23 improved safety compared to reactors in oper-
24 ation as of the date of enactment of the Amer-
25 ica COMPETES Reauthorization Act of 2015;

1 “(B) utilize passive safety features;

2 “(C) minimize proliferation risks;

3 “(D) substantially reduce production of
4 high-level waste per unit of output;

5 “(E) increase the life and sustainability of
6 reactor systems currently deployed;

7 “(F) use improved instrumentation;

8 “(G) are capable of producing large-scale
9 quantities of hydrogen or process heat;

10 “(H) minimize water usage or use alter-
11 natives to water as a cooling mechanism; or

12 “(I) use nuclear energy as part of an inte-
13 grated energy system.

14 “(3) INTERNATIONAL COOPERATION.—In car-
15 rying out the program under this subsection, the
16 Secretary shall seek opportunities to enhance the
17 progress of the program through international co-
18 operation through such organizations as the Genera-
19 tion IV International Forum or any other inter-
20 national collaboration the Secretary considers appro-
21 priate.

22 “(4) EXCEPTIONS.—No funds authorized to be
23 appropriated to carry out the activities described in
24 this subsection shall be used to fund the activities
25 authorized under sections 641 through 645.”.

1 **SEC. 624. SMALL MODULAR REACTOR PROGRAM.**

2 Section 952 of the Energy Policy Act of 2005 (42
3 U.S.C. 16272) is further amended by adding at the end
4 the following new subsection:

5 “(d) SMALL MODULAR REACTOR PROGRAM.—

6 “(1) IN GENERAL.—The Secretary shall carry
7 out a small modular reactor program to promote re-
8 search, development, demonstration, and commercial
9 application of small modular reactors, including
10 through cost-shared projects for commercial applica-
11 tion of reactor systems designs.

12 “(2) CONSULTATION.—The Secretary shall con-
13 sult with and utilize the expertise of the Secretary
14 of the Navy in establishing and carrying out such
15 program.

16 “(3) ADDITIONAL ACTIVITIES.—Activities may
17 also include development of advanced computer mod-
18 eling and simulation tools, by Federal and non-Fed-
19 eral entities, which demonstrate and validate new de-
20 sign capabilities of innovative small modular reactor
21 designs.

22 “(4) DEFINITION.—For the purposes of this
23 subsection, the term ‘small modular reactor’ means
24 a nuclear reactor meeting generally accepted indus-
25 try standards—

1 “(A) with a rated capacity of less than 300
2 electrical megawatts;

3 “(B) with respect to which most parts can
4 be factory assembled and shipped as modules to
5 a reactor plant site for assembly; and

6 “(C) that can be constructed and operated
7 in combination with similar reactors at a single
8 site.”.

9 **SEC. 625. FUEL CYCLE RESEARCH AND DEVELOPMENT.**

10 (a) AMENDMENTS.—Section 953 of the Energy Pol-
11 icy Act of 2005 (42 U.S.C. 16273) is amended—

12 (1) in the section heading by striking “**AD-**
13 **VANCED FUEL CYCLE INITIATIVE**” and inserting
14 “**FUEL CYCLE RESEARCH AND DEVELOPMENT**”;

15 (2) by striking subsection (a);

16 (3) by redesignating subsections (b) through (d)
17 as subsections (d) through (f), respectively; and

18 (4) by inserting before subsection (d), as so re-
19 designated by paragraph (3) of this subsection, the
20 following new subsections:

21 “(a) IN GENERAL.—The Secretary shall conduct a
22 fuel cycle research, development, demonstration, and com-
23 mercial application program (referred to in this section as
24 the ‘program’) on fuel cycle options that improve uranium
25 resource utilization, maximize energy generation, minimize

1 nuclear waste creation, improve safety, mitigate risk of
2 proliferation, and improve waste management in support
3 of a national strategy for spent nuclear fuel and the reac-
4 tor concepts research, development, demonstration, and
5 commercial application program under section 952(c).

6 “(b) FUEL CYCLE OPTIONS.—Under this section the
7 Secretary may consider implementing the following initia-
8 tives:

9 “(1) OPEN CYCLE.—Developing fuels, including
10 the use of nonuranium materials and alternate
11 claddings, for use in reactors that increase energy
12 generation, improve safety performance and mar-
13 gins, and minimize the amount of nuclear waste pro-
14 duced in an open fuel cycle.

15 “(2) RECYCLE.—Developing advanced recycling
16 technologies, including advanced reactor concepts to
17 improve resource utilization, reduce proliferation
18 risks, and minimize radiotoxicity, decay heat, and
19 mass and volume of nuclear waste to the greatest
20 extent possible.

21 “(3) ADVANCED STORAGE METHODS.—Devel-
22 oping advanced storage technologies for both onsite
23 and long-term storage that substantially prolong the
24 effective life of current storage devices or that sub-

1 stantially improve upon existing nuclear waste stor-
2 age technologies and methods, including repositories.

3 “(4) FAST TEST REACTOR.—Investigating the
4 potential research benefits of a fast test reactor user
5 facility to conduct experiments on fuels and mate-
6 rials related to fuel forms and fuel cycles that will
7 increase fuel utilization, reduce proliferation risks,
8 and reduce nuclear waste products.

9 “(5) ADVANCED REACTOR INNOVATION.—De-
10 veloping an advanced reactor innovation testbed
11 where national laboratories, universities, and indus-
12 try can address advanced reactor design challenges
13 to enable construction and operation of privately
14 funded reactor prototypes to resolve technical uncer-
15 tainty for United States-based designs for future do-
16 mestic and international markets.

17 “(6) OTHER TECHNOLOGIES.—Developing any
18 other technology or initiative that the Secretary de-
19 termines is likely to advance the objectives of the
20 program.

21 “(c) ADDITIONAL ADVANCED RECYCLING AND
22 CROSSCUTTING ACTIVITIES.—In addition to and in sup-
23 port of the specific initiatives described in paragraphs (1)
24 through (5) of subsection (b), the Secretary may support
25 the following activities:

1 “(1) Development and testing of integrated
2 process flow sheets for advanced nuclear fuel recycling
3 processes.

4 “(2) Research to characterize the byproducts
5 and waste streams resulting from fuel recycling
6 processes.

7 “(3) Research and development on reactor concepts or transmutation technologies that improve resource utilization or reduce the radiotoxicity of waste
8 streams.
9 streams.

11 “(4) Research and development on waste treatment processes and separations technologies, advanced waste forms, and quantification of proliferation risks.

15 “(5) Identification and evaluation of test and experimental facilities necessary to successfully implement the advanced fuel cycle initiative.

18 “(6) Advancement of fuel cycle-related modeling and simulation capabilities.

20 “(7) Research to understand the behavior of high-burnup fuels.”.

22 (b) CONFORMING AMENDMENT.—The item relating
23 to section 953 in the table of contents of the Energy Policy
24 Act of 2005 is amended to read as follows:

“Sec. 953. Fuel cycle research and development.”.

