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114TH CONGRESS
2D SESSION**S. 3084****[Report No. 114–389]**

To invest in innovation through research and development, and to improve
the competitiveness of the United States.

IN THE SENATE OF THE UNITED STATES

JUNE 22, 2016

Mr. GARDNER (for himself, Mr. PETERS, Mr. THUNE, and Mr. NELSON) in-
troduced the following bill; which was read twice and referred to the Com-
mittee on Commerce, Science, and Transportation

DECEMBER 1, 2016

Reported by Mr. THUNE, with an amendment

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

A BILL

To invest in innovation through research and development,
and to improve the competitiveness of the United States.

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

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) **SHORT TITLE.**—This Act may be cited as the
5 “~~American Innovation and Competitiveness Act~~”.

- 1 (b) TABLE OF CONTENTS.—The table of contents of
 2 this Act is as follows:

Sec. 1. Short title; table of contents.
 Sec. 2. Definitions.

TITLE I—MAXIMIZING BASIC RESEARCH

Sec. 101. Reaffirmation of merit-based peer review.
 Sec. 102. Transparency and accountability.
 Sec. 103. EPSCoR reaffirmation and update.
 Sec. 104. Cybersecurity research.
 Sec. 105. Networking and information technology research and development update.
 Sec. 106. High-energy physics coordination.
 Sec. 107. Laboratory program improvements.
 Sec. 108. International activities.
 Sec. 109. Standard Reference Data Act update.
 Sec. 110. NSF mid-scale project investments.
 Sec. 111. Oversight of NSF large-scale research facility projects.
 Sec. 112. Conflicts of interest.
 Sec. 113. Management of the NSF Antarctic Program.
 Sec. 114. NIST campus security.

TITLE II—ADMINISTRATIVE AND REGULATORY BURDEN REDUCTION

Sec. 201. Interagency working group on research regulation.
 Sec. 202. Scientific and technical collaboration.
 Sec. 203. NIST grants and cooperative agreements update.
 Sec. 204. Repeal of certain obsolete reports.
 Sec. 205. Repeal of certain provisions.

TITLE III—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH EDUCATION

Sec. 301. Robert Noyce Teacher Scholarship Program update.
 Sec. 302. Space grants.
 Sec. 303. STEM Education Advisory Panel.
 Sec. 304. Committee on STEM Education.
 Sec. 305. Grant programs to expand STEM opportunities.
 Sec. 306. Centers of excellence for inclusion in STEM.
 Sec. 307. NIST education and outreach.
 Sec. 308. Presidential awards for excellence in STEM mentoring.
 Sec. 309. Working group on inclusion in STEM fields.
 Sec. 310. Improving undergraduate STEM experiences.
 Sec. 311. Computer science education research.

TITLE IV—LEVERAGING THE PRIVATE SECTOR

Sec. 401. Prize competition authority update.
 Sec. 402. Crowdsourcing and citizen science.
 Sec. 403. NIST other transaction authority update.
 Sec. 404. NIST Visiting Committee on Advanced Technology update.

TITLE V—MANUFACTURING

Sec. 501. Hollings manufacturing extension partnership improvements.

Sec. 502. Federal loan guarantees for innovative technologies in manufacturing.

TITLE VI—INNOVATION, COMMERCIALIZATION, AND TECHNOLOGY TRANSFER

Sec. 601. Innovation corps.

Sec. 602. Translational research grants.

Sec. 603. Optics and photonics technology innovations.

1 **SEC. 2. DEFINITIONS.**

2 In this Act, unless expressly provided otherwise:

3 (1) **APPROPRIATE COMMITTEES OF CON-**
4 **GRESS.**—The term “appropriate committees of Con-
5 gress” means the Committee on Commerce, Science,
6 and Transportation of the Senate and the Com-
7 mittee on Science, Space, and Technology of the
8 House of Representatives.

9 (2) **FEDERAL SCIENCE AGENCY.**—The term
10 “Federal science agency” has the meaning given the
11 term in section 103 of the America COMPETES
12 Reauthorization Act of 2010 (42 U.S.C. 6623).

13 (3) **FOUNDATION.**—The term “Foundation”
14 means the National Science Foundation.

15 (4) **INSTITUTION OF HIGHER EDUCATION.**—The
16 term “institution of higher education” has the
17 meaning given the term in section 101(a) of the
18 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

19 (5) **NIST.**—The term “NIST” means the Na-
20 tional Institute of Standards and Technology.

1 (6) STEM.—The term “STEM” has the mean-
 2 ing given the term in section 2 of the American
 3 COMPETES Reauthorization Act of 2010 (42
 4 U.S.C. 6621 note).

5 (7) STEM EDUCATION.—The term “STEM
 6 education” has the meaning given the term in sec-
 7 tion 2 of the STEM Education Act of 2015 (42
 8 U.S.C. 6621 note).

9 **TITLE I—MAXIMIZING BASIC** 10 **RESEARCH**

11 **SEC. 101. REAFFIRMATION OF MERIT-BASED PEER REVIEW.**

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

14 (1) the Foundation’s intellectual merit and
 15 broader impacts criteria remain appropriate for eval-
 16 uating grant proposals, as concluded by the 2011
 17 National Science Board Task Force on Merit Re-
 18 view;

19 (2) evaluating proposals on the basis of the
 20 Foundation’s intellectual merit and broader impacts
 21 criteria assures that—

22 (A) proposals funded by the Foundation
 23 are of high quality and advance scientific
 24 knowledge; and

1 ~~(B)~~ the Foundation's overall funding port-
 2 folio addresses societal needs through research
 3 findings or through related activities; and

4 ~~(3)~~ as evidenced by the Foundation's contribu-
 5 tions to scientific advancement, economic develop-
 6 ment, human health, and national security, its peer
 7 review and merit review processes have successfully
 8 identified and funded scientifically and societally rel-
 9 evant research and should be preserved.

10 ~~(b) MERIT REVIEW CRITERIA.—~~The Foundation
 11 shall maintain the intellectual merit and broader impacts
 12 criteria, among other specific criteria as appropriate, as
 13 the basis for evaluating grant proposals in the merit re-
 14 view process.

15 ~~(c) UPDATES.—~~If after the date of enactment of this
 16 Act a change is made to the merit review process, the Di-
 17 rector shall submit a report to the appropriate committees
 18 of Congress not later than 30 days after the date of the
 19 change.

20 **SEC. 102. TRANSPARENCY AND ACCOUNTABILITY.**

21 ~~(a) FINDINGS.—~~Congress finds that the Foundation
 22 has improved transparency and accountability of the out-
 23 comes made through the merit review process.

24 ~~(b) GUIDANCE.—~~

1 (1) IN GENERAL.—The Director of the Founda-
 2 tion shall issue and periodically update, as appro-
 3 priate, policy guidance for both Foundation staff
 4 and other Foundation merit review process partici-
 5 pants, clarifying the importance of transparency and
 6 accountability of the outcomes made through the
 7 merit review process.

8 (2) REQUIREMENTS.—The guidance under
 9 paragraph (1) shall require that each abstract for a
 10 Foundation-funded research project—

11 (A) provide a clear justification for any
 12 Federal funds that will be expended, including
 13 by—

14 (i) describing how the project—

15 (I) reflects the mission statement
 16 of the Foundation; and

17 (II) addresses both of the Na-
 18 tional Science Board-approved merit
 19 review criteria; and

20 (ii) clearly identifying the research
 21 priorities of the project in a manner that
 22 can be easily understood by both technical
 23 and nontechnical audiences; and

24 (B) be publicly available at the time of
 25 award.

1 (c) EXAMINATION.—Not later than 180 days after
 2 the date of enactment of this Act, the National Science
 3 Board shall—

4 (1) examine the efforts by the Foundation to
 5 improve transparency and accountability in the
 6 merit review process; and

7 (2) submit to the appropriate committees of
 8 Congress a report on the examination, including any
 9 recommendations for how to further improve trans-
 10 parency and accountability of the outcomes made
 11 through the merit review process.

12 **SEC. 103. EPSCOR REAFFIRMATION AND UPDATE.**

13 (a) FINDINGS.—Section 517(a) of the America COM-
 14 PETES Reauthorization Act of 2010 (42 U.S.C. 1862p-
 15 9(a)) is amended—

16 (1) in paragraph (1)—

17 (A) by striking “The National” and insert-
 18 ing “the National”; and

19 (B) by striking “education,” and inserting
 20 “education”;

21 (2) in paragraph (2), by striking “with 27
 22 States” and all that follows through the semicolon at
 23 the end and inserting “with 28 States and jurisdic-
 24 tions, taken together, receiving only about 12 per-

1 cent of all National Science Foundation research
2 funding;”;

3 (3) by striking paragraph (3) and inserting the
4 following:

5 “(3) each of the States described in paragraph
6 (2) receives only a fraction of 1 percent of the Foun-
7 dation’s research dollars each year;” and

8 (4) by adding at the end the following:

9 “(4) first established at the National Science
10 Foundation in 1979, the Experimental Program to
11 Stimulate Competitive Research (referred to in this
12 section as ‘EPSCoR’) assists States and jurisdic-
13 tions historically underserved by Federal research
14 and development funding in strengthening their re-
15 search and innovation capabilities;

16 “(5) the EPSCoR structure requires each par-
17 ticipating State to develop a science and technology
18 plan suited to State and local research, education,
19 and economic interests and objectives;

20 “(6) EPSCoR has been credited with advancing
21 the research competitiveness of participating States;
22 improving awareness of science; promoting policies
23 that link scientific investment and economic growth;
24 and encouraging partnerships between government,
25 industry, and academia;

1 “(7) EPSCoR proposals are evaluated through
2 a rigorous and competitive merit review process to
3 ensure that awarded research and development ef-
4 forts meet high scientific standards; and

5 “(8) according to the National Academy of
6 Sciences, EPSCoR has strengthened the national re-
7 search infrastructure and enhanced the educational
8 opportunities needed to develop the science and engi-
9 neering workforce.”.

10 (b) SENSE OF CONGRESS.—

11 (1) IN GENERAL.—It is the sense of Congress
12 that—

13 (A) since maintaining the Nation’s sci-
14 entific and economic leadership requires the
15 participation of talented individuals nationwide,
16 EPSCoR investments into State research and
17 education capacities are in the Federal interest
18 and should be sustained; and

19 (B) EPSCoR should maintain its experi-
20 mental component by supporting innovative
21 methods for improving research capacity and
22 competitiveness.

23 (2) DEFINITION OF EPSCoR.—In this sub-
24 section, the term “EPSCoR” has the meaning given
25 the term in section 502 of the America COMPETES

1 Reauthorization Act of 2010 (42 U.S.C. 1862p
2 note).

3 ~~(c) AWARD STRUCTURE UPDATES.~~—Section 517 of
4 the America COMPETES Reauthorization Act of 2010
5 (42 U.S.C. 1862p–9) is amended by adding at the end
6 the following:

7 ~~“(g) AWARD STRUCTURE UPDATES.~~—In imple-
8 menting the mandate to maximize the impact of Federal
9 EPSCoR support on building competitive research infra-
10 structure, and based on the inputs and recommendations
11 of previous EPSCoR reviews, the head of each Federal
12 agency administering an EPSCoR program shall—

13 ~~“(1) consider modifications to EPSCoR pro-~~
14 ~~posal solicitation, award type, and project evalua-~~
15 ~~tion—~~

16 ~~“(A) to more closely align with current~~
17 ~~agency priorities and initiatives;~~

18 ~~“(B) to focus EPSCoR funding on achiev-~~
19 ~~ing critical scientific, infrastructure, and edu-~~
20 ~~cational needs of that agency;~~

21 ~~“(C) to encourage collaboration between~~
22 ~~EPSCoR-eligible institutions and researchers,~~
23 ~~including with institutions and researchers in~~
24 ~~other States and jurisdictions;~~

1 ~~“(D) to improve communication between~~
2 ~~State and Federal agency proposal reviewers;~~
3 ~~and~~

4 ~~“(E) to continue to reduce administrative~~
5 ~~burdens associated with EPSCoR;~~

6 ~~“(2) consider modifications to EPSCoR award~~
7 ~~structures—~~

8 ~~“(A) to emphasize long-term investments~~
9 ~~in building research capacity; potentially~~
10 ~~through the use of larger, renewable funding~~
11 ~~opportunities; and~~

12 ~~“(B) to allow the agency, States, and juris-~~
13 ~~dictions to experiment with new research and~~
14 ~~development funding models; and~~

15 ~~“(3) consider modifications to the mechanisms~~
16 ~~used to monitor and evaluate EPSCoR awards—~~

17 ~~“(A) to increase collaboration between~~
18 ~~EPSCoR-funded researchers and agency staff;~~
19 ~~including by providing opportunities for men-~~
20 ~~toring young researchers and for the use of~~
21 ~~Federal facilities;~~

22 ~~“(B) to identify and disseminate best prac-~~
23 ~~tices; and~~

24 ~~“(C) to harmonize metrics across partici-~~
25 ~~pating Federal agencies, as appropriate.”.~~

1 (d) ~~REPORTS.—~~

2 (1) ~~CONGRESSIONAL REPORTS.—~~Section 517 of
3 the America ~~COMPETES~~ Reauthorization Act of
4 2010 (42 U.S.C. 1862p–9), as amended, is further
5 amended—

6 (A) by striking subsection (e);

7 (B) by redesignating subsections (d)
8 through (g) as subsections (e) through (f), re-
9 spectively;

10 (C) in subsection (e), as redesignated—

11 (i) in paragraph (1), by striking “Ex-
12 perimental Programs to Stimulate Com-
13 petitive Research” and inserting
14 “EPSCoR”; and

15 (ii) in paragraph (2)—

16 (I) in subparagraphs (A), (D),
17 and (E), by striking “EPSCoR and
18 Federal EPSCoR-like programs” and
19 inserting “each EPSCoR”;

20 (II) in subparagraph (E), by
21 striking “EPSCoR or Federal
22 EPSCoR-like programs” and inserting
23 “each EPSCoR”; and

1 (III) in subparagraph (G), by
 2 striking “EPSCoR programs” and in-
 3 serting “each EPSCoR”;

4 (D) by amending subsection (d), as reded-
 5 ignated, to read as follows:

6 “(d) ~~FEDERAL AGENCY REPORTS.~~—Each Federal
 7 agency that administers an EPSCoR shall submit to Con-
 8 gress, as part of its Federal budget submission—

9 “(1) a description of the program strategy and
 10 objectives;

11 “(2) a description of the awards made in the
 12 previous fiscal year, including—

13 “(A) the total amount made available, by
 14 State, under EPSCoR;

15 “(B) the total amount of agency funding
 16 made available to all institutions and entities
 17 within each EPSCoR State;

18 “(C) the efforts and accomplishments to
 19 more fully integrate the EPSCoR States in
 20 major agency activities and initiatives;

21 “(D) the percentage of EPSCoR reviewers
 22 from EPSCoR States; and

23 “(E) the number of programs or large col-
 24 laborator awards involving a partnership of or-

1 ganizations and institutions from EPSCoR and
2 non-EPSCoR States; and

3 ~~“(3) an analysis of the gains in academic re-~~
4 ~~search quality and competitiveness, and in science~~
5 ~~and technology human resource development,~~
6 ~~achieved by the program over the last 5 fiscal~~
7 ~~years.”; and~~

8 (E) in subsection (c)(1), as redesignated,
9 by striking “Experimental Program to Stimu-
10 late Competitive Research or a program similar
11 to the Experimental Program to Stimulate
12 Competitive Research” and inserting
13 “EPSCoR”.

14 (2) RESULTS OF AWARD STRUCTURE PLAN.—
15 Not later than 1 year after the date of enactment
16 of this Act, the EPSCoR Interagency Coordinating
17 Committee shall brief the appropriate committees of
18 Congress on the updates made to the award struc-
19 ture under 517(f) of the America COMPETES Re-
20 authorization Act of 2010 (42 U.S.C. 1862p–9(f)),
21 as amended by this subsection.

22 (c) DEFINITION OF EPSCoR.—

23 (1) IN GENERAL.—Section 502 of the America
24 COMPETES Reauthorization Act of 2010 (42

U.S.C. 1862p note) is amended by amending paragraph (2) to read as follows:

“(2) EPSCoR.—The term ‘EPSCoR’ means—

“(A) the Established Program to Stimulate Competitive Research established by the Foundation; or

“(B) a program similar to the Established Program to Stimulate Competitive Research at another Federal agency.”.

(2) TECHNICAL AND CONFORMING AMENDMENTS.—Section 113 of the National Science Foundation Authorization Act of 1988 (42 U.S.C. 1862g) is amended—

(A) in the heading, by striking “**EXPERIMENTAL**” and inserting “**ESTABLISHED**”;

(B) in subsection (a), by striking “an Experimental Program to Stimulate Competitive Research” and inserting “a program to stimulate competitive research (known as the ‘Established Program to Stimulate Competitive Research’)”; and

(C) in subsection (b), by striking “the program” and inserting “the Program”.

1 **SEC. 104. CYBERSECURITY RESEARCH.**

2 ~~(a) FOUNDATION CYBERSECURITY RESEARCH.—~~See-
 3 tion 4(a)(1) of the Cyber Security Research and Develop-
 4 ment Act, as amended (15 U.S.C. 7403(a)(1)) is amend-
 5 ed—

6 (1) in subparagraph (O), by striking “and” at
 7 the end;

8 (2) in subparagraph (P), by striking the period
 9 at the end and inserting a semicolon; and

10 (3) by adding at the end the following:

11 “(Q) security of election-dedicated voting
 12 system software and hardware; and

13 “(R) role of the human factor in cyberse-
 14 curity and the interplay of computers and hu-
 15 mans and the physical world.”

16 ~~(b) NIST CYBERSECURITY PRIORITIES.—~~

17 ~~(1) CRITICAL INFRASTRUCTURE AWARENESS.—~~

18 The Director of NIST, in coordination with the Sec-
 19 retary of Homeland Security, shall continue to raise
 20 public awareness of the voluntary, industry-led cy-
 21 bersecurity standards and best practices for critical
 22 infrastructure developed under section 2(e)(15) of
 23 the National Institute of Standards and Technology
 24 Act (15 U.S.C. 272(e)(15)).

25 ~~(2) QUANTUM COMPUTING.—~~Under section 2(b)
 26 of the National Institute of Standards and Tech-

1 nology Act (~~15 U.S.C. 272(b)~~) and section 20 of
 2 that Act (~~15 U.S.C. 278g-3~~), the Director of NIST
 3 shall—

4 (A) research information systems for fu-
 5 ture cybersecurity needs; and

6 (B) coordinate with relevant stakeholders
 7 to develop a process—

8 (i) to research and identify or, if nec-
 9 essary, develop cryptography standards
 10 and guidelines for future cybersecurity
 11 needs, including quantum-resistant cryp-
 12 tography standards; and

13 (ii) to provide recommendations to
 14 Congress, Federal agencies, and industry
 15 for a secure and smooth transition to the
 16 standards under clause (i).

17 (3) VOTING.—Section 2(e) of the National In-
 18 stitute of Standards and Technology Act (~~15 U.S.C.~~
 19 ~~272(c)~~) is amended—

20 (A) by redesignating paragraphs (~~16~~)
 21 through (~~23~~) as paragraphs (~~17~~) through (~~24~~),
 22 respectively; and

23 (B) by inserting after paragraph (~~15~~) the
 24 following:

1 “(16) perform research to support the develop-
 2 ment of voluntary, consensus-based, industry-led
 3 standards and recommendations on the security of
 4 computers, computer networks, and computer data
 5 storage used in voting systems to ensure voters can
 6 vote securely and privately.”.

7 **SEC. 105. NETWORKING AND INFORMATION TECHNOLOGY**
 8 **RESEARCH AND DEVELOPMENT UPDATE.**

9 (a) NETWORKING AND INFORMATION TECHNOLOGY
 10 RESEARCH AND DEVELOPMENT.—Section 101(a)(1) of
 11 the High-Performance Computing Act of 1991 (15 U.S.C.
 12 ~~5511(a)(1)~~) is amended—

13 (1) in the matter preceding subparagraph (A),
 14 by inserting “IN GENERAL.—” before “The Presi-
 15 dent”;

16 (2) in subparagraph (H), by striking “and” at
 17 the end;

18 (3) in subparagraph (I), by striking the period
 19 at the end and inserting a semicolon; and

20 (4) by adding at the end the following:

21 “(J) provide for research on the interplay
 22 of computing and people, including social com-
 23 puting and human-robot interaction;

24 “(K) provide for research on cyber-physical
 25 systems and improving the methods available

1 for the design, development, and operation of
 2 those systems that are characterized by high re-
 3 liability, safety, and security;

4 “(L) provide for the understanding of the
 5 science, engineering, policy, and privacy protec-
 6 tion related to networking and information
 7 technology;

8 “(M) provide for the understanding of the
 9 human facets of cyber threats and secure cyber
 10 systems;

11 “(N) provide for the transition of high-per-
 12 formance computing in hardware, system soft-
 13 ware, development tools, and applications into
 14 development and operations; and

15 “(O) foster public-private collaboration
 16 with government, industry research labora-
 17 tories, academia, and nonprofit organizations to
 18 maximize research and development efforts and
 19 the benefits of networking and information
 20 technology, including high-performance com-
 21 puting.”.

22 (b) REVIEW AND PLAN.—Section 101 of the High-
 23 Performance Computing Act of 1991 (15 U.S.C. 5511)
 24 is amended by adding at the end the following:

1 “(d) PERIODIC REVIEWS.—The heads of the applica-
 2 ble agencies and departments working through the Na-
 3 tional Science and Technology Council and the Net-
 4 working and Information Technology Research and Devel-
 5 opment Program shall—

6 “(1) not later than 1 year after the date the ad-
 7 visory committee submits a report under subsection
 8 (b)(2), assess the structure of the Program, includ-
 9 ing the Program Component Areas and associated
 10 contents and funding levels, taking into consider-
 11 ation any relevant recommendations of the advisory
 12 committee; and

13 “(2) ensure that the Program includes
 14 foundational and interdisciplinary information tech-
 15 nology research and development activities.

16 “(e) STRATEGIC PLANS.—

17 “(1) IN GENERAL.—The heads of the applicable
 18 agencies and departments, working through the Na-
 19 tional Science and Technology Council and the Net-
 20 working and Information Technology Research and
 21 Development Program shall develop and implement
 22 strategic plans to guide emerging activities in spe-
 23 cific Program Component Areas, as the advisory
 24 committee determines relevant under subsection (b),
 25 of Federal networking and information technology

1 research and development, and to guide the activities
2 described in subsection (a)(1).

3 “(2) UPDATES.—The heads of the applicable
4 agencies and departments shall update the strategic
5 plans as appropriate.

6 “(3) CONTENTS.—Each strategic plan shall—

7 “(A) specify near-term and long-term ob-
8 jectives for the Program, the anticipated sched-
9 ule for achieving the near-term and long-term
10 objectives, and the metrics to be used for as-
11 sessing progress toward the near-term and
12 long-term objectives;

13 “(B) specify how the near-term and long-
14 term objectives complement research and devel-
15 opment areas in which academia and the pri-
16 vate sector is actively engaged;

17 “(C) describe how the heads of the applica-
18 ble agencies and departments will support
19 mechanisms for foundational and interdiscipli-
20 nary research and development in networking
21 and information technology, including through
22 collaborations—

23 “(i) across Federal agencies and de-
24 partments;

1 “(ii) across Program Component
2 Areas; and

3 “(iii) with industry, Federal and pri-
4 vate research laboratories, research enti-
5 ties, universities, institutions of higher
6 education, relevant nonprofit organizations,
7 and international partners of the United
8 States;

9 “(D) describe how the heads of the appli-
10 cable agencies and departments will foster the
11 rapid transfer of research and development re-
12 sults into new technologies and applications;

13 “(E) describe how the Program will ad-
14 dress long-term challenges for which solutions
15 require large-scale, long-term, foundational and
16 interdisciplinary research and development; and

17 “(F) place emphasis on innovative and
18 high-risk projects having the potential for sub-
19 stantial societal returns on the research invest-
20 ment.

21 “(4) PRIVATE SECTOR EFFORTS.—In devel-
22 oping, implementing, and updating strategic plans;
23 the heads of the applicable agencies and depart-
24 ments, working through the National Science and
25 Technology Council and Networking and Informa-

1 tion Technology Research and Development Pro-
 2 gram, shall coordinate with industry, academia, and
 3 other interested stakeholders to ensure, to the extent
 4 practicable, that the Federal networking and infor-
 5 mation technology research and development activi-
 6 ties carried out under this section do not duplicate
 7 the efforts of the private sector.

8 “(5) RECOMMENDATIONS.—In developing and
 9 updating strategic plans, the heads of the applicable
 10 agencies and departments shall solicit recommenda-
 11 tions and advice from—

12 “(A) the advisory committee under sub-
 13 section (b); and

14 “(B) a wide range of stakeholders, includ-
 15 ing industry, academia, including representa-
 16 tives of minority serving institutions and com-
 17 munity colleges, National Laboratories, and
 18 other relevant organizations and institutions.

19 “(f) REPORTS.—The heads of the applicable agencies
 20 and departments, working through the National Science
 21 and Technology Council and the Networking and Informa-
 22 tion Technology Research and Development Program,
 23 shall submit to the advisory committee, the Committee on
 24 Commerce, Science, and Transportation of the Senate,

1 and the Committee on Science, Space, and Technology of
2 the House of Representatives—

3 “(1) the strategic plans developed under sub-
4 section (e)(1); and

5 “(2) each update under subsection (e)(2).

6 “(g) DEFINITION OF APPLICABLE AGENCIES AND
7 DEPARTMENTS.—In this section, the term ‘applicable
8 agencies and departments’ means the Federal agencies
9 and departments identified in subsection (a)(3)(B) or des-
10 ignated under clause (xii) of that subsection.”