1 **SEC. 626. NUCLEAR ENERGY ENABLING TECHNOLOGIES**
2 **PROGRAM.**

3 (a) AMENDMENT.—Subtitle E of title IX of the En-
4 ergy Policy Act of 2005 (42 U.S.C. 16271 et seq.) is
5 amended by adding at the end the following new section:

6 **“SEC. 958. NUCLEAR ENERGY ENABLING TECHNOLOGIES.**

7 “(a) IN GENERAL.—The Secretary shall conduct a
8 program to support the integration of activities under-
9 taken through the reactor concepts research, development,
10 demonstration, and commercial application program under
11 section 952(c) and the fuel cycle research and development
12 program under section 953, and support crosscutting nu-
13 clear energy concepts. Activities commenced under this
14 section shall be concentrated on broadly applicable re-
15 search and development focus areas.

16 “(b) ACTIVITIES.—Activities conducted under this
17 section may include research involving—

18 “(1) advanced reactor materials;

19 “(2) advanced radiation mitigation methods;

20 “(3) advanced proliferation and security risk
21 assessment methods;

22 “(4) advanced sensors and instrumentation;

23 “(5) high performance computation modeling,
24 including multiphysics, multidimensional modeling
25 simulation for nuclear energy systems, and contin-
26 ued development of advanced modeling simulation

1 capabilities through national laboratory, industry,
2 and university partnerships for operations and safety
3 performance improvements of light water reactors
4 for currently deployed and near-term reactors and
5 advanced reactors and for the development of small
6 modular reactors; and

7 “(6) any crosscutting technology or trans-
8 formative concept aimed at establishing substantial
9 and revolutionary enhancements in the performance
10 of future nuclear energy systems that the Secretary
11 considers relevant and appropriate to the purpose of
12 this section.

13 “(c) REPORT.—The Secretary shall submit, as part
14 of the annual budget submission of the Department, a re-
15 port on the activities of the program conducted under this
16 section, which shall include a brief evaluation of each ac-
17 tivity’s progress.”.

18 (b) CONFORMING AMENDMENT.—The table of con-
19 tents of the Energy Policy Act of 2005 is amended by
20 adding at the end of the items for subtitle E of title IX
21 the following new item:

“Sec. 958. Nuclear energy enabling technologies.”.

22 **SEC. 627. TECHNICAL STANDARDS COLLABORATION.**

23 (a) IN GENERAL.—The Director of the National In-
24 stitute of Standards and Technology shall establish a nu-
25 clear energy standards committee (in this section referred

1 to as the “technical standards committee”) to facilitate
2 and support, consistent with the National Technology
3 Transfer and Advancement Act of 1995, the development
4 or revision of technical standards for new and existing nu-
5 clear power plants and advanced nuclear technologies.

6 (b) MEMBERSHIP.—

7 (1) IN GENERAL.—The technical standards
8 committee shall include representatives from appro-
9 priate Federal agencies and the private sector, and
10 be open to materially affected organizations involved
11 in the development or application of nuclear energy-
12 related standards.

13 (2) CO-CHAIRS.—The technical standards com-
14 mittee shall be co-chaired by a representative from
15 the National Institute of Standards and Technology
16 and a representative from a private sector standards
17 organization.

18 (c) DUTIES.—The technical standards committee
19 shall, in cooperation with appropriate Federal agencies—

20 (1) perform a needs assessment to identify and
21 evaluate the technical standards that are needed to
22 support nuclear energy, including those needed to
23 support new and existing nuclear power plants and
24 advanced nuclear technologies, including developing

1 the technical basis for regulatory frameworks for ad-
2 vanced reactors;

3 (2) formulate, coordinate, and recommend pri-
4 orities for the development of new technical stand-
5 ards and the revision of existing technical standards
6 to address the needs identified under paragraph (1);

7 (3) facilitate and support collaboration and co-
8 operation among standards developers to address the
9 needs and priorities identified under paragraphs (1)
10 and (2);

11 (4) as appropriate, coordinate with other na-
12 tional, regional, or international efforts on nuclear
13 energy-related technical standards in order to avoid
14 conflict and duplication and to ensure global com-
15 patibility; and

16 (5) promote the establishment and maintenance
17 of a database of nuclear energy-related technical
18 standards.

19 (d) AUTHORIZATION OF APPROPRIATIONS.—To the
20 extent provided for in advance by appropriations Acts, the
21 Secretary may transfer to the Director of the National In-
22 stitute of Standards and Technology not to exceed
23 \$1,000,000 for fiscal year 2016 for the Secretary of Com-
24 merce to carry out this section from amounts appropriated
25 for nuclear energy research and development within the

1 Nuclear Energy Enabling Technologies account for the
2 Department.

3 **SEC. 628. AVAILABLE FACILITIES DATABASE.**

4 The Secretary shall prepare a database of non-Fed-
5 eral user facilities receiving Federal funds that may be
6 used for unclassified nuclear energy research. The Sec-
7 retary shall make this database accessible on the Depart-
8 ment's website.

9 **SEC. 629. NUCLEAR WASTE DISPOSAL.**

10 To the extent consistent with the requirements of
11 current law, the Department shall be responsible for dis-
12 posal of high-level radioactive waste or spent nuclear fuel
13 generated by reactors under the programs authorized in
14 this subtitle, or the amendments made by this subtitle.

15 **Subtitle D—Energy Efficiency and**
16 **Renewable Energy Research**
17 **and Development**

18 **SEC. 641. ENERGY EFFICIENCY.**

19 Section 911 of the Energy Policy Act of 2005 (42
20 U.S.C. 16191) is amended to read as follows:

21 **“SEC. 911. ENERGY EFFICIENCY.**

22 **“(a) OBJECTIVES.—**The Secretary shall conduct pro-
23 grams of energy efficiency research, development, dem-
24 onstration, and commercial application, including activi-
25 ties described in this subtitle. Such programs shall

1 prioritize activities that industry by itself is not likely to
2 undertake because of technical challenges or regulatory
3 uncertainty, and take into consideration the following ob-
4 jectives:

5 “(1) Increasing energy efficiency.

6 “(2) Reducing the cost of energy.

7 “(3) Reducing the environmental impact of en-
8 ergy-related activities.

9 “(b) PROGRAMS.—Programs under this subtitle shall
10 include research, development, demonstration, and com-
11 mercial application of—

12 “(1) innovative, affordable technologies to im-
13 prove the energy efficiency and environmental per-
14 formance of vehicles, including weight and drag re-
15 duction technologies, technologies, modeling, and
16 simulation for increasing vehicle connectivity and au-
17 tomation, and whole-vehicle design optimization;

18 “(2) cost-effective technologies, for new con-
19 struction and retrofit, to improve the energy effi-
20 ciency and environmental performance of buildings,
21 using a whole-buildings approach;

22 “(3) advanced technologies to improve the en-
23 ergy efficiency, environmental performance, and
24 process efficiency of energy-intensive and waste-in-
25 tensive industries;

1 “(4) technologies to improve the energy effi-
2 ciency of appliances and mechanical systems for
3 buildings in extreme climates, including cogenera-
4 tion, trigeneration, and polygeneration units;
5 “(5) advanced battery technologies; and
6 “(6) fuel cell and hydrogen technologies.”.