11 (e) RESEARCH COORDINATION.—Section 101(a)(2)
12 of the High-Performance Computing Act of 1991 (15
13 U.S.C. 5511(a)(2)) is amended—

14 (1) in the matter preceding subparagraph (A),
15 by inserting “REQUIREMENTS.—” before “The Di-
16 rector”; and

17 (2) by amending subparagraph (C) to read as
18 follows:

19 “(C) provide for the coordination of Fed-
20 eral networking and information technology re-
21 search, development, networking, and other ac-
22 tivities—

23 “(i) among the applicable agencies
24 and departments under the Program; and

1 “(ii) to the extent practicable, with
 2 other Federal agencies not identified in
 3 subsection (a)(3)(B); other Federal and
 4 private research laboratories; industry; re-
 5 search entities; universities; institutions of
 6 higher education; relevant nonprofit orga-
 7 nizations; and international partners of the
 8 United States;”.

9 (d) ~~BUDGET.~~—Section 101(a)(3) of the High-Per-
 10 formance Computing Act of 1991 (15 U.S.C. 5511(a)(3))
 11 is amended—

12 (1) in the matter preceding subparagraph (A);
 13 by inserting “CONTENTS OF ANNUAL REPORTS.—”;
 14 (2) in subparagraph (B), by striking clauses (i)
 15 through (xi) and inserting the following—

16 “(i) the Department of Commerce;
 17 “(ii) the Department of Defense;
 18 “(iii) the Department of Education;
 19 “(iv) the Department of Energy;
 20 “(v) the Department of Health and
 21 Human Services;
 22 “(vi) the Department of Homeland
 23 Security;
 24 “(vii) the Department of Justice;

1 ~~“(viii) the Environmental Protection~~
 2 ~~Agency;~~

3 ~~“(ix) the National Aeronautics and~~
 4 ~~Space Administration;~~

5 ~~“(x) the National Archives and~~
 6 ~~Records Administration;~~

7 ~~“(xi) the National Science Founda-~~
 8 ~~tion; and~~

9 ~~“(xii) such other agencies and depart-~~
 10 ~~ments as the President or the Director~~
 11 ~~considers appropriate;”;~~

12 ~~(3) in subparagraph (C), by striking “is sub-~~
 13 ~~mitted,” and inserting “is submitted, the levels for~~
 14 ~~the previous fiscal year,”;~~

15 ~~(4) in subparagraph (D)—~~

16 ~~(A) by striking “is submitted,” and insert-~~
 17 ~~ing “is submitted, the levels for the previous~~
 18 ~~fiscal year,”; and~~

19 ~~(B) by striking “and” after the semicolon;~~

20 ~~(5) by redesignating subparagraph (E) as sub-~~
 21 ~~paragraph (F); and~~

22 ~~(6) by inserting after subparagraph (D) the fol-~~
 23 ~~lowing:~~

24 ~~“(E) include a description of how the ob-~~
 25 ~~jectives for each Program Component Area, and~~

1 the objectives for activities that involve multiple
 2 Program Component Areas, relate to the objec-
 3 tives of the Program identified in the strategic
 4 plan under subsection (c).”

5 (e) CONFORMING AMENDMENTS TO HIGH-PERFORM-
 6 ANCE COMPUTING ACT OF 1991.—The High-Performance
 7 Computing Act of 1991 (15 U.S.C. 5501 et seq.) is
 8 amended—

9 (1) in section 2 (15 U.S.C. 5501)—

10 (A) in paragraphs (2) and (5), by striking
 11 “high-performance computing” and inserting
 12 “networking and information technology, in-
 13 cluding high-performance computing,”; and

14 (B) in paragraph (3), by striking “high-
 15 performance computing” and inserting “net-
 16 working and information technology, including
 17 high-performance computing”;

18 (2) in section 3 (15 U.S.C. 5502)—

19 (A) in the matter preceding paragraph (1)
 20 and paragraph (1), by striking “high-perform-
 21 ance computing” and inserting “networking and
 22 information technology” each place it appears;
 23 and

24 (B) in paragraph (2)—

1 (i) by striking “high-performance
2 computing and” and inserting “networking
3 and information technology and”; and

4 (ii) by striking “high-performance
5 computing network” and inserting “net-
6 working and information technology”;

7 ~~(3)~~ in section 4 (15 U.S.C. 5503)—

8 (A) in paragraphs ~~(2)~~ and ~~(3)~~, by striking
9 “high-performance computing” and inserting
10 “networking and information technology”;

11 (B) in paragraph ~~(6)~~, by striking “Na-
12 tional High-Performance Computing” and in-
13 serting “Networking and Information Tech-
14 nology Research and Development”; and

15 (C) by redesignating paragraphs ~~(3)~~, ~~(4)~~,
16 ~~(5)~~, ~~(6)~~, and ~~(7)~~ as paragraphs ~~(5)~~, ~~(3)~~, ~~(4)~~,
17 ~~(6)~~, and ~~(7)~~, respectively;

18 ~~(4)~~ in section 101 (15 U.S.C. 5511)—

19 (A) in the heading, by striking “**NA-**
20 **TIONAL HIGH-PERFORMANCE COM-**
21 **PUTING**” and inserting “**NETWORKING AND**
22 **INFORMATION TECHNOLOGY RESEARCH**
23 **AND DEVELOPMENT**”;

24 (B) in subsection (a)—

(i) in the heading, by striking “NATIONAL HIGH-PERFORMANCE COMPUTING” and inserting “NETWORKING AND INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT”;

(ii) in paragraph (1)—

(I) in the matter preceding subparagraph (A), by striking “National High-Performance Computing” and inserting “Networking and Information Technology Research and Development”;

(II) in subparagraph (A), by striking “high-performance computing, including networking” and inserting “networking and information technology”;

(III) in subparagraphs (B) and (C), by striking “high-performance computing” and inserting “high-end computing, including high-performance computing,”; and

(IV) in subparagraph (G), by striking “high-performance computing” and inserting “networking

1 and information technology, including
 2 high-performance computing,”; and
 3 (iii) in paragraph (2)—

4 (I) in subparagraph (A), by strik-
 5 ing “high-performance computing re-
 6 search, development, networking” and
 7 inserting “networking and information
 8 technology research and develop-
 9 ment”;

10 (II) in subparagraph (E), by
 11 striking “high-performance computing
 12 and networking systems” and insert-
 13 ing “high-end computing and net-
 14 working systems”; and

15 (III) in subparagraph (F), by
 16 striking “high-performance com-
 17 puting” and inserting “high-end, in-
 18 cluding high-performance computing”;

19 (C) in subsection (b)(1), in the matter pre-
 20 ceeding subparagraph (A), by striking “high-per-
 21 formance computing” each place it appears and
 22 inserting “networking and information tech-
 23 nology”;

24 (D) in subsection (b)(2), by striking “Com-
 25 mittee on Science and Technology” and insert-

1 ing “Committee on Science, Space, and Tech-
2 nology”; and

3 ~~(E)~~ in subsection (c)(1)(A), by striking
4 “high-performance computing” and inserting
5 “networking and information technology”;

6 ~~(5)~~ in section 201(a) (15 U.S.C. 5521(a)), by
7 striking “high-performance computing and advanced
8 high-speed computer networking” and inserting
9 “networking and information technology”;

10 ~~(6)~~ in section 202(a) (15 U.S.C. 5522(a)), by
11 striking “high-performance computing” and insert-
12 ing “networking and information technology”;

13 ~~(7)~~ in section 203 (15 U.S.C. 5523(a))—

14 ~~(A)~~ by striking “high-performance com-
15 puting and networking” and inserting “net-
16 working and information technology”; and

17 ~~(B)~~ by striking “high-performance com-
18 puting systems” and inserting “high-end, in-
19 cluding high-performance computing systems”;

20 ~~(8)~~ in section 204 (15 U.S.C. 5524)—

21 ~~(A)~~ in subsection (a)(1)—

22 ~~(i)~~ in subparagraph (A), by striking
23 “high-performance computing systems and
24 networks” and inserting “networking and
25 information technology systems”;

(ii) in subparagraph (B), by striking “high-performance computing systems in networks” and inserting “networking and information technology systems”; and

(iii) in subparagraph (C), by striking “high-performance computing systems” and inserting “networking and information technology”; and

(B) in subsection (b)—

(i) in the heading, by striking “HIGH-PERFORMANCE COMPUTING AND NETWORK” and inserting “NETWORK AND INFORMATION TECHNOLOGY SECURITY”; and

(ii) by striking “sensitive information in Federal computer systems” and inserting “agency information and information systems”; and

(9) in section 207 (15 U.S.C. 5527)—

(A) in subsection (a)(2), by striking “section 2315(a) of title 10” and inserting “section 3552(b)(6)(A) of title 44”; and

(B) in subsection (b), by striking “high-performance computing systems” and inserting “networking and information technology”.

1 (f) ADDITIONAL TECHNICAL AND CONFORMING
2 AMENDMENTS.—

3 (1) NATIONAL NETWORKING AND INFORMATION
4 TECHNOLOGY PROGRAM.—Section 101 of the High-
5 Performance Computing Act of 1991 (15 U.S.C.
6 5511), as amended, is further amended—

7 (A) in subsection (b)—

8 (i) in paragraph (1), by inserting
9 “ADVISORY COMMITTEE.—” before “The
10 President shall”;

11 (ii) in paragraph (2), by inserting
12 “ADDITIONAL DUTIES.—” before “In addi-
13 tion to”; and

14 (iii) in paragraph (3), by inserting
15 “FACA.—” before “Section 14”; and

16 (B) in subsection (c)—

17 (i) in paragraph (1), by inserting
18 “REPORTS.—” before “Each Federal”;
19 and

20 (ii) in paragraph (2), by inserting
21 “OMB REVIEW.—” before “The Office”.

22 (2) MISCELLANEOUS.—

23 (A) NATIONAL SCIENCE FOUNDATION RE-
24 SEARCH.—Section 4(b)(5)(K) of the Cyber Se-
25 curity Research and Development Act (15

U.S.C. 7403(b)(5)(K)) is amended by striking “high-performance computing” and inserting “networking and information technology”.

(B) NATIONAL INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.—Section 13202(b) of the American Recovery and Reinvestment Act of 2009 (42 U.S.C. 17912(b)) is amended by striking “National High-Performance Computing Program” and inserting “Networking and Information Technology Research and Development Program”.

(C) FEDERAL CYBERSECURITY RESEARCH AND DEVELOPMENT.—Section 201(a)(4) of the Cybersecurity Enhancement Act of 2014 (15 U.S.C. 7431(a)(4)) is amended by striking “clauses (i) through (x) of section 101(a)(3)(B) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(3)(B)) or designated under clause (xi) of that section” and inserting “clauses (i) through (xi) of section 101(a)(3)(B) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(3)(B)) or designated under clause (xii) of that section”.

1 (D) NATIONAL RESEARCH AND EDUCATION
2 NETWORK.—Section 102 of the High-Perform-
3 ance Computing Act of 1991 (15 U.S.C. 5512)
4 is repealed.

5 (E) NEXT GENERATION INTERNET.—Sec-
6 tion 103 of the High-Performance Computing
7 Act of 1991 (15 U.S.C. 5513) is repealed.

8 (F) FOSTERING UNITED STATES COMPETI-
9 TIVENESS IN HIGH-PERFORMANCE COMPUTING
10 AND RELATED ACTIVITIES.—Section 208 of the
11 High-Performance Computing Act of 1991 (15
12 U.S.C. 5528) is repealed.

13 **SEC. 106. HIGH-ENERGY PHYSICS COORDINATION.**

14 (a) IN GENERAL.—The Physical Science Sub-
15 committee of the National Science and Technology Council
16 shall define and continue to coordinate Federal efforts, in-
17 cluding activities of relevant advisory committees, related
18 to high-energy physics research to maximize the efficiency
19 and effectiveness of United States investment in high-en-
20 ergy physics.

21 (b) PURPOSES.—The purposes of the Physical
22 Science Subcommittee include—

23 (1) to advise and assist the Committee on
24 Science and the National Science and Technology
25 Council on United States policies, procedures, and

1 plans in the physical sciences, including high-energy
2 physics; and

3 ~~(2) to identify emerging opportunities, stimu-~~
4 ~~late international cooperation, and foster the devel-~~
5 ~~opment of the physical sciences in the United States,~~
6 ~~including—~~

7 ~~(A) in high-energy physics research, in-~~
8 ~~cluding underground science and engineering~~
9 ~~research;~~

10 ~~(B) in physical infrastructure and facili-~~
11 ~~ties;~~

12 ~~(C) in information and analysis; and~~

13 ~~(D) in coordination activities.~~

14 ~~(e) RESPONSIBILITIES.—In regard to coordinating~~
15 ~~Federal efforts related to high-energy physics research,~~
16 ~~the Physical Science Subcommittee shall—~~

17 ~~(1) provide recommendations on planning for~~
18 ~~construction and stewardship of large facilities par-~~
19 ~~ticipating in high-energy physics;~~

20 ~~(2) provide recommendations on research co-~~
21 ~~ordination and collaboration among the programs~~
22 ~~and activities of Federal agencies;~~

23 ~~(3) establish goals and priorities for high-en-~~
24 ~~ergy physics, underground science, and research and~~

1 development that will strengthen United States com-
 2 petitiveness in high-energy physics;

3 (4) propose methods for engagement with inter-
 4 national, Federal, and State agencies and Federal
 5 laboratories not represented on the National Science
 6 and Technology Council to identify and reduce regu-
 7 latory, logistical, and fiscal barriers that inhibit
 8 United States leadership in high-energy physics and
 9 related underground science; and

10 (5) develop, and update as necessary, a stra-
 11 tegic plan to guide Federal programs and activities
 12 in support of high-energy physics research, includ-
 13 ing—

14 (A) the efforts taken in support of sub-
 15 section (b) since the last strategic plan;

16 (B) an evaluation of the current research
 17 needs for maintaining United States leadership
 18 in high-energy physics; and

19 (C) an identification of future priorities in
 20 the area of high-energy physics.