7 **SEC. 642. NEXT GENERATION LIGHTING INITIATIVE.**

8 Section 912 of the Energy Policy Act of 2005 (42
9 U.S.C. 16192) and the item relating thereto in the table
10 of contents of that Act are repealed.

11 **SEC. 643. BUILDING STANDARDS.**

12 Section 914 of the Energy Policy Act of 2005 (42
13 U.S.C. 16194) is amended by striking subsection (c).

14 **SEC. 644. SECONDARY ELECTRIC VEHICLE BATTERY USE**
15 **PROGRAM.**

16 Section 915 of the Energy Policy Act of 2005 (42
17 U.S.C. 16195) and the item relating thereto in the table
18 of contents of that Act are repealed.

19 **SEC. 645. NETWORK FOR MANUFACTURING INNOVATION**
20 **PROGRAM.**

21 To the extent provided for in advance by appropria-
22 tions Acts, the Secretary may transfer to the National In-
23 stitute of Standards and Technology up to \$150,000,000
24 for the period encompassing fiscal years 2015 through
25 2017 from amounts appropriated for advanced manufac-

1 turing research and development under this subtitle (and
2 the amendments made by this subtitle) for the Secretary
3 of Commerce to carry out the Network for Manufacturing
4 Innovation Program authorized under section 34 of the
5 National Institute of Standards and Technology Act (15
6 U.S.C. 278s).

7 **SEC. 646. ADVANCED ENERGY TECHNOLOGY TRANSFER**
8 **CENTERS.**

9 Section 917 of the Energy Policy Act of 2005 (42
10 U.S.C. 16197) is amended—

11 (1) in subsection (a)—

12 (A) by inserting “and” at the end of para-
13 graph (2)(B);

14 (B) by striking “; and” at the end of para-
15 graph (3) and inserting a period; and

16 (C) by striking paragraph (4);

17 (2) in subsection (b)—

18 (A) by striking paragraph (1);

19 (B) by redesignating paragraphs (2)
20 through (5) as paragraphs (1) through (4), re-
21 spectively; and

22 (C) by striking paragraph (6);

23 (3) by amending subsection (g) to read as fol-
24 lows:

1 “(g) PROHIBITION.—None of the funds awarded
2 under this section may be used for the construction of fa-
3 cilities or the deployment of commercially available tech-
4 nologies.”; and

5 (4) by striking subsection (i).

6 **SEC. 647. RENEWABLE ENERGY.**

7 Section 931 of the Energy Policy Act of 2005 (42
8 U.S.C. 16231) is amended to read as follows:

9 **“SEC. 931. RENEWABLE ENERGY.**

10 “(a) IN GENERAL.—

11 “(1) OBJECTIVES.—The Secretary shall con-
12 duct programs of renewable energy research, devel-
13 opment, demonstration, and commercial application,
14 including activities described in this subtitle. Such
15 programs shall prioritize discovery research and de-
16 velopment and take into consideration the following
17 objectives:

18 “(A) Increasing the conversion efficiency of
19 all forms of renewable energy through improved
20 technologies.

21 “(B) Decreasing the cost of renewable en-
22 ergy generation and delivery.

23 “(C) Promoting the diversity of the energy
24 supply.

1 “(D) Decreasing the dependence of the
2 United States on foreign mineral resources.

3 “(E) Decreasing the environmental impact
4 of renewable energy-related activities.

5 “(F) Increasing the export of renewable
6 generation technologies from the United States.

7 “(2) PROGRAMS.—

8 “(A) SOLAR ENERGY.—The Secretary shall
9 conduct a program of research, development,
10 demonstration, and commercial application for
11 solar energy, including innovations in—

12 “(i) photovoltaics;

13 “(ii) solar heating;

14 “(iii) concentrating solar power;

15 “(iv) lighting systems that integrate
16 sunlight and electrical lighting in com-
17 plement to each other; and

18 “(v) development of technologies that
19 can be easily integrated into new and exist-
20 ing buildings.

21 “(B) WIND ENERGY.—The Secretary shall
22 conduct a program of research, development,
23 demonstration, and commercial application for
24 wind energy, including innovations in—

25 “(i) low speed wind energy;

1 “(ii) testing and verification tech-
2 nologies;

3 “(iii) distributed wind energy genera-
4 tion; and

5 “(iv) transformational technologies for
6 harnessing wind energy.

7 “(C) GEOTHERMAL.—The Secretary shall
8 conduct a program of research, development,
9 demonstration, and commercial application for
10 geothermal energy, including technologies for—

11 “(i) improving detection of geothermal
12 resources;

13 “(ii) decreasing drilling costs;

14 “(iii) decreasing maintenance costs
15 through improved materials;

16 “(iv) increasing the potential for other
17 revenue sources, such as mineral produc-
18 tion; and

19 “(v) increasing the understanding of
20 reservoir life cycle and management.

21 “(D) HYDROPOWER.—The Secretary shall
22 conduct a program of research, development,
23 demonstration, and commercial application for
24 technologies that enable the development of new
25 and incremental hydropower capacity, including:

1 “(i) Advanced technologies to enhance
2 environmental performance and yield
3 greater energy efficiencies.

4 “(ii) Ocean energy, including wave en-
5 ergy.

6 “(E) MISCELLANEOUS PROJECTS.—The
7 Secretary shall conduct research, development,
8 demonstration, and commercial application pro-
9 grams for—

10 “(i) the combined use of renewable
11 energy technologies with one another and
12 with other energy technologies, including
13 the combined use of renewable power and
14 fossil technologies;

15 “(ii) renewable energy technologies for
16 cogeneration of hydrogen and electricity;
17 and

18 “(iii) kinetic hydro turbines.

19 “(b) RURAL DEMONSTRATION PROJECTS.—In car-
20 rying out this section, the Secretary, in consultation with
21 the Secretary of Agriculture, shall give priority to dem-
22 onstrations that assist in delivering electricity to rural and
23 remote locations including—

24 “(1) advanced renewable power technology, in-
25 cluding combined use with fossil technologies;

1 “(2) biomass; and

2 “(3) geothermal energy systems.

3 “(c) ANALYSIS AND EVALUATION.—

4 “(1) IN GENERAL.—The Secretary shall con-
5 duct analysis and evaluation in support of the re-
6 newable energy programs under this subtitle. These
7 activities shall be used to guide budget and program
8 decisions, and shall include—

9 “(A) economic and technical analysis of re-
10 newable energy potential, including resource as-
11 sessment;

12 “(B) analysis of past program perform-
13 ance, both in terms of technical advances and
14 in market introduction of renewable energy;

15 “(C) assessment of domestic and inter-
16 national market drivers, including the impacts
17 of any Federal, State, or local grants, loans,
18 loan guarantees, tax incentives, statutory or
19 regulatory requirements, or other government
20 initiatives; and

21 “(D) any other analysis or evaluation that
22 the Secretary considers appropriate.

23 “(2) FUNDING.—The Secretary may designate
24 up to 1 percent of the funds appropriated for car-

1 rying out this subtitle for analysis and evaluation ac-
2 tivities under this subsection.

3 “(3) SUBMITTAL TO CONGRESS.—This analysis
4 and evaluation shall be submitted to the Committee
5 on Science, Space, and Technology of the House of
6 Representatives and the Committee on Energy and
7 Natural Resources of the Senate at least 30 days be-
8 fore each annual budget request is submitted to
9 Congress.”.

10 **SEC. 648. BIOENERGY PROGRAM.**

11 Section 932 of the Energy Policy Act of 2005 (42
12 U.S.C. 16232) is amended to read as follows:

13 **“SEC. 932. BIOENERGY PROGRAM.**

14 “(a) PROGRAM.—The Secretary shall conduct a pro-
15 gram of research, development, demonstration, and com-
16 mercial application for bioenergy, including innovations
17 in—

18 “(1) biopower energy systems;

19 “(2) biofuels;

20 “(3) bioproducts;

21 “(4) integrated biorefineries that may produce
22 biopower, biofuels, and bioproducts; and

23 “(5) cross-cutting research and development in
24 feedstocks.

1 “(b) BIOFUELS AND BIOPRODUCTS.—The goals of
2 the biofuels and bioproducts programs shall be to develop,
3 in partnership with industry and institutions of higher
4 education—

5 “(1) advanced biochemical and thermochemical
6 conversion technologies capable of making fuels from
7 lignocellulosic feedstocks that are price-competitive
8 with fossil-based fuels and fully compatible with ei-
9 ther internal combustion engines or fuel cell-powered
10 vehicles;

11 “(2) advanced conversion of biomass to biofuels
12 and bioproducts as part of integrated biorefineries
13 based on either biochemical processes,
14 thermochemical processes, or hybrids of these proc-
15 esses; and

16 “(3) other advanced processes that will enable
17 the development of cost-effective bioproducts, includ-
18 ing biofuels.

19 “(c) RETROFIT TECHNOLOGIES FOR THE DEVELOP-
20 MENT OF ETHANOL FROM CELLULOSIC MATERIALS.—
21 The Secretary shall establish a program of research, devel-
22 opment, demonstration, and commercial application for
23 technologies and processes to enable biorefineries that ex-
24 clusively use corn grain or corn starch as a feedstock to

1 produce ethanol to be retrofitted to accept a range of bio-
2 mass, including lignocellulosic feedstocks.

3 “(d) LIMITATIONS.—None of the funds authorized
4 for carrying out this section may be used to fund commer-
5 cial biofuels production for defense purposes.

6 “(e) DEFINITIONS.—In this section:

7 “(1) BIOMASS.—The term ‘biomass’ means—

8 “(A) any organic material grown for the
9 purpose of being converted to energy;

10 “(B) any organic byproduct of agriculture
11 (including wastes from food production and
12 processing) that can be converted into energy;
13 or

14 “(C) any waste material that can be con-
15 verted to energy, is segregated from other waste
16 materials, and is derived from—

17 “(i) any of the following forest-related
18 resources: mill residues, precommercial
19 thinnings, slash, brush, or otherwise non-
20 merchantable material;

21 “(ii) wood waste materials, including
22 waste pallets, crates, dunnage, manufac-
23 turing and construction wood wastes (other
24 than pressure-treated, chemically treated,
25 or painted wood wastes), and landscape or

1 right-of-way tree trimmings, but not in-
2 cluding municipal solid waste, gas derived
3 from the biodegradation of municipal solid
4 waste, or paper that is commonly recycled;
5 or

6 “(iii) solids derived from waste water
7 treatment processes.

8 “(2) LIGNOCELLULOSIC FEEDSTOCK.—The
9 term ‘lignocellulosic feedstock’ means any portion of
10 a plant or coproduct from conversion, including
11 crops, trees, forest residues, grasses, and agricul-
12 tural residues not specifically grown for food, includ-
13 ing from barley grain, grapeseed, rice bran, rice
14 hulls, rice straw, soybean matter, cornstover, and
15 sugarcane bagasse.”.

16 **SEC. 649. CONCENTRATING SOLAR POWER RESEARCH PRO-**
17 **GRAM.**

18 Section 934 of the Energy Policy Act of 2005 (42
19 U.S.C. 16234) and the item relating thereto in the table
20 of contents of that Act are repealed.

21 **SEC. 650. RENEWABLE ENERGY IN PUBLIC BUILDINGS.**

22 Section 935 of the Energy Policy Act of 2005 (42
23 U.S.C. 16235) and the item relating thereto in the table
24 of contents of that Act are repealed.

1 **Subtitle E—Fossil Energy Research**
2 **and Development**

3 **SEC. 661. FOSSIL ENERGY.**

4 Section 961 of Energy Policy Act of 2005 (42 U.S.C.
5 16291) is amended to read as follows:

6 **“SEC. 961. FOSSIL ENERGY.**

7 “(a) IN GENERAL.—The Secretary shall carry out re-
8 search, development, demonstration, and commercial ap-
9 plication programs in fossil energy, including activities
10 under this subtitle, with the goal of improving the effi-
11 ciency, effectiveness, and environmental performance of
12 fossil energy production, upgrading, conversion, and con-
13 sumption. Such programs shall take into consideration the
14 following objectives:

15 “(1) Increasing the energy conversion efficiency
16 of all forms of fossil energy through improved tech-
17 nologies.

18 “(2) Decreasing the cost of all fossil energy
19 production, generation, and delivery.

20 “(3) Promoting diversity of energy supply.

21 “(4) Decreasing the dependence of the United
22 States on foreign energy supplies.

23 “(5) Decreasing the environmental impact of
24 energy-related activities.

1 “(6) Increasing the export of fossil energy-re-
2 lated equipment, technology, and services from the
3 United States.

4 “(b) OBJECTIVES.—To the maximum extent prac-
5 ticable, the Secretary shall seek to—

6 “(1) leverage existing programs;

7 “(2) consolidate and coordinate activities
8 throughout the Department to promote collaboration
9 and crosscutting approaches;

10 “(3) ensure activities are undertaken in a man-
11 ner that does not duplicate other activities within
12 the Department or other Federal Government activi-
13 ties; and

14 “(4) identify programs that may be more effec-
15 tively left to the States, industry, nongovernmental
16 organizations, institutions of higher education, or
17 other stakeholders.

18 “(c) LIMITATIONS.—

19 “(1) USES.—None of the funds authorized for
20 carrying out this section may be used for Fossil En-
21 ergy Environmental Restoration.

22 “(2) INSTITUTIONS OF HIGHER EDUCATION.—
23 Not less than 20 percent of the funds appropriated
24 for carrying out section 964 of this Act for each fis-

1 cal year shall be dedicated to research and develop-
2 ment carried out at institutions of higher education.

3 “(3) USE FOR REGULATORY ASSESSMENTS OR
4 DETERMINATIONS.—The results of any research, de-
5 velopment, demonstration, or commercial application
6 projects or activities of the Department authorized
7 under this subtitle may not be used for regulatory
8 assessments or determinations by Federal regulatory
9 authorities.

10 “(d) ASSESSMENTS.—

11 “(1) CONSTRAINTS AGAINST BRINGING RE-
12 SOURCES TO MARKET.—Not later than 1 year after
13 the date of enactment of the America COMPETES
14 Reauthorization Act of 2015, the Secretary shall
15 transmit to Congress an assessment of the technical,
16 institutional, policy, and regulatory constraints to
17 bringing new domestic fossil resources to market.