21 **SEC. 107. LABORATORY PROGRAM IMPROVEMENTS.**

22 (a) IN GENERAL.—The Director of NIST, acting
 23 through the Associate Director for Laboratory Programs,
 24 shall develop and implement a comprehensive strategic
 25 plan for laboratory programs that expands—

1 (1) interactions with academia, international re-
2 searchers, and industry; and

3 ~~(2) commercial and industrial applications.~~

4 (b) ~~OPTIMIZING COMMERCIAL AND INDUSTRIAL AP-~~
5 ~~PLICATIONS.~~—In accordance with the purpose under sec-
6 tion ~~1(b)(3)~~ of the National Institute of Standards and
7 Technology Act (~~15 U.S.C. 271(b)(3)~~), the comprehensive
8 strategic plan shall—

9 ~~(1) include performance metrics for the dissemi-~~
10 ~~nation of fundamental research results, measure-~~
11 ~~ments, and standards research results to industry,~~
12 ~~including manufacturing, and other interested parties;~~
13 ~~ties;~~

14 ~~(2) document any positive benefits of research~~
15 ~~on the competitiveness of the parties described in~~
16 ~~paragraph (1); and~~

17 ~~(3) clarify the current approach to the tech-~~
18 ~~nology transfer activities of NIST.~~

19 **SEC. 108. INTERNATIONAL ACTIVITIES.**

20 Section ~~17(a)~~ of the National Institute of Standards
21 and Technology Act (~~15 U.S.C. 278g(a)~~) is amended to
22 read as follows:

23 “(a) ~~FINANCIAL ASSISTANCE TO FOREIGN NATION-~~
24 ~~ALS.~~—The Secretary is authorized, notwithstanding any
25 other provision of law, to expend such sums, within the

1 limit of appropriated funds, through direct support for ac-
 2 tivities of international organizations and foreign national
 3 metrology institutes with which the Institute cooperates
 4 to advance measurement methods, standards, and related
 5 basic technologies and, as the Secretary may deem desir-
 6 able, through the grant of fellowships or any other form
 7 of financial assistance, to defray the expenses of foreign
 8 nationals not in service to the Government of the United
 9 States while they are performing scientific or engineering
 10 work at the Institute or participating in the exchange of
 11 scientific or technical information at the Institute.”.

12 **SEC. 109. STANDARD REFERENCE DATA ACT UPDATE.**

13 Section 2 of the Standard Reference Data Act (15
 14 U.S.C. 290a) is amended to read as follows:

15 **“SEC. 2. DEFINITIONS.**

16 “For the purposes of this Act:

17 “(1) STANDARD REFERENCE DATA.—The term
 18 ‘standard reference data’ means data that is—

19 “(A) either—

20 “(i) quantitative information related
 21 to a measurable physical or chemical prop-
 22 erty of a substance or system of substances
 23 of known composition and structure;

24 “(ii) measurable characteristics of a
 25 physical artifact or artifacts;

1 “(iii) engineering properties or per-
2 formance characteristics of a system; or

3 “(iv) one or more digital data objects
4 that serve—

5 “(I) to calibrate or characterize
6 the performance of a detection or
7 measurement system; or

8 “(II) to interpolate or extrapo-
9 late, or both, data described in sub-
10 paragraphs (A) through (C); and

11 “(B) that is critically evaluated as to its
12 reliability under section 3 of this Act.

13 “(2) SECRETARY.—The term ‘Secretary’ means
14 the Secretary of Commerce.”.

15 **SEC. 110. NSF MID-SCALE PROJECT INVESTMENTS.**

16 (a) FINDINGS.—Congress makes the following find-
17 ings:

18 (1) The Foundation funds major research facili-
19 ties, infrastructure, and instrumentation that pro-
20 vide unique capabilities at the frontiers of science
21 and engineering.

22 (2) Modern and effective research infrastruc-
23 ture is critical to maintaining United States leader-
24 ship in science and engineering.

1 (3) Many proposed instruments, equipment, or
 2 upgrades to major research facilities fall between
 3 programs currently funded by the Foundation, cre-
 4 ating a gap between Major Research Instrumenta-
 5 tion and Major Research Equipment and Facilities
 6 Construction, including projects that have been iden-
 7 tified as cost-effective additions of high priority to
 8 the advancement of scientific understanding.

9 (4) The 2010 Astronomy and Astrophysics
 10 Decadal Survey recommended a vigorous mid-scale
 11 innovations program.

12 (b) SENSE OF CONGRESS.—It is the sense of Con-
 13 gress that the addition of a competitive mid-scale funding
 14 opportunity that includes both research, instrument, and
 15 infrastructure is essential to the portfolio of the Founda-
 16 tion and advancing scientific understanding.

17 (c) MID-SCALE PROJECTS.—

18 (1) IN GENERAL.—The Foundation shall evalu-
 19 ate the existing and future needs, across all dis-
 20 ciplines supported by the Foundation, for mid-scale
 21 projects.

22 (2) STRATEGY.—The Director of the Founda-
 23 tion shall develop a strategy to meet the needs iden-
 24 tified in paragraph (1).

1 (3) BRIEFING.—Not later than 180 days after
 2 the date of enactment of this Act, the Director of
 3 the Foundation shall provide a briefing to the appro-
 4 priate committees of Congress on the evaluation
 5 under paragraph (1) and the strategy under para-
 6 graph (2).

7 (4) DEFINITION OF MID-SCALE PROJECTS.—In
 8 this subsection, the term “mid-scale projects” means
 9 research, instrumentation, and infrastructure invest-
 10 ments that fall between the instrumentation funded
 11 by the major research instrumentation program and
 12 the very large projects funded by the major research
 13 equipment and facilities construction program as de-
 14 scribed in section 507 of the AMERICA Competes
 15 Reauthorization Act of 2010 (Public Law 111–358;
 16 124 Stat. 4008).

17 **SEC. 111. OVERSIGHT OF NSF LARGE-SCALE RESEARCH FA-**
 18 **CILITY PROJECTS.**

19 (a) FACILITIES OVERSIGHT.—

20 (1) IN GENERAL.—The Director of the Founda-
 21 tion shall strengthen oversight and accountability
 22 over the full life-cycle of large-scale research facility
 23 projects, including planning, development, procure-
 24 ment, construction, operations, and support, and

1 shut-down of such facilities, in order to maximize re-
2 search investment.

3 (2) ~~REQUIREMENTS.~~—In carrying out para-
4 graph (1), the Director shall—

5 (A) prioritize the scientific outcomes of
6 large-scale research facility projects and the in-
7 ternal management and financial oversight of
8 the projects;

9 (B) clarify the roles and responsibilities of
10 all organizations, including offices, panels, com-
11 mittees, and directorates, involved in supporting
12 large-scale research facility projects, including
13 the role of the Major Research Equipment and
14 Facilities Construction Panel;

15 (C) establish policies and procedures for
16 the planning, management, and oversight of
17 large-scale research facility projects at each
18 phase of the life-cycle of the project;

19 (D) ensure that policies for estimating and
20 managing costs and schedules are consistent
21 with the best practices described in the Govern-
22 ment Accountability Office Cost Estimating and
23 Assessment Guide, the Government Account-
24 ability Office Schedule Assessment Guide, and

the Office of Management and Budget Uniform
Guidance (2 C.F.R. Part 200);

(E) establish the appropriate project management and financial management expertise required for Foundation staff to oversee large-scale research facility projects effectively, including by improving project management training and certification; and

(F) coordinate the sharing of the best management practices and lessons learned from large-scale research facility projects.

(b) ~~FACILITIES FULL LIFE-CYCLE COSTS.—~~

(1) ~~IN GENERAL.—~~Subject to subsection (c)(1), the Director of the Foundation shall require that any pre-award analysis of a large-scale research facility includes the development and consideration of the full life-cycle cost (as defined in section 2 of the National Science Foundation Authorization Act of 1998 (42 U.S.C. 1862k note)) in accordance with section 14 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–4).

(2) ~~CRITERIA.—~~Section 14(a)(3)(D) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–4(a)(3)(D)) is amended to read as follows:

1 “(D) readiness of plans for construction
 2 and operation, including confidence in the esti-
 3 mates of the full life-cycle cost (as defined in
 4 section 2 of the National Science Foundation
 5 Authorization Act of 1998 (42 U.S.C. 1862k
 6 note)) and the proposed schedule of comple-
 7 tion;”.

8 (3) IMPLEMENTATION.—Based on the pre-
 9 award analysis described in paragraph (1), the Di-
 10 rector shall include projected operational costs with-
 11 in the Foundation’s out years as part of the Presi-
 12 dent’s yearly budget submissions to Congress.

13 (e) COST OVERSIGHT.—

14 (1) PRE-AWARD ANALYSIS.—

15 (A) IN GENERAL.—The Director of the
 16 Foundation and the National Science Board
 17 may not approve any proposed large-scale re-
 18 search facility project unless—

19 (i) an analysis of the proposed budget
 20 has been conducted to ensure the proposal
 21 is complete and reasonable;

22 (ii) the analysis under clause (i) fol-
 23 lows the Government Accountability Office
 24 Cost Estimating and Assessment Guide;

1 (iii) except as provided under sub-
2 paragraph (C), an analysis of the account-
3 ing systems has been conducted;

4 (iv) an independent cost estimate of
5 the construction of the project has been
6 conducted using the same detailed tech-
7 nical information as the project proposal
8 estimate to determine whether the estimate
9 is well-supported and realistic; and

10 (v) the Foundation and the National
11 Science Board has considered the analyses
12 under clauses (i) and (iii) and the inde-
13 pendent cost estimate under clause (iv)
14 and resolved any major issues identified
15 therein.

16 (B) AUDITS.—A Foundation analysis
17 under subparagraph (A)(i) may include an
18 audit.

19 (C) EXCEPTION.—The Director, at the Di-
20 rector's discretion, may waive the requirement
21 under subparagraph (A)(iii) if a similar analysis
22 of the accounting systems was conducted in the
23 prior years.

1 ~~(2) CONSTRUCTION OVERSIGHT.~~—The Director
 2 shall require for each large-scale research facility
 3 project—

4 ~~(A)~~ periodic external reviews on project
 5 management and performance;

6 ~~(B)~~ adequate internal controls, policies,
 7 and procedures, and reliable accounting systems
 8 in preparation for the incurred cost audits
 9 under subparagraph ~~(D)~~;

10 ~~(C)~~ annual incurred cost submissions of fi-
 11 nancial expenditures; and

12 ~~(D)~~ an incurred cost audit of the project—

13 ~~(i)~~ at least once during construction
 14 at a time determined based on risk anal-
 15 ysis and length of the award, except that
 16 the length of time between audits may not
 17 exceed 3 years; and

18 ~~(ii)~~ at the completion of the construc-
 19 tion phase.

20 ~~(3) OPERATIONS COST ESTIMATE.~~—The Direc-
 21 tor shall require an independent cost estimate of the
 22 operational proposal for each large-scale research fa-
 23 cility project.

24 ~~(d) CONTINGENCY.~~—

1 (1) IN GENERAL.—The Foundation shall
2 strengthen internal controls to improve oversight of
3 contingency on a large-scale research facility project.

4 (2) REQUIREMENTS.—In carrying out para-
5 graph (1), not later than 180 days after the date of
6 enactment of this Act, the Foundation shall—

7 (A) retain control over a portion of the
8 budget contingency funds of each awardee;

9 (B) distribute the retained funds with
10 other incremental funds as needed; and

11 (C) track contingency use.

12 (c) OVERSIGHT IMPLEMENTATION PROGRESS.—The
13 Director of the Foundation shall—

14 (1) not later than 90 days after the date of en-
15 actment of this Act, and periodically thereafter until
16 the completion date, provide a briefing to the appro-
17 priate committees of Congress on the response to or
18 progress made toward implementation of—

19 (A) this section;

20 (B) all of the issues and recommendations
21 identified in cooperative agreement audit re-
22 ports and memoranda issued by the Inspector
23 General of the National Science Foundation in
24 the last 5 years; and

1 (C) all of the issues and recommendations
 2 identified by a panel of the National Academy
 3 of Public Administration in the December 2015
 4 report entitled “National Science Foundation:
 5 Use of Cooperative Agreements to Support
 6 Large Scale Investment in Research”; and

7 (2) not later than 1 year after the date of en-
 8 actment of this Act, notify the appropriate commit-
 9 tees of Congress when the Foundation has imple-
 10 mented the recommendations identified in a panel of
 11 the National Academy of Public Administration re-
 12 port issued December 2015.