18 “(2) TECHNOLOGY CAPABILITIES.—Not later
19 than 2 years after the date of enactment of the
20 America COMPETES Reauthorization Act of 2015,
21 the Secretary shall transmit to Congress a long-term
22 assessment of existing and projected technological
23 capabilities for expanded production from domestic
24 unconventional oil, gas, and methane reserves.”.

1 **SEC. 662. COAL RESEARCH, DEVELOPMENT, DEMONSTRATION,**
2 **AND COMMERCIAL APPLICATION PRO-**
3 **GRAMS.**

4 (a) IN GENERAL.—Section 962 of the Energy Policy
5 Act of 2005 (42 U.S.C. 16292) is amended—

6 (1) in subsection (a)—

7 (A) in paragraph (10), by striking “and”
8 at the end;

9 (B) in paragraph (11), by striking the pe-
10 riod at the end and inserting a semicolon; and

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

12 “(12) specific additional programs to address
13 water use and reuse;

14 “(13) the testing, including the construction of
15 testing facilities, of high temperature materials for
16 use in advanced systems for combustion or use of
17 coal; and

18 “(14) innovations to application of existing coal
19 conversion systems designed to increase efficiency of
20 conversion, flexibility of operation, and other modi-
21 fications to address existing usage requirements.”;

22 (2) by redesignating subsections (b) through (d)
23 as subsections (c) through (e), respectively;

24 (3) by inserting after subsection (a) the fol-
25 lowing:

1 “(b) TRANSFORMATIONAL COAL TECHNOLOGY PRO-
2 GRAM.—

3 “(1) IN GENERAL.—As part of the program es-
4 tablished under subsection (a), the Secretary may
5 carry out a program designed to undertake research,
6 development, demonstration, and commercial appli-
7 cation of technologies, including the accelerated de-
8 velopment of—

9 “(A) chemical looping technology;

10 “(B) supercritical carbon dioxide power
11 generation cycles;

12 “(C) pressurized oxycombustion, including
13 new and retrofit technologies; and

14 “(D) other technologies that are character-
15 ized by the use of—

16 “(i) alternative energy cycles;

17 “(ii) thermionic devices using waste
18 heat;

19 “(iii) fuel cells;

20 “(iv) replacement of chemical proc-
21 esses with biotechnology;

22 “(v) nanotechnology;

23 “(vi) new materials in applications
24 (other than extending cycles to higher tem-

1 perature and pressure), such as mem-
2 branes or ceramics;

3 “(vii) carbon utilization, such as in
4 construction materials, using low quality
5 energy to reconvert back to a fuel, or man-
6 ufactured food;

7 “(viii) advanced gas separation con-
8 cepts; and

9 “(ix) other technologies, including—
10 “(I) modular, manufactured com-
11 ponents; and

12 “(II) innovative production or re-
13 search techniques, such as using 3-D
14 printer systems, for the production of
15 early research and development proto-
16 types.

17 “(2) COST SHARE.—In carrying out the pro-
18 gram described in paragraph (1), the Secretary shall
19 enter into partnerships with private entities to share
20 the costs of carrying out the program. The Secretary
21 may reduce the non-Federal cost share requirement
22 if the Secretary determines that the reduction is nec-
23 essary and appropriate considering the technological
24 risks involved in the project.”; and

1 (4) in subsection (c) (as so redesignated) by
2 striking paragraph (1) and inserting the following:

3 “(1) IN GENERAL.—In carrying out programs
4 authorized by this section, the Secretary shall iden-
5 tify cost and performance goals for coal-based tech-
6 nologies that would permit the continued cost-com-
7 petitive use of coal for the production of electricity,
8 chemical feedstocks, transportation fuels, and other
9 marketable products.”.

10 (b) ADVISORY COMMITTEE; AUTHORIZATION OF AP-
11 PROPRIATIONS.—Section 963 of the Energy Policy Act of
12 2005 (42 U.S.C. 16293) is amended—

13 (1) by amending paragraph (6) of subsection
14 (c) to read as follows:

15 “(6) ADVISORY COMMITTEE.—

16 “(A) IN GENERAL.—Subject to subpara-
17 graph (B), the Secretary shall establish an advi-
18 sory committee to undertake, not less fre-
19 quently than once every 3 years, a review and
20 prepare a report on the progress being made by
21 the Department of Energy to achieve the goals
22 described in subsections (a) and (b) of section
23 962 and subsection (b) of this section.

24 “(B) MEMBERSHIP REQUIREMENTS.—

25 Members of the advisory committee established

1 under subparagraph (A) shall be appointed by
2 the Secretary.”; and

3 (2) by amending subsection (d) to read as fol-
4 lows:

5 “(d) STUDY OF CARBON DIOXIDE PIPELINES.—Not
6 later than 1 year after the date of enactment of the Amer-
7 ica COMPETES Reauthorization Act of 2015, the Sec-
8 retary shall transmit to Congress the results of a study
9 to assess the cost and feasibility of engineering, permit-
10 ting, building, maintaining, regulating, and insuring a na-
11 tional system of carbon dioxide pipelines.”.

12 **SEC. 663. HIGH EFFICIENCY GAS TURBINES RESEARCH AND**
13 **DEVELOPMENT.**

14 (a) IN GENERAL.—The Secretary, through the Office
15 of Fossil Energy, shall carry out a multiyear, multiphase
16 program of research, development, demonstration, and
17 commercial application to innovate technologies to maxi-
18 mize the efficiency of gas turbines used in power genera-
19 tion systems.

20 (b) PROGRAM ELEMENTS.—The program under this
21 section shall—

22 (1) support innovative engineering and detailed
23 gas turbine design for megawatt-scale and utility-
24 scale electric power generation, including—

1 (A) high temperature materials, including
2 superalloys, coatings, and ceramics;

3 (B) improved heat transfer capability;

4 (C) manufacturing technology required to
5 construct complex three-dimensional geometry
6 parts with improved aerodynamic capability;

7 (D) combustion technology to produce
8 higher firing temperature while lowering nitro-
9 gen oxide and carbon monoxide emissions per
10 unit of output;

11 (E) advanced controls and systems integra-
12 tion;

13 (F) advanced high performance compressor
14 technology; and

15 (G) validation facilities for the testing of
16 components and subsystems;

17 (2) include technology demonstration through
18 component testing, subscale testing, and full scale
19 testing in existing fleets;

20 (3) include field demonstrations of the devel-
21 oped technology elements so as to demonstrate tech-
22 nical and economic feasibility; and

23 (4) assess overall combined cycle and simple
24 cycle system performance.

1 (c) PROGRAM GOALS.—The goals of the multiphase
2 program established under subsection (a) shall be—

3 (1) in phase I—

4 (A) to develop the conceptual design of ad-
5 vanced high efficiency gas turbines that can
6 achieve at least 62 percent combined cycle effi-
7 ciency or 47 percent simple cycle efficiency on
8 a lower heating value basis; and

9 (B) to develop and demonstrate the tech-
10 nology required for advanced high efficiency gas
11 turbines that can achieve at least 62 percent
12 combined cycle efficiency or 47 percent simple
13 cycle efficiency on a lower heating value basis;
14 and

15 (2) in phase II, to develop the conceptual de-
16 sign for advanced high efficiency gas turbines that
17 can achieve at least 65 percent combined cycle effi-
18 ciency or 50 percent simple cycle efficiency on a
19 lower heating value basis.

20 (d) PROPOSALS.—Within 180 days after the date of
21 enactment of this Act, the Secretary shall solicit grant and
22 contract proposals from industry, small businesses, univer-
23 sities, and other appropriate parties for conducting activi-
24 ties under this section. In selecting proposals, the Sec-
25 retary shall emphasize—

1 (1) the extent to which the proposal will stimu-
2 late the creation or increased retention of jobs in the
3 United States; and

4 (2) the extent to which the proposal will pro-
5 mote and enhance United States technology leader-
6 ship.

7 (e) COMPETITIVE AWARDS.—The provision of fund-
8 ing under this section shall be on a competitive basis with
9 an emphasis on technical merit.

10 (f) COST SHARING.—Section 988 of the Energy Pol-
11 icy Act of 2005 (42 U.S.C. 16352) shall apply to an award
12 of financial assistance made under this section.

13 **Subtitle F—Advanced Research**
14 **Projects Agency—Energy**

15 **SEC. 671. ARPA-E AMENDMENTS.**

16 Section 5012 of the America COMPETES Act (42
17 U.S.C. 16538) is amended—

18 (1) by amending paragraph (1) of subsection

19 (c) to read as follows:

20 “(1) IN GENERAL.—The goals of ARPA-E
21 shall be to enhance the economic and energy security
22 of the United States and to ensure that the United
23 States maintains a technological lead through the
24 development of advanced energy technologies.”;

1 (2) in subsection (i)(1), by inserting “ARPA–E
2 shall not provide funding for a project unless the
3 prospective grantee demonstrates sufficient attempts
4 to secure private financing or indicates that the
5 project is not independently commercially viable.”
6 after “relevant 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 sub-
11 section (o) and inserting after subsection (m) the
12 following new subsection:

13 “(n) PROTECTION OF PROPRIETARY INFORMA-
14 TION.—

15 “(1) IN GENERAL.—The following categories of
16 information collected by the Advanced Research
17 Projects Agency–Energy from recipients of financial
18 assistance awards shall be considered privileged and
19 confidential and not subject to disclosure pursuant
20 to section 552 of title 5, United States Code:

21 “(A) Plans for commercialization of tech-
22 nologies developed under the award, including
23 business plans, technology to market plans,
24 market studies, and cost and performance mod-
25 els.

1 “(B) Investments provided to an awardee
2 from third parties, such as venture capital,
3 hedge fund, or private equity firms, including
4 amounts and percentage of ownership of the
5 awardee provided in return for such invest-
6 ments.

7 “(C) Additional financial support that the
8 awardee plans to invest or has invested into the
9 technology developed under the award, or that
10 the awardee is seeking from third parties.

11 “(D) Revenue from the licensing or sale of
12 new products or services resulting from the re-
13 search conducted under the award.

14 “(2) EFFECT OF SUBSECTION.—Nothing in this
15 subsection affects—

16 “(A) the authority of the Secretary to use
17 information without publicly disclosing such in-
18 formation; or

19 “(B) the responsibility of the Secretary to
20 transmit information to Congress as required
21 by law.”.

1 **Subtitle G—Authorization of**
2 **Appropriations**

3 **SEC. 681. AUTHORIZATION OF APPROPRIATIONS.**

4 (a) ELECTRICITY DELIVERY AND ENERGY RELI-
5 ABILITY RESEARCH AND DEVELOPMENT.—There are au-
6 thorized to be appropriated to the Secretary for research,
7 development, demonstration, and commercial application
8 for electrical delivery and energy reliability technology ac-
9 tivities within the Office of Electricity \$113,000,000 for
10 each of fiscal years 2016 and 2017.

11 (b) NUCLEAR ENERGY.—

12 (1) IN GENERAL.—There are authorized to be
13 appropriated to the Secretary for research, develop-
14 ment, demonstration, and commercial application for
15 nuclear energy technology activities within the Office
16 of Nuclear Energy \$504,600,000 for each of fiscal
17 years 2016 and 2017.

18 (2) LIMITATION.—Any amounts made available
19 pursuant to the authorization of appropriations
20 under paragraph (1) shall not be derived from the
21 Nuclear Waste Fund established under section
22 302(c) of the Nuclear Waste Policy Act of 1982 (42
23 U.S.C. 10222(c)).

24 (c) ENERGY EFFICIENCY AND RENEWABLE EN-
25 ERGY.—There are authorized to be appropriated to the

1 Secretary for research, development, demonstration, and
2 commercial application for energy efficiency and renewable
3 energy technology activities within the Office of Energy
4 Efficiency and Renewable Energy \$1,198,500,000 for
5 each of fiscal years 2016 and 2017.

6 (d) FOSSIL ENERGY.—There are authorized to be ap-
7 propriated to the Secretary for research, development,
8 demonstration, and commercial application for fossil en-
9 ergy technology activities within the Office of Fossil En-
10 ergy \$605,000,000 for each of fiscal years 2016 and 2017.

11 (e) ARPA-E.—There are authorized to be appro-
12 priated to the Secretary for the Advanced Research
13 Projects Agency—Energy \$140,000,000 for each of fiscal
14 years 2016 and 2017.

15 **Subtitle H—Definitions**

16 **SEC. 691. DEFINITIONS.**

17 In this title—

18 (1) the term “Department” means the Depart-
19 ment of Energy; and

20 (2) the term “Secretary” means the Secretary
21 of Energy.

1 **TITLE VII—DEPARTMENT OF EN-**
2 **ERGY TECHNOLOGY TRANS-**
3 **FER**

4 **Subtitle A—In General**

5 **SEC. 701. DEFINITIONS.**

6 In this title:

7 (1) DEPARTMENT.—The term “Department”
8 means the Department of Energy.

9 (2) NATIONAL LABORATORY.—The term “Na-
10 tional Laboratory” means a Department of Energy
11 nonmilitary national laboratory, including—

12 (A) Ames Laboratory;

13 (B) Argonne National Laboratory;

14 (C) Brookhaven National Laboratory;

15 (D) Fermi National Accelerator Labora-
16 tory;

17 (E) Idaho National Laboratory;

18 (F) Lawrence Berkeley National Labora-
19 tory;

20 (G) National Energy Technology Labora-
21 tory;

22 (H) National Renewable Energy Labora-
23 tory;

24 (I) Oak Ridge National Laboratory;

1 (J) Pacific Northwest National Labora-
2 tory;

3 (K) Princeton Plasma Physics Laboratory;

4 (L) Savannah River National Laboratory;

5 (M) Stanford Linear Accelerator Center;

6 (N) Thomas Jefferson National Accel-
7 erator Facility; and

8 (O) any laboratory operated by the Na-
9 tional Nuclear Security Administration, but
10 only with respect to the civilian energy activities
11 thereof.