13 (f) DEFINITIONS.—In this section:

14 (1) APPROPRIATE COMMITTEES OF CON-
 15 GRESS.—The term “appropriate committees of Con-
 16 gress” means the Committee on Commerce, Science,
 17 and Transportation and the Committee on Appro-
 18 priations of the Senate and the Committee on
 19 Science, Space, and Technology and the Committee
 20 on Appropriations of the House of Representatives.

21 (2) LARGE-SCALE RESEARCH FACILITY
 22 PROJECT.—The term “large-scale research facility
 23 project” means a science and engineering facility
 24 project funded by the major research equipment and

1 facilities construction account, or any successor
2 thereto.

3 **SEC. 112. CONFLICTS OF INTEREST.**

4 The Director of the Foundation shall update the pol-
5 icy and procedure of the Foundation relating to conflicts
6 of interest to improve documentation and management of
7 any known conflict of interest of an individual on tem-
8 porary assignment at the Foundation, including an indi-
9 vidual on assignment under the Intergovernmental Per-
10 sonnel Act of 1970 (42 U.S.C. 4701 et seq.).

11 **SEC. 113. MANAGEMENT OF THE NSF ANTARCTIC PRO-**
12 **GRAM.**

13 (a) REVIEW.—

14 (1) IN GENERAL.—The Director of the Founda-
15 tion shall continue to review the efforts by the Foun-
16 dation to sustain and strengthen scientific efforts in
17 the face of logistical challenges for the United States
18 Antarctic Program.

19 (2) ISSUES TO BE EXAMINED.—In conducting
20 the review, the Director shall examine, at a min-
21 imum, the following:

22 (A) Implementation by the Foundation of
23 issues and recommendations identified by—

24 (i) the Inspector General of the Na-
25 tional Science Foundation in audit reports

1 and memoranda on the United States Ant-
2 arctic Program in the last 4 years;

3 (ii) the U.S. Antarctic Program Blue
4 Ribbon Panel report, More and Better
5 Science in Antarctica through Increased
6 Logistical Effectiveness, issued July 23,
7 2012; and

8 (iii) the National Research Council re-
9 port, Future Science Opportunities in Ant-
10 arctica and the Southern Ocean, issued
11 September 2011.

12 (B) Efforts by the Foundation to track its
13 progress in addressing the issues and rec-
14 ommendations under subparagraph (A).

15 (C) Efforts by the Foundation to address
16 other opportunities and challenges, including ef-
17 forts on scientific research, coordination with
18 other Federal agencies and international part-
19 ners, logistics and transportation, health and
20 safety of participants, oversight and financial
21 management of awardees and contractors, and
22 resources and policy challenges.

23 (b) BRIEFING.—Not later than 180 days after the
24 date of enactment of this Act, the Director shall brief the

1 appropriate committees of Congress on the ongoing re-
 2 view, including findings and any recommendations.

3 **SEC. 114. NIST CAMPUS SECURITY.**

4 (a) **SUPERVISORY AUTHORITY.**—Consistent with the
 5 enforcement authority delegated by the Secretary of
 6 Homeland Security under section 1315 of title 40, United
 7 States Code, the Department of Commerce Office of Secu-
 8 rity shall directly manage the law enforcement and secu-
 9 rity programs of NIST through an assigned Director of
 10 Security for NIST.

11 (b) **REPORTS.**—The Director of Security for NIST
 12 shall provide an activities and security report on a quar-
 13 terly basis for the first year after the date of enactment
 14 of this Act, and on an annual basis thereafter, to the
 15 Under Secretary for Standards and Technology.

16 **TITLE H—ADMINISTRATIVE AND**
 17 **REGULATORY BURDEN RE-**
 18 **DUCTION**

19 **SEC. 201. INTERAGENCY WORKING GROUP ON RESEARCH**
 20 **REGULATION.**

21 (a) **FINDINGS.**—Congress makes the following find-
 22 ings:

23 (1) Scientific and technological advancement
 24 have been the largest drivers of economic growth in

1 the last 50 years, with the Federal Government
2 being the largest investor in basic research.

3 ~~(2) Federally funded grants are increasingly~~
4 ~~competitive, with the Foundation funding only ap-~~
5 ~~proximately 1 in every 5 grant proposals.~~

6 ~~(3) Researchers spend as much as 42 percent~~
7 ~~of their time complying with Federal regulations, in-~~
8 ~~cluding administrative tasks such as applying for~~
9 ~~grants or meeting reporting requirements.~~

10 ~~(4) The time spent on the activities described in~~
11 ~~paragraph (3) affects efficiency and reduces valuable~~
12 ~~research time.~~

13 ~~(b) SENSE OF CONGRESS.—It is the sense of Con-~~
14 ~~gress that administrative burdens faced by researchers~~
15 ~~may be reducing the return on investment of federally~~
16 ~~funded research and development.~~

17 ~~(c) ESTABLISHMENT.—The Director of the Office of~~
18 ~~Management and Budget, in coordination with the Office~~
19 ~~of Science and Technology Policy, shall establish an inter-~~
20 ~~agency working group (referred to in this section as the~~
21 ~~“Working Group”) to reduce administrative burdens on~~
22 ~~federally funded researchers while protecting the public in-~~
23 ~~terest in the transparency of and accountability for feder-~~
24 ~~ally funded activities.~~

25 ~~(d) RESPONSIBILITIES.—~~

1 (1) IN GENERAL.—The Working Group shall—

2 (A) regularly review relevant, administra-
3 tion-related regulations imposed on federally
4 funded researchers; and

5 (B) recommend those regulations or proe-
6 esses that may be eliminated, streamlined, or
7 otherwise improved for the purpose described in
8 subsection (c).

9 (2) GRANT REVIEW.—

10 (A) IN GENERAL.—The Working Group, in
11 consultation with the Office of Management
12 and Budget, shall—

13 (i) conduct a comprehensive review of
14 Federal science agency grant proposal doe-
15 uments; and

16 (ii) develop, to the extent practicable,
17 a simplified, uniform grant format to be
18 used by all Federal science agencies.

19 (B) CONSIDERATIONS.—In developing the
20 uniform grant format, the Working Group shall
21 consider whether to implement—

22 (i) procedures for preliminary project
23 proposals in advance of peer-review selec-
24 tion;

1 (ii) increased use of “Just-In-Time”
 2 procedures for documentation that does
 3 not bear directly on the scientific merit of
 4 a proposal;

5 (iii) simplified initial budget proposals
 6 in advance of peer review selection; and

7 (iv) detailed budget proposals for ap-
 8 plicants that peer review selection identi-
 9 fies as likely to be funded.

10 ~~(3) CENTRALIZED RESEARCHER PROFILE DATA-~~
 11 ~~BASE.—~~

12 ~~(A) ESTABLISHMENT.—The Working~~
 13 Group shall establish, to the extent practicable,
 14 a secure, centralized database for investigator
 15 biosketches, curriculum vitae, licenses, publica-
 16 tions, and other documents considered relevant
 17 by the Working Group.

18 ~~(B) CONSIDERATIONS.—In establishing the~~
 19 centralized database under subparagraph (A),
 20 the Working Group shall consider incorporating
 21 existing investigator databases.

22 ~~(C) GRANT PROPOSALS.—To the extent~~
 23 practicable, all grant proposals shall utilize the
 24 centralized researcher profile database estab-
 25 lished under subparagraph (A).

1 ~~(D) REQUIREMENTS.—Each investigator~~
 2 ~~shall—~~

3 ~~(i) be responsible for ensuring the in-~~
 4 ~~vestigator's profile is current and accurate;~~
 5 ~~and~~

6 ~~(ii) be assigned a unique identifier~~
 7 ~~linked to the database and accessible to all~~
 8 ~~Federal funding agencies.~~

9 ~~(4) CENTRALIZED ASSURANCES REPOSITORY.—~~
 10 ~~The Working Group shall—~~

11 ~~(A) establish a central repository for all of~~
 12 ~~the assurances required for Federal research~~
 13 ~~grants; and~~

14 ~~(B) provide guidance to universities and~~
 15 ~~Federal science agencies on the use of the cen-~~
 16 ~~tralized assurances repository.~~

17 ~~(5) COMPREHENSIVE REVIEW.—~~

18 ~~(A) IN GENERAL.—The Working Group, in~~
 19 ~~consultation with the Office of Management~~
 20 ~~and Budget, shall—~~

21 ~~(i) conduct a comprehensive review of~~
 22 ~~the mandated progress reports for federally~~
 23 ~~funded research; and~~

24 ~~(ii) develop a strategy to simplify in-~~
 25 ~~vestigator progress reports.~~

1 (B) ~~CONSIDERATIONS.~~—In developing the
 2 strategy, the Working Group shall consider lim-
 3 iting progress reports to performance outcomes.

4 (e) ~~CONSULTATION.~~—In carrying out its responsibil-
 5 ities under subsection (d)(1), the Working Group shall
 6 consult with academic researchers outside the Federal
 7 Government, including—

8 (1) federally funded researchers;

9 (2) nonfederally funded researchers;

10 (3) institutions of higher education and their
 11 representative associations;

12 (4) scientific and engineering disciplinary soci-
 13 eties and associations;

14 (5) nonprofit research institutions;

15 (6) industry, including small businesses;

16 (7) federally funded research and development
 17 centers; and

18 (8) members of the public with a stake in en-
 19 suring effectiveness, efficiency, and accountability in
 20 the performance of scientific research.

21 (f) ~~REPORTS.~~—Not later than 1 year after the date
 22 of enactment of this Act, and periodically thereafter, the
 23 Working Group shall submit to the appropriate commit-
 24 tees of Congress an annual report on its responsibilities

1 under this section, including recommendations under sub-
 2 section (d)(1)(B).

3 **SEC. 202. SCIENTIFIC AND TECHNICAL COLLABORATION.**

4 (a) **DEFINITION OF SCIENTIFIC AND TECHNICAL**
 5 **WORKSHOP.**—In this section, the term “scientific and
 6 technical workshop” means a symposium, seminar, or any
 7 other organized, formal gathering where scientists or engi-
 8 neers working in STEM research and development fields
 9 assemble to coordinate, exchange and disseminate infor-
 10 mation or to explore or clarify a defined subject, problem
 11 or area of knowledge in the STEM fields.

12 (b) **POLICY.**—It is the policy of the United States to
 13 encourage broad dissemination Federal research findings
 14 and engagement of Federal researchers with the scientific
 15 and technical community.

16 (c) **AUTHORITY.**—Laboratory, test center, and field
 17 center directors and other similar heads of offices may ap-
 18 prove scientific and technical workshop attendance if—

19 (1) that attendance would meet the mission of
 20 the laboratory or test center; and

21 (2) sufficient laboratory or test center funds are
 22 available for that purpose.

23 (d) **ATTENDANCE POLICIES.**—

24 (1) **IN GENERAL.**—Not later than 180 days
 25 after the date of enactment of this Act, the Director

1 of the Office of Management and Budget, in con-
2 sultation with the Director of the Office of Science
3 and Technology Policy and the heads of other rel-
4 evant Federal science agencies, shall revise current
5 policies and streamline processes, in accordance with
6 the policy under subsection (b), for attendance at
7 scientific and technical workshops while ensuring ap-
8 propriate oversight, accountability, and trans-
9 parency.

10 (2) CONSIDERATIONS.—In revising the policy
11 under paragraph (1), the Director of the Office of
12 Management and Budget shall consider the goal of
13 adjudicating a request to attend a scientific and
14 technical workshop not later than 30 days after the
15 date of the request.

16 (3) IMPLEMENTATION.—Not later than 90 days
17 after the date the Director of the Office of Manage-
18 ment and Budget revises the policies under para-
19 graph (1), the head of each Federal science agency
20 shall update that agency's policies for attendance at
21 scientific and technical workshops.

22 (c) NIST WORKSHOPS.—Section 2(c) of the National
23 Institute of Standards and Technology Act (15 U.S.C.
24 272(c)), as amended by section 104 of this Act, is further
25 amended—

1 (1) by redesignating paragraphs (19) through
 2 (24) as paragraphs (22) through (27), respectively;
 3 and

4 (2) by inserting after paragraph (18) the fol-
 5 lowing:

6 “(19) host, participate in, and support scientific
 7 and technical workshops (as defined in section 202
 8 of the American Innovation and Competitiveness
 9 Act);

10 “(20) collect and retain any fees charged by the
 11 Secretary for hosting a scientific and technical work-
 12 shop described in paragraph (19);

13 “(21) notwithstanding title 31 of the United
 14 States Code, use the fees described in paragraph
 15 (20) to pay for any related expenses, including sub-
 16 sistence expenses for participants;”.

17 **SEC. 203. NIST GRANTS AND COOPERATIVE AGREEMENTS**
 18 **UPDATE.**

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

24 **SEC. 204. REPEAL OF CERTAIN OBSOLETE REPORTS.**

25 (a) REPEAL OF CERTAIN OBSOLETE REPORTS.—

1 (1) NIST REPORTS.—

2 (A) REPORT ON DONATION OF EDUCA-
3 TIONALLY USEFUL FEDERAL EQUIPMENT TO
4 SCHOOLS.—Section 6(b) of the Technology Ad-
5 ministration Act of 1998 (15 U.S.C. 272 note)
6 is amended—

7 (i) in paragraph (1), by striking “(1)
8 IN GENERAL.—” and indenting appro-
9 priately; and

10 (ii) by striking paragraph (2).

11 (B) THREE-YEAR PROGRAMMATIC PLAN-
12 NING DOCUMENT.—

13 (i) IN GENERAL.—Section 23 of the
14 National Institute of Standards and Tech-
15 nology Act (15 U.S.C. 278i) is amended by
16 striking subsections (c) and (d).

17 (ii) CONFORMING AMENDMENT.—Sec-
18 tion 10(h)(1) of the National Institute of
19 Standards and Technology Act (15 U.S.C.
20 278(h)(1)) is amended by striking the last
21 sentence.

22 (2) MULTIAGENCY REPORT ON INNOVATION AC-
23 CELERATION RESEARCH.—Section 1008 of the
24 America COMPETES Act (42 U.S.C. 6603) is
25 amended—

1 (A) by striking subsection (c); and

2 (B) by redesignating subsection (d) as sub-
3 section (c).

4 ~~(3) NSF REPORTS.—~~

5 (A) FUNDING FOR SUCCESSFUL STEM
6 EDUCATION PROGRAMS; REPORT TO CON-
7 GRESS.—Section 7012 of the America COM-
8 PETES Act (42 U.S.C. 1862o–4) is amended
9 by striking subsection (c).

10 (B) ENCOURAGING PARTICIPATION; EVAL-
11 UATION AND REPORT.—Section 7031 of the
12 America COMPETES Act (42 U.S.C. 1862o–
13 11) is amended by striking subsection (b).

14 (C) MATH AND SCIENCE PARTNERSHIPS
15 PROGRAM COORDINATION REPORT.—Section
16 9(c) of the National Science Foundation Au-
17 thorization Act of 2002 (42 U.S.C. 1862n(e)) is
18 amended—

19 (i) by striking paragraph (4); and

20 (ii) by redesignating paragraph (5) as
21 paragraph (4).

22 (b) NATIONAL NANOTECHNOLOGY INITIATIVE RE-
23 PORTS.—The 21st Century Nanotechnology Research and
24 Development Act (15 U.S.C. 7501 et seq.) is amended—

1 (1) by amending section 2(c)(4) (15 U.S.C.
2 7501(c)(4)) to read as follows:

3 “(4) develop, not later than 5 years after the
4 date of the release of the most-recent strategic plan,
5 and update every 5 years thereafter, a strategic plan
6 to guide the activities described under subsection (b)
7 that describes—

8 “(A) the near-term and long-term objec-
9 tives for the Program;

10 “(B) the anticipated schedule for achieving
11 the near-term objectives;

12 “(C) the metrics that will be used to assess
13 progress toward the near-term and long-term
14 objectives;

15 “(D) how the Program will move results
16 out of the laboratory and into application for
17 the benefit of society;

18 “(E) the Program’s support for long-term
19 funding for interdisciplinary research and devel-
20 opment in nanotechnology; and

21 “(F) the allocation of funding for inter-
22 agency nanotechnology projects;”;

23 (2) by amending section 4(d) (15 U.S.C.
24 7503(d)) to read as follows:

1 “(d) **REPORTS.**—Not later than 4 years after the
 2 date of the most recent assessment under subsection (c),
 3 and quadrennially thereafter, the Advisory Panel shall
 4 submit to the President, the Committee on Commerce,
 5 Science, and Transportation of the Senate, and the Com-
 6 mittee on Science, Space, and Technology of the House
 7 of Representatives a report of its assessments under sub-
 8 section (c) and its recommendations for ways to improve
 9 the Program.”; and

10 (3) in section 5 (15 U.S.C. 7504)—

11 (A) in the heading, by striking “**TRI-**
 12 **ENNIAL**” and inserting “**QUADRENNIAL**”;

13 (B) in subsection (a), in the matter pre-
 14 ceeding paragraph (1), by striking “triennial”
 15 and inserting “quadrennial”;

16 (C) in subsection (b), by striking “tri-
 17 ennial” and inserting “quadrennial”;

18 (D) in subsection (c), by striking “tri-
 19 ennial” and inserting “quadrennial”; and

20 (E) by amending subsection (d) to read as
 21 follows:

22 “(d) **REPORT.**—

23 “(1) **IN GENERAL.**—Not later than 30 days
 24 after the date the first evaluation under subsection
 25 (a) is received, and quadrennially thereafter, the Di-

1 rector of the National Nanotechnology Coordination
 2 Office shall report to the President its assessments
 3 under subsection (c) and its recommendations for
 4 ways to improve the Program.

5 “(2) CONGRESS.—Not later than 30 days after
 6 the date the President receives the report under
 7 paragraph (1), the Director of the Office of Science
 8 and Technology Policy shall transmit a copy of the
 9 report to Congress.”.

10 (c) MAJOR RESEARCH EQUIPMENT AND FACILITIES
 11 CONSTRUCTION.—Section 14 of the National Science
 12 Foundation Authorization Act of 2002 (42 U.S.C. 1862n–
 13 4) is amended—

14 (1) by amending subsection (a) to read as fol-
 15 lows:

16 “(a) PRIORITIZATION OF PROPOSED MAJOR RE-
 17 SEARCH EQUIPMENT AND FACILITIES CONSTRUCTION.—

18 “(1) DEVELOPMENT OF PRIORITIES.—The Di-
 19 rector shall—

20 “(A) develop a list indicating by number
 21 the relative priority for funding under the
 22 major research equipment and facilities con-
 23 struction account that the Director assigns to
 24 each project the Board has approved for inclu-
 25 sion in a future budget request; and

1 “(B) submit the list described in subpara-
2 graph (A) to the Board for approval.

3 ~~“(2) UPDATES.—The Director shall update the~~
4 list prepared under paragraph (1) each time the
5 Board approves a new project that would receive
6 funding under the major research equipment and fa-
7 cilities construction account and periodically submit
8 any updated list to the Board for approval.”;

9 ~~(2) by striking subsection (e);~~

10 ~~(3) by redesignating subsections (c) and (d) as~~
11 subsections (b) and (e), respectively; and

12 ~~(4) by amending subsection (e), as redesign-~~
13 nated, to read as follows:

14 ~~“(e) BOARD APPROVAL OF MAJOR RESEARCH~~
15 EQUIPMENT AND FACILITIES PROJECTS.—The Board
16 shall explicitly approve any project to be funded out of
17 the major research equipment and facilities construction
18 account before any funds may be obligated from such ac-
19 count for such project.”.

20 **SEC. 205. REPEAL OF CERTAIN PROVISIONS.**

21 ~~(a) TECHNOLOGY INNOVATION PROGRAM.—~~

22 ~~(1) IN GENERAL.—Section 28 of the National~~
23 Institute of Standards and Technology Act (15
24 U.S.C. 278n) is repealed.

25 ~~(2) CONFORMING AMENDMENTS.—~~

1 (A) ~~ADDITIONAL AWARD CRITERIA.—~~Sec-
 2 tion 4226(b) of the Small Business Act of 2010
 3 ~~(15 U.S.C. 278n note)~~ is repealed.

4 (B) ~~MANAGEMENT COSTS.—~~Section 2(f) of
 5 the National Institute of Standards and Tech-
 6 nology Act ~~(15 U.S.C. 272(f))~~ is amended by
 7 striking “sections 25, 26, and 28” and insert-
 8 ing “sections 25 and 26”.

9 (C) ~~ANNUAL AND OTHER REPORTS TO~~
 10 ~~SECRETARY AND CONGRESS.—~~Section 10(h)(1)
 11 of the National Institute of Standards and
 12 Technology Act ~~(15 U.S.C. 278(h)(1))~~ is
 13 amended by striking “, including the Program
 14 established under section 28,”.

15 (b) ~~TEACHERS FOR A COMPETITIVE TOMORROW.—~~
 16 Sections 6111 through 6116 of the America COMPETES
 17 Act ~~(20 U.S.C. 9811, 9812, 9813, 9814, 9815, 9816)~~ and
 18 the items relating to those sections in the table of contents
 19 under section 2 of that Act ~~(Public Law 110–69, 121 Stat.~~
 20 ~~572)~~ are repealed.

1 **TITLE III—SCIENCE, TECH-**
 2 **NOLOGY, ENGINEERING, AND**
 3 **MATH EDUCATION**

4 **SEC. 301. ROBERT NOYCE TEACHER SCHOLARSHIP PRO-**
 5 **GRAM UPDATE.**

6 Section 10A of the National Science Foundation Au-
 7 thorization Act of 2002 (42 U.S.C. 1862n–1a) is amended
 8 by adding at the end the following:

9 “(k) STEM TEACHER SERVICE AND RETENTION.—

10 “(1) IN GENERAL.—The Director shall develop
 11 and implement practices for increasing the propor-
 12 tion of individuals receiving fellowships under this
 13 section who—

14 “(A) fulfill the service obligation required
 15 under subsection (h); and

16 “(B) remain in the teaching profession in
 17 a high need local educational agency beyond the
 18 service obligation.

19 “(2) PRACTICES.—The practices described
 20 under paragraph (1) may include—

21 “(A) partnering with nonprofit or profes-
 22 sional associations or with other government en-
 23 tities to provide individuals receiving fellowships
 24 under this section with opportunities for profes-
 25 sional development, including mentorship pro-

1 grams that pair those individuals with currently
 2 employed and recently retired science, tech-
 3 nology, engineering, or mathematics profes-
 4 sionals;

5 “(B) increasing recruitment from high
 6 need districts;

7 “(C) establishing a system to better collect,
 8 track, and respond to data on the career deci-
 9 sions of individuals receiving fellowships under
 10 this section;

11 “(D) conducting research to better under-
 12 stand factors relevant to teacher service and re-
 13 tention; and

14 “(E) conducting pilot programs to improve
 15 teacher service and retention.”.

16 **SEC. 302. SPACE GRANTS.**

17 (a) SENSE OF CONGRESS.—It is the sense of Con-
 18 gress that the National Space Grant College and Fellow-
 19 ship Program has been an important program by which
 20 the Federal Government has partnered with universities,
 21 colleges, industry, and other organizations to provide
 22 hands-on STEM experiences, fostering of multidisci-
 23 plinary space research, and supporting graduate fellow-
 24 ships in space-related fields, among other purposes.

1 (b) ~~ADMINISTRATIVE COSTS.—Section 40303 of title~~
2 51, United States Code, is amended by adding at the end
3 the following:

4 “(d) ~~PROGRAM ADMINISTRATION COSTS.—In ear-~~
5 rying out the provisions of this chapter, the Adminis-
6 trator—

7 “(1) shall maximize appropriated funds for
8 grants and contracts made under section 40304 in
9 each fiscal year; and

10 “(2) in each fiscal year, the Administrator shall
11 limit its program administration costs to no more
12 than 5 percent of funds appropriated for this pro-
13 gram for that fiscal year.

14 “(e) ~~REPORTS.—For any fiscal year in which the Ad-~~
15 ministrator cannot meet the administration cost target
16 under subsection (d)(2), if the Administration is unable
17 to limit program costs under subsection (b), the Adminis-
18 trator shall submit to the appropriate committees of Con-
19 gress a report, including—

20 “(1) a description of why the Administrator did
21 not meet the cost target under subsection (d); and

22 “(2) the measures the Administrator will take
23 in the next fiscal year to meet the cost target under
24 subsection (d) without drawing upon other Federal
25 funding.”.

1 **SEC. 303. STEM EDUCATION ADVISORY PANEL.**

2 (a) **ESTABLISHMENT.**—Not later than 180 days after
 3 the date of enactment this Act, Director of the Founda-
 4 tion, the Secretary of Education, the Administrator of the
 5 National Aeronautics and Space Administration, and the
 6 Administrator of the National Oceanic and Atmospheric
 7 Administration shall jointly establish an advisory panel
 8 (referred to in this section as the “STEM Education Advi-
 9 sory Panel”) to advise the Committee on STEM Edu-
 10 cation of the National Science and Technology Council
 11 (referred to in this section as “CoSTEM”) on matters re-
 12 lating to STEM education.

13 (b) **MEMBERS.**—

14 (1) **IN GENERAL.**—The STEM Education Advi-
 15 sory Panel shall be composed of not less than 11
 16 members.

17 (2) **APPOINTMENT.**—

18 (A) **IN GENERAL.**—Subject to subpara-
 19 graph (B), the Director of the Foundation, in
 20 consultation with the Secretary of Education
 21 and the heads of the Federal science agencies,
 22 shall appoint the members of the STEM Edu-
 23 cation Advisory Panel.