12 (3) SECRETARY.—The term “Secretary” means
13 the Secretary of Energy.

14 **SEC. 702. SAVINGS CLAUSE.**

15 Nothing in this title or an amendment made by this
16 title abrogates or otherwise affects the primary respon-
17 sibilities of any National Laboratory to the Department.

18 **Subtitle B—Innovation Manage-**
19 **ment at Department of Energy**

20 **SEC. 711. UNDER SECRETARY FOR SCIENCE AND ENERGY.**

21 (a) IN GENERAL.—Section 202(b) of the Department
22 of Energy Organization Act (42 U.S.C. 7132(b)) is
23 amended—

1 (1) by striking “Under Secretary for Science”
2 each place it appears and inserting “Under Sec-
3 retary for Science and Energy”; and

4 (2) in paragraph (4)—

5 (A) in subparagraph (F), by striking
6 “and” at the end;

7 (B) in subparagraph (G), by striking the
8 period at the end and inserting a semicolon;
9 and

10 (C) by inserting after subparagraph (G)
11 the following:

12 “(H) establish appropriate linkages between of-
13 fices under the jurisdiction of the Under Secretary;
14 and

15 “(I) perform such functions and duties as the
16 Secretary shall prescribe, consistent with this sec-
17 tion.”.

18 (b) CONFORMING AMENDMENTS.—

19 (1) Section 3164(b)(1) of the Department of
20 Energy Science Education Enhancement Act (42
21 U.S.C. 7381a(b)(1)) is amended by striking “Under
22 Secretary for Science” and inserting “Under Sec-
23 retary for Science and Energy”.

24 (2) Section 641(h)(2) of the United States En-
25 ergy Storage Competitiveness Act of 2007 (42

1 U.S.C. 17231(h)(2)) is amended by striking “Under
2 Secretary for Science” and inserting “Under Sec-
3 retary for Science and Energy”.

4 **SEC. 712. TECHNOLOGY TRANSFER AND TRANSITIONS AS-**
5 **SESSMENT.**

6 Not later than 1 year after the date of enactment
7 of this Act, and annually thereafter, the Secretary shall
8 transmit to the Committee on Science, Space, and Tech-
9 nology of the House of Representatives and the Committee
10 on Energy and Natural Resources of the Senate a report
11 which shall include—

12 (1) an assessment of the Department’s current
13 ability to carry out the goals of section 1001 of the
14 Energy Policy Act of 2005 (42 U.S.C. 16391), in-
15 cluding an assessment of the role and effectiveness
16 of the Director of the Office of Technology Transi-
17 tions; and

18 (2) recommended departmental policy changes
19 and legislative changes to section 1001 of the En-
20 ergy Policy Act of 2005 (42 U.S.C. 16391) to im-
21 prove the Department’s ability to successfully trans-
22 fer new energy technologies to the private sector.

23 **SEC. 713. SENSE OF CONGRESS.**

24 It is the sense of the Congress that the Secretary
25 should encourage the National Laboratories and federally

1 funded research and development centers to inform small
2 businesses of the opportunities and resources that exist
3 pursuant to this title.

4 **SEC. 714. NUCLEAR ENERGY INNOVATION.**

5 Not later than 180 days after the date of enactment
6 of this Act, the Secretary, in consultation with the Na-
7 tional Laboratories, relevant Federal agencies, and other
8 stakeholders, shall transmit to the Committee on Science,
9 Space, and Technology of the House of Representatives
10 and the Committee on Energy and Natural Resources of
11 the Senate a report assessing the Department's capabili-
12 ties to authorize, host, and oversee privately funded fusion
13 and non-light water reactor prototypes and related dem-
14 onstration facilities at Department-owned sites. For pur-
15 poses of this report, the Secretary shall consider the De-
16 partment's capabilities to facilitate privately-funded proto-
17 types up to 20 megawatts thermal output. The report shall
18 address the following:

19 (1) The Department's safety review and over-
20 sight capabilities.

21 (2) Potential sites capable of hosting research,
22 development, and demonstration of prototype reac-
23 tors and related facilities for the purpose of reducing
24 technical risk.

1 (3) The Department's and National Labora-
2 tories' existing physical and technical capabilities
3 relevant to research, development, and oversight.

4 (4) The efficacy of the Department's available
5 contractual mechanisms, including cooperative re-
6 search and development agreements, work for others
7 agreements, and agreements for commercializing
8 technology.

9 (5) Potential cost structures related to physical
10 security, decommissioning, liability, and other long-
11 term project costs.

12 (6) Other challenges or considerations identified
13 by the Secretary, including issues related to poten-
14 tial cases of demonstration reactors up to 2
15 gigawatts of thermal output.

16 **Subtitle C—Cross-Sector Partner-**
17 **ships and Grant Competitive-**
18 **ness**

19 **SEC. 721. AGREEMENTS FOR COMMERCIALIZING TECH-**
20 **NOLOGY PILOT PROGRAM.**

21 (a) IN GENERAL.—The Secretary shall carry out the
22 Agreements for Commercializing Technology pilot pro-
23 gram of the Department, as announced by the Secretary
24 on December 8, 2011, in accordance with this section.

1 (b) TERMS.—Each agreement entered into pursuant
2 to the pilot program referred to in subsection (a) shall
3 provide to the contractor of the applicable National Lab-
4 oratory, to the maximum extent determined to be appro-
5 priate by the Secretary, increased authority to negotiate
6 contract terms, such as intellectual property rights, pay-
7 ment structures, performance guarantees, and multiparty
8 collaborations.

9 (c) ELIGIBILITY.—

10 (1) IN GENERAL.—Any director of a National
11 Laboratory may enter into an agreement pursuant
12 to the pilot program referred to in subsection (a).

13 (2) AGREEMENTS WITH NON-FEDERAL ENTI-
14 TIES.—To carry out paragraph (1) and subject to
15 paragraph (3), the Secretary shall permit the direc-
16 tors of the National Laboratories to execute agree-
17 ments with a non-Federal entity, including a non-
18 Federal entity already receiving Federal funding
19 that will be used to support activities under agree-
20 ments executed pursuant to paragraph (1), provided
21 that such funding is solely used to carry out the
22 purposes of the Federal award.

23 (3) RESTRICTION.—The requirements of chap-
24 ter 18 of title 35, United States Code (commonly
25 known as the “Bayh-Dole Act”) shall apply if—

1 (A) the agreement is a funding agreement
2 (as that term is defined in section 201 of that
3 title); and

4 (B) at least 1 of the parties to the funding
5 agreement is eligible to receive rights under
6 that chapter.

7 (d) SUBMISSION TO SECRETARY.—Each affected di-
8 rector of a National Laboratory shall submit to the Sec-
9 retary, with respect to each agreement entered into under
10 this section—

11 (1) a summary of information relating to the
12 relevant project;

13 (2) the total estimated costs of the project;

14 (3) estimated commencement and completion
15 dates of the project; and

16 (4) other documentation determined to be ap-
17 propriate by the Secretary.