24 (B) **CONSIDERATION.**—In selecting individ-
 25 uals to appoint under subparagraph (A), the
 26 Director of the Foundation shall seek and give

consideration to recommendations from Congress, industry, the scientific community, including the National Academy of Sciences, scientific professional societies, academia, State and local governments, and such other organizations as the Director considers appropriate.

~~(C) QUALIFICATIONS.—~~Members shall—

(i) primarily be individuals from academic institutions, nonprofit organizations, and industry, including in-school, out-of-school, and informal education practitioners; and

(ii) be individuals who are qualified to provide advice and information on STEM education research, development, training, implementation, interventions, professional development, or workforce needs or concerns.

~~(c) RESPONSIBILITIES.—~~

~~(1) ASSESSMENT.—~~

~~(A) IN GENERAL.—~~The STEM Education Advisory Panel shall advise CoSTEM and periodically assess its progress in carrying out its responsibilities under section 101(b) of the

1 America COMPETES Reauthorization Act of
2 2010 (42 U.S.C. 6621(b)).

3 (B) CONSIDERATIONS.—In its advisory
4 role, the STEM Education Advisory Panel shall
5 consider—

6 (i) the appropriateness of criteria used
7 by Federal agencies to evaluate the effec-
8 tiveness of Federal STEM education pro-
9 grams and activities;

10 (ii) ways to leverage private and non-
11 profit STEM investments and encourage
12 public-private partnerships to strengthen
13 STEM education and help build the STEM
14 workforce pipeline; and

15 (iii) how Federal agencies incentivize
16 colleges and universities to improve reten-
17 tion of STEM students.

18 (2) RECOMMENDATIONS.—The STEM Edu-
19 cation Advisory Panel shall make recommendations
20 to improve Federal STEM education programs and
21 activities based on the assessment under paragraph
22 (1).

23 (d) FUNDING.—The Director of the Foundation, the
24 Secretary of Education, the Administrator of the National
25 Aeronautics and Space Administration, and the Adminis-

1 trator of the National Oceanic and Atmospheric Adminis-
 2 tration shall jointly make funds available on an annual
 3 basis to support the activities of the STEM Education Ad-
 4 visory Panel.

5 (e) REPORTS.—Not later than 1 year after the date
 6 of enactment of this Act, and every 3 years thereafter,
 7 the STEM Education Advisory Panel shall submit to the
 8 appropriate committees of Congress, and CoSTEM a re-
 9 port on its assessment under subsection (c)(1) and rec-
 10 ommendations under subsection (c)(2).

11 (f) TRAVEL EXPENSES OF NON-FEDERAL MEM-
 12 BERS.—

13 (1) IN GENERAL.—Non-Federal members of the
 14 STEM Education Advisory Panel, while attending
 15 meetings of the panel or while otherwise serving at
 16 the request of a co-chairperson away from their
 17 homes or regular places of business, may be allowed
 18 travel expenses, including per diem in lieu of subsist-
 19 ence, as authorized by section 5703 of title 5,
 20 United States Code, for individuals in the Govern-
 21 ment serving without pay.

22 (2) RULE OF CONSTRUCTION.—Nothing in this
 23 subsection shall be construed to prohibit members of
 24 the STEM Advisory Panel who are officers or em-
 25 ployees of the United States from being allowed

1 travel expenses, including per diem in lieu of subsist-
 2 ence, in accordance with existing law.

3 **SEC. 304. COMMITTEE ON STEM EDUCATION.**

4 (a) RESPONSIBILITIES.—Section 101(b) of the Amer-
 5 ica COMPETES Reauthorization Act of 2010 (42 U.S.C.
 6 6621(b)) is amended—

7 (1) in paragraph (5)(D), by striking “; and”
 8 and inserting a semicolon;

9 (2) in paragraph (6), by striking the period at
 10 the end and inserting a semicolon; and

11 (3) by adding at the end the following:

12 “(7) collaborate with the STEM Education Ad-
 13 visory Panel established under section 303 of the
 14 American Innovation and Competitiveness Act and
 15 other outside stakeholders to ensure the engagement
 16 of the STEM education community;

17 “(8) review the measures used by a Federal
 18 agency to evaluate its STEM education activities
 19 and programs;

20 “(9) request and review feedback from States
 21 on how the States are utilizing Federal STEM edu-
 22 cation programs and activities; and

23 “(10) recommend the reform, termination, or
 24 consolidation of Federal STEM education activities
 25 and programs, taking into consideration the rec-

1 ommendations of the STEM Education Advisory
2 Panel.”.

3 (b) REPORTS.—Section 101 of the America COM-
4 PETES Reauthorization Act of 2010 (42 U.S.C. 6621)
5 is amended—

6 (1) by striking “(e) REPORT.—” and inserting
7 “(d) REPORTS.—”;

8 (2) by striking “(b) RESPONSIBILITIES OF
9 OSTP.—” and inserting “(c) RESPONSIBILITIES OF
10 OSTP.—”; and

11 (3) in subsection (d), as redesignated—

12 (A) in paragraph (4), by striking “; and”
13 and inserting a semicolon;

14 (B) in paragraph (5), by striking the pe-
15 riod at the end and inserting “; and”; and

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

17 “(6) a description of all consolidations and ter-
18 minations of Federal STEM education programs
19 and activities implemented in the previous fiscal
20 year, including an explanation for the consolidations
21 and terminations;

22 “(7) recommendations for reforms, consolida-
23 tions, and terminations of STEM education pro-
24 grams or activities in the upcoming fiscal year; and

1 “(8) a description of any significant new STEM
2 education public-private partnerships.”.

3 **SEC. 305. GRANT PROGRAMS TO EXPAND STEM OPPORTU-**
4 **NITIES.**

5 (a) FINDINGS.—Congress makes the following find-
6 ings:

7 (1) Economic projections by the Bureau of
8 Labor Statistics indicate that by 2018, there could
9 be 2.4 million unfilled STEM jobs.

10 (2) Women represent slightly more than half
11 the United States population, and projections indi-
12 cate that 54 percent of the population will be a
13 member of a racial or ethnic minority group by
14 2050.

15 (3) Despite representing half the population,
16 women comprise only about 30 percent of STEM
17 workers according to a 2015 report by the National
18 Center for Science and Engineering Statistics.

19 (4) A 2014 National Center for Education Sta-
20 tistics study found that women and underrep-
21 resented minorities leave the STEM fields at higher
22 rates than their counterparts.

23 (5) The representation of women in STEM
24 drops significantly at the faculty level. Overall,
25 women hold only 25 percent of all tenured and ten-

1 ~~ure-track~~ positions and ~~17~~ percent of full professor
 2 positions in STEM fields in our Nation's universities
 3 and ~~4-year~~ colleges.

4 (6) Black and Hispanic faculty together hold
 5 about ~~6.5~~ percent of all tenured and tenure-track po-
 6 sitions and ~~5~~ percent of full professor positions.

7 (7) Many of the numbers in the American In-
 8 dian or Alaskan Native and Native Hawaiian or
 9 Other Pacific Islander categories for different fac-
 10 ulty ranks were too small for the National Science
 11 Foundation to report publicly without potentially
 12 compromising confidential information about the in-
 13 dividuals being surveyed.

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

16 (1) it is critical to our Nation's economic lead-
 17 ership and global competitiveness that we educate,
 18 train, and retain more scientists and engineers;

19 (2) there is currently a disconnect between the
 20 availability of and growing demand for STEM-
 21 skilled workers;

22 (3) women, minorities, and persons with disabil-
 23 ities are the largest untapped STEM talent pools in
 24 the United States; and

1 (4) given the shifting demographic landscape;
 2 the United States should encourage full participation
 3 of individuals described in paragraph (3) in STEM
 4 fields.

5 (e) REAFFIRMATION.—The Director of the Founda-
 6 tion shall continue to support existing programs designed
 7 to broaden participation of women, minorities, and per-
 8 sons with disabilities in STEM fields.

9 (d) PROGRAM TO BROADEN PARTICIPATION IN
 10 STEM FIELDS.—

11 (1) IN GENERAL.—The Director of the Founda-
 12 tion shall award grants on a competitive, merit-re-
 13 viewed basis, to eligible entities to increase the par-
 14 ticipation of women and groups underrepresented in
 15 STEM fields.

16 (2) APPLICATIONS.—An applicant seeking a
 17 grant under this section shall submit an application
 18 to the Director at such time, in such manner, and
 19 containing such information as the Director may re-
 20 quire.

21 (3) USE OF FUNDS.—Activities supported by
 22 grants under this section may include the following:

23 (A) Online workshops.

1 (B) Mentoring programs that partner
2 science, technology, engineering, or mathe-
3 matics professionals with applicable students.

4 (C) Internships for applicable under-
5 graduate and graduate students in STEM
6 fields.

7 (D) Conducting outreach programs that
8 provide applicable elementary school and sec-
9 ondary school students with opportunities to in-
10 crease their exposure to STEM fields.

11 (E) Programs to increase the recruitment
12 and retention of underrepresented faculty.

13 (F) Such additional programs as the Di-
14 rector of the Foundation may consider appro-
15 priate.

16 (e) GRANT PROGRAM FOR GRADES K THROUGH 8.—

17 (1) IN GENERAL.—The Director of the Founda-
18 tion shall award grants to be used for research to
19 advance the engagement of students in grades kin-
20 dergarten through 8 in STEM that are designed to
21 encourage interest, engagement, and skills develop-
22 ment of students in STEM fields, particularly those
23 who are members of groups underrepresented in
24 STEM fields.

1 (2) USE OF FUNDS.—Activities supported by
2 grants under this section may include—

3 (A) development and implementation of
4 programming described in paragraph (1) for
5 the purpose of research;

6 (B) use of a variety of engagement meth-
7 ods, including cooperative and hands-on learn-
8 ing;

9 (C) exposure of students who are members
10 of groups underrepresented in STEM fields to
11 role models, including near-peers, in STEM
12 fields;

13 (D) mentors;

14 (E) training of informal learning educators
15 and youth-serving professionals using evidence-
16 based methods consistent with the target stu-
17 dent population being served;

18 (F) education of students on the relevance
19 and significance of STEM careers, provision of
20 academic advice and assistance, and activities
21 designed to help students make real-world con-
22 nections to STEM content activities;

23 (G) attendance of underrepresented stu-
24 dents at events, competitions, and academic

1 programs to provide content expertise and en-
 2 courage career exposure in STEM;

3 (H) activities designed to engage parents
 4 of underrepresented students;

5 (I) innovative strategies to engage under-
 6 represented students, such as using leadership
 7 skill outcome measures to encourage youth with
 8 the confidence to pursue STEM course work
 9 and academic study;

10 (J) coordination with STEM-rich environ-
 11 ments, including other nonprofit, nongovern-
 12 mental organizations, classroom and out-of-
 13 classroom settings, institutions of higher edu-
 14 cation, vocational facilities, corporations, muse-
 15 ums, or science centers; and

16 (K) acquisition of instructional materials
 17 or technology-based tools to conduct applicable
 18 grant activity.

19 ~~(3)~~ APPLICATIONS.—

20 (A) IN GENERAL.—Subject to subpara-
 21 graph (B), an applicant seeking a grant under
 22 the section shall submit an application to the
 23 Director at such time, in such manner, and
 24 containing such information as the Director
 25 may require.

1 (B) REQUIREMENTS.—The application
2 shall include, at a minimum, the following:

3 (i) A description of the target audi-
4 ence to be served by the program.

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

8 (iii) A description of how such re-
9 search activity may inform programming
10 that engages underrepresented students in
11 grades kindergarten through 8 in STEM.

12 (iv) A description of how such re-
13 search activity may inform programming
14 that promotes student academic achieve-
15 ment in STEM.

16 (v) An evaluation plan to determine
17 the impact and efficacy of activities being
18 researched.

19 (4) CONSIDERATION.—In awarding grants
20 under this section, the Director shall give consider-
21 ation to applicants which, for the purpose of grant
22 activity, include or partner with an organization that
23 has extensive experience and expertise in increasing
24 the participation of underrepresented students in
25 STEM.

1 (f) ACCOUNTABILITY AND DISSEMINATION.—

2 (1) EVALUATION.—

3 (A) IN GENERAL.—Not later than 5 years
4 after the date of enactment of this Act, the Di-
5 rector shall evaluate the grants provided under
6 this section.

7 (B) REQUIREMENTS.—In conducting the
8 evaluation under subparagraph (A), the Direc-
9 tor shall—

10 (i) use a common set of benchmarks
11 and assessment tools to identify best prac-
12 tices and materials developed or dem-
13 onstrated by the research; and

14 (ii) to the extent practicable, combine
15 the research resulting from the grant activ-
16 ity under subsection (c) with the current
17 research on serving underrepresented stu-
18 dents in grades kindergarten through 8.