18 (e) CERTIFICATION.—The Secretary shall require the
19 contractor of the affected National Laboratory to certify
20 that each activity carried out under a project for which
21 an agreement is entered into under this section—

22 (1) is not in direct competition with the private
23 sector; and

24 (2) does not present, or minimizes, any appar-
25 ent conflict of interest, and avoids or neutralizes any

1 actual conflict of interest, as a result of the agree-
2 ment under this section.

3 (f) EXTENSION.—The pilot program referred to in
4 subsection (a) shall be extended until October 31, 2017.

5 (g) REPORTS.—

6 (1) OVERALL ASSESSMENT.—Not later than 60
7 days after the date described in subsection (f), the
8 Secretary, in coordination with directors of the Na-
9 tional Laboratories, shall submit to the Committee
10 on Science, Space, and Technology of the House of
11 Representatives and the Committee on Energy and
12 Natural Resources of the Senate a report that—

13 (A) assesses the overall effectiveness of the
14 pilot program referred to in subsection (a);

15 (B) identifies opportunities to improve the
16 effectiveness of the pilot program;

17 (C) assesses the potential for program ac-
18 tivities to interfere with the responsibilities of
19 the National Laboratories to the Department;
20 and

21 (D) provides a recommendation regarding
22 the future of the pilot program.

23 (2) TRANSPARENCY.—The Secretary, in coordi-
24 nation with directors of the National Laboratories,
25 shall submit to the Committee on Science, Space,

1 and Technology of the House of Representatives and
2 the Committee on Energy and Natural Resources of
3 the Senate an annual report that accounts for all
4 incidences of, and provides a justification for, non-
5 Federal entities using funds derived from a Federal
6 contract or award to carry out agreements pursuant
7 to this section.

8 **SEC. 722. PUBLIC-PRIVATE PARTNERSHIPS FOR COMMER-**
9 **CIALIZATION.**

10 (a) IN GENERAL.—Subject to subsections (b) and (c),
11 the Secretary shall delegate to directors of the National
12 Laboratories signature authority with respect to any
13 agreement described in subsection (b) the total cost of
14 which (including the National Laboratory contributions
15 and project recipient cost share) is less than \$1,000,000.

16 (b) AGREEMENTS.—Subsection (a) applies to—

17 (1) a cooperative research and development
18 agreement;

19 (2) a non-Federal work-for-others agreement;
20 and

21 (3) any other agreement determined to be ap-
22 propriate by the Secretary, in collaboration with the
23 directors of the National Laboratories.

24 (c) ADMINISTRATION.—

1 (1) ACCOUNTABILITY.—The director of the af-
2 fected National Laboratory and the affected con-
3 tractor shall carry out an agreement under this sec-
4 tion in accordance with applicable policies of the De-
5 partment, including by ensuring that the agreement
6 does not compromise any national security, eco-
7 nomic, or environmental interest of the United
8 States.

9 (2) CERTIFICATION.—The director of the af-
10 fected National Laboratory and the affected con-
11 tractor shall certify that each activity carried out
12 under a project for which an agreement is entered
13 into under this section does not present, or mini-
14 mizes, any apparent conflict of interest, and avoids
15 or neutralizes any actual conflict of interest, as a re-
16 sult of the agreement under this section.

17 (3) AVAILABILITY OF RECORDS.—On entering
18 an agreement under this section, the director of a
19 National Laboratory shall submit to the Secretary
20 for monitoring and review all records of the National
21 Laboratory relating to the agreement.

22 (4) RATES.—The director of a National Lab-
23 oratory may charge higher rates for services per-
24 formed under a partnership agreement entered into
25 pursuant to this section, regardless of the full cost

1 of recovery, if such funds are used exclusively to
2 support further research and development activities
3 at the respective National Laboratory.

4 (d) EXCEPTION.—This section does not apply to any
5 agreement with a majority foreign-owned company.

6 (e) CONFORMING AMENDMENT.—Section 12 of the
7 Stevenson-Wydler Technology Innovation Act of 1980 (15
8 U.S.C. 3710a) is amended—

9 (1) in subsection (a)—

10 (A) by redesignating paragraphs (1) and
11 (2) as subparagraphs (A) and (B), respectively,
12 and indenting the subparagraphs appropriately;

13 (B) by striking “Each Federal agency”
14 and inserting the following:

15 “(1) IN GENERAL.—Except as provided in para-
16 graph (2), each Federal agency”; and

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

18 “(2) EXCEPTION.—Notwithstanding paragraph
19 (1), in accordance with section 722(a) of the Amer-
20 ica COMPETES Reauthorization Act of 2015, ap-
21 proval by the Secretary of Energy shall not be re-
22 quired for any technology transfer agreement pro-
23 posed to be entered into by a National Laboratory
24 of the Department of Energy, the total cost of which
25 (including the National Laboratory contributions

1 and project recipient cost share) is less than
2 \$1,000,000.”; and

3 (2) in subsection (b), by striking “subsection
4 (a)(1)” each place it appears and inserting “sub-
5 section (a)(1)(A)”.

6 **SEC. 723. INCLUSION OF EARLY-STAGE TECHNOLOGY DEM-**
7 **ONSTRATION IN AUTHORIZED TECHNOLOGY**
8 **TRANSFER ACTIVITIES.**

9 Section 1001 of the Energy Policy Act of 2005 (42
10 U.S.C. 16391) is amended by—

11 (1) redesignating subsection (g) as subsection
12 (h); and

13 (2) inserting after subsection (f) the following:

14 “(g) **EARLY-STAGE TECHNOLOGY DEMONSTRA-**
15 **TION.**—The Secretary shall permit the directors of the Na-
16 tional Laboratories to use funds authorized to support
17 technology transfer within the Department to carry out
18 early-stage and pre-commercial technology demonstration
19 activities to remove technology barriers that limit private
20 sector interest and demonstrate potential commercial ap-
21 plications of any research and technologies arising from
22 National Laboratory activities.”.

1 **SEC. 724. FUNDING COMPETITIVENESS FOR INSTITUTIONS**
2 **OF HIGHER EDUCATION AND OTHER NON-**
3 **PROFIT INSTITUTIONS.**

4 Section 988(b) of the Energy Policy Act of 2005 (42
5 U.S.C. 16352(b)) is amended—

6 (1) in paragraph (1), by striking “Except as
7 provided in paragraphs (2) and (3)” and inserting
8 “Except as provided in paragraphs (2), (3), and
9 (4)”; and

10 (2) by adding at the end the following:

11 “(4) EXEMPTION FOR INSTITUTIONS OF HIGH-
12 ER EDUCATION AND OTHER NONPROFIT INSTITU-
13 TIONS.—

14 “(A) IN GENERAL.—Paragraph (1) shall
15 not apply to a research or development activity
16 performed by an institution of higher education
17 or nonprofit institution (as defined in section 4
18 of the Stevenson-Wydler Technology Innovation
19 Act of 1980 (15 U.S.C. 3703)).

20 “(B) TERMINATION DATE.—The exemp-
21 tion under subparagraph (A) shall apply during
22 the 6-year period beginning on the date of en-
23 actment 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
11 of this Act, the Comptroller General of the United States
12 shall submit to Congress a report—

13 (1) describing the results of the projects devel-
14 oped under sections 721, 722, and 723, including in-
15 formation 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
22 under 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
4 of 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.