19 (2) REPORT ON EVALUATIONS.—Not later than
20 180 days after the completion of the evaluation
21 under paragraph (1), the Director shall submit to
22 the appropriate committees of Congress and make
23 widely available to the public a report that in-
24 cludes—

25 (A) the results of the evaluation; and

1 (B) any recommendations for administra-
 2 tive and legislative action that could optimize
 3 the effectiveness of the program.

4 (g) COORDINATION.—In carrying out this section, the
 5 Director shall consult, cooperate, and coordinate, to en-
 6 hance program effectiveness and to avoid duplication, with
 7 the programs and policies of other relevant Federal agen-
 8 cies.

9 (h) DEFINITION OF GROUPS UNDERREPRESENTED
 10 IN STEM FIELDS.—In this section, the term “groups
 11 underrepresented in STEM fields” has the meaning given
 12 the term “underrepresented in science and engineering”
 13 in section 637.4(b) of title 34, Code of Federal Regula-
 14 tions.

15 **SEC. 306. CENTERS OF EXCELLENCE FOR INCLUSION IN**
 16 **STEM.**

17 (a) ESTABLISHMENT.—The Director of the Founda-
 18 tion shall carry out a program to award merit-reviewed,
 19 competitive grants to institutions of higher education, or
 20 consortia thereof, to establish not less than 1 Center of
 21 Excellence (referred to in this section as the “Center”),
 22 to collect, maintain, and disseminate information to in-
 23 crease participation of women and groups underrep-
 24 resented in STEM fields (as defined in section 305(d)(4)).

1 (b) ~~PURPOSE.~~—The purpose of the Center is to pro-
 2 mote diversity in STEM fields by building on the success
 3 of the ~~INCLUDES~~ programs, providing technical assist-
 4 ance, maintaining best practices, and providing related
 5 training at federally funded academic institutions.

6 (c) ~~PROGRAM.~~—The Director of the Foundation shall
 7 establish each Center through a merit-reviewed, competi-
 8 tive award to an eligible entity for at least 3, but not more
 9 than to 5 years.

10 (d) ~~PUBLIC DOMAIN.~~—All program information de-
 11 veloped, collected, or maintained by a Center, except for
 12 personally identifiable information, is and shall remain
 13 part of the public domain.

14 (e) ~~APPLICATION.~~—To be eligible to receive a grant
 15 under this section, an eligible institution shall prepare and
 16 submit to the Director an application at such a time, in
 17 such form, and containing such information as the Direc-
 18 tor may require.

19 (f) ~~ACTIVITIES.~~—Activities of a Center may in-
 20 clude—

21 (1) conducting and disseminating research on—
 22 (A) systemic factors and institutional poli-
 23 cies that impede or facilitate the recruitment,
 24 retention, and success of underrepresented
 25 groups in STEM fields; and

1 (B) best practices for mitigating the sys-
2 temic factors and institutional policies that im-
3 pede inclusion of underrepresented groups in
4 STEM fields;

5 (2) collaborating with institutions of higher
6 education, Federal agencies, industry, and relevant
7 stakeholders to develop policies and practices to fa-
8 cilitate the recruitment, retention, and success of
9 underrepresented groups in STEM;

10 (3) providing educational opportunities for
11 STEM faculty members, staff, students, trainees,
12 fellows, and administrators to learn about inclusion
13 in STEM and to improve STEM mentoring;

14 (4) developing and hosting intra- or inter-
15 institutional workshops, and providing ongoing sup-
16 port to workshop participants, to propagate best
17 practices in recruiting, retaining, and advancing
18 STEM faculty members, staff, students, trainees,
19 fellows, and administrators from underrepresented
20 groups at institutions of higher education;

21 (5) assessing the effectiveness of efforts funded
22 by a Center or related efforts designed to increase
23 inclusion in STEM;

24 (6) assessing how modern STEM learning envi-
25 ronments can increase the inclusion, engagement,

1 and retention of students in STEM fields, particu-
 2 larly for women and groups underrepresented in
 3 STEM fields; and

4 (7) such other actions as a Center determines
 5 are necessary to further the inclusion of underrep-
 6 resented groups in STEM.

7 **SEC. 307. NIST EDUCATION AND OUTREACH.**

8 (a) REPEALS.—The National Institute of Standards
 9 and Technology Act (15 U.S.C. 271 et seq.) is amended—

10 (1) by striking section 18 (15 U.S.C. 278g–1);

11 and

12 (2) by striking section 19A (15 U.S.C. 278g–
 13 2a).

14 (b) EDUCATION AND OUTREACH.—The National In-
 15 stitute of Standards and Technology Act (15 U.S.C. 271
 16 et seq.), as amended, is further amended by inserting after
 17 section 17, the following:

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

19 “(a) IN GENERAL.—The Director is authorized to ex-
 20 pend funds appropriated for activities of the Institute in
 21 any fiscal year, to support, promote, and coordinate activi-
 22 ties and efforts to enhance public awareness and under-
 23 standing of measurement sciences, standards and tech-
 24 nology at the national measurement laboratories and oth-
 25 erwise in fulfillment of the mission of the Institute. The

1 Director may carry out activities under this subsection;
 2 including education and outreach activities to the general
 3 public, industry and academia in support of the Institute's
 4 mission.

5 “(b) **HIRING.**—The Director, in coordination with the
 6 Director of the Office of Personnel Management, may re-
 7 vise the procedures the Director applies when making ap-
 8 pointments to laboratory positions within the competitive
 9 service—

10 “(1) to ensure corporate memory of and exper-
 11 tise in the fundamental ongoing work, and on devel-
 12 oping new capabilities in priority areas;

13 “(2) to maintain high overall technical com-
 14 petence;

15 “(3) to improve staff diversity;

16 “(4) to balance emphases on the noncore and
 17 core areas; or

18 “(5) to improve the ability of the Institute to
 19 compete in the marketplace for qualified personnel.

20 “(c) **VOLUNTEERS.**—

21 “(1) **IN GENERAL.**—The Director may establish
 22 a program to use volunteers in carrying out the pro-
 23 grams of the Institute.

24 “(2) **ACCEPTANCE OF PERSONNEL.**—The Direc-
 25 tor may accept, subject to regulations issued by the

Office of Personnel Management, voluntary service for the Institute for such purpose if the service—

“(A) is to be without compensation; and

“(B) will not be used to displace any current employee or act as a substitute for any future full-time employee of the Institute.

“(3) ~~FEDERAL EMPLOYEE STATUS.~~—Any individual who provides voluntary service under this subsection shall not be considered a Federal employee, except for purposes of chapter 81 of title 5, United States Code (relating to compensation for injury), and sections 2671 through 2680 of title 28, United States Code (relating to tort claims).

“(d) ~~RESEARCH FELLOWSHIPS.~~—

“(1) ~~IN GENERAL.~~—The Director may expend funds appropriated for activities of the Institute in any fiscal year, as the Director considers appropriate, for awards of research fellowships and other forms of financial and logistical assistance, including direct stipend awards to—

“(A) students at institutions of higher learning within the United States who show promise as present or future contributors to the mission of the Institute; and

1 “(B) United States citizens for research
2 and technical activities of the Institute, includ-
3 ing programs.

4 “(2) SELECTION CRITERIA.—The selection of
5 persons to receive such fellowships and assistance
6 shall be made on the basis of ability and of the rel-
7 evance of the proposed work to the mission and pro-
8 grams of the Institute.

9 “(3) FINANCIAL AND LOGISTICAL ASSIST-
10 ANCE.—Notwithstanding section 1345 of title 31,
11 United States Code, or any other law to the con-
12 trary, the Director may include as a form of finan-
13 cial or logistical assistance under this subsection
14 temporary housing and transportation to and from
15 Institute facilities.

16 “(e) EDUCATIONAL OUTREACH ACTIVITIES.—The
17 Director may—

18 “(1) facilitate education programs for under-
19 graduate and graduate students, postdoctoral re-
20 searchers, and academic and industry employees;

21 “(2) sponsor summer internships for STEM
22 high school teachers as appropriate;

23 “(3) develop programs for graduate student in-
24 ternships and visiting faculty researchers;

1 “(4) document publications, presentations, and
 2 interactions with visiting researchers and sponsoring
 3 interns as performance metrics for improving and
 4 continuing interactions with those individuals; and

5 “(5) facilitate laboratory tours and provide
 6 presentations for educational, industry, and commu-
 7 nity groups.”.

8 (c) ~~POST-DOCTORAL FELLOWSHIP PROGRAM.~~—Sec-
 9 tion 19 of the National Institute of Standards and Tech-
 10 nology Act (15 U.S.C. 278g-2) is amended to read as fol-
 11 lows:

12 **“SEC. 19. POST-DOCTORAL FELLOWSHIP PROGRAM.**

13 “(a) ~~IN GENERAL.~~—The Institute and the National
 14 Academy of Sciences, jointly, shall establish and conduct
 15 a post-doctoral fellowship program, subject to the avail-
 16 ability of appropriations.

17 “(b) ~~ORGANIZATION.~~—The post-doctoral fellowship
 18 program shall include not less than 20 nor more than 120
 19 new fellows per fiscal year.

20 “(c) ~~EVALUATIONS.~~—In evaluating applications for
 21 post-doctoral fellowships under this section, the Director
 22 of the Institute and the President of the National Acad-
 23 emy of Sciences shall give consideration to the goal of pro-
 24 moting the participation of underrepresented minorities in
 25 research areas supported by the Institute.”.

1 ~~(d) SAVINGS CLAUSES.—~~

2 ~~(1) RESEARCH FELLOWSHIPS AND OTHER FI-~~
 3 ~~NANCIAL ASSISTANCE TO STUDENTS AT INSTITUTES~~
 4 ~~OF HIGHER EDUCATION.—~~The repeal made by sub-
 5 section ~~(a)(1)~~ of this section shall not affect any
 6 award of a research fellowship or other form of fi-
 7 nancial assistance made under section 18 of the Na-
 8 tional Institute of Standards and Technology Act
 9 ~~(15 U.S.C. 278g-1)~~ before the date of enactment of
 10 this Act. Such award shall continue to be subject to
 11 the requirements to which such funds were subject
 12 under that section before the date of enactment of
 13 this Act.

14 ~~(2) POST-DOCTORAL FELLOWSHIP PROGRAM.—~~
 15 The amendment made by subsection ~~(c)~~ of this sec-
 16 tion shall not affect any award of a post-doctoral fel-
 17 lowship or other form of financial assistance made
 18 under section 19 of the National Institute of Stand-
 19 ards and Technology Act ~~(15 U.S.C. 278g-2)~~ before
 20 the date of enactment of this Act. Such awards shall
 21 continue to be subject to the requirements to which
 22 such funds were subject under that section before
 23 the date of enactment of this Act.

1 **SEC. 308. PRESIDENTIAL AWARDS FOR EXCELLENCE IN**
2 **STEM MENTORING.**

3 (a) IN GENERAL.—The Director of the Foundation
4 shall continue to administer awards on behalf of the Office
5 of Science and Technology Policy to recognize outstanding
6 mentoring in STEM fields.

7 (b) ANNUAL AWARD RECIPIENTS.—The Director of
8 the Foundation shall provide Congress with a list of award
9 recipients, including the name, institution, and a brief syn-
10 opsis of the impact of the mentoring efforts.

11 **SEC. 309. WORKING GROUP ON INCLUSION IN STEM**
12 **FIELDS.**

13 (a) ESTABLISHMENT.—The Office of Science and
14 Technology Policy, in collaboration with Federal depart-
15 ments and agencies, shall establish an interagency work-
16 ing group to compile and summarize available research
17 and best practices on how to promote diversity and inclu-
18 sions in STEM fields and examine whether barriers exist
19 to promoting diversity and inclusion within Federal agen-
20 cies employing scientists and engineers.

21 (b) RESPONSIBILITIES.—The working group shall be
22 responsible for reviewing and assessing research, best
23 practices, and policies across Federal science agencies re-
24 lated to the inclusion of underrepresented groups in the
25 Federal STEM workforce, including available research

1 and best practices on how to promote diversity and inclu-
2 sion in STEM fields, including—

3 (1) policies providing flexibility for scientists
4 and engineers that are also caregivers, particularly
5 on the timing of research grants;

6 (2) policies to address the proper handling of
7 claims of sexual harassment;

8 (3) policies to minimize the effects of implicit
9 bias and other systemic factors in hiring, promotion,
10 evaluation and the workplace in general; and

11 (4) other evidence-based strategies that the
12 working group considers effective for promoting di-
13 versity and inclusion in the STEM fields.

14 (c) **STAKEHOLDER INPUT.**—In carrying out the re-
15 sponsibilities under section (b), the working group shall
16 solicit and consider input and recommendations from non-
17 Federal stakeholders, including—

18 (1) the Council of Advisors on Science and
19 Technology;

20 (2) federally funded and nonfederally funded re-
21 searchers, institutions of higher education, scientific
22 disciplinary societies, and associations;

23 (3) nonprofit research institutions;

24 (4) industry, including small businesses;

1 (5) federally funded research and development
2 centers;

3 (6) nongovernmental organizations; and

4 (7) such other members of the public interested
5 in promoting a diverse and inclusive Federal STEM
6 workforce.

7 (d) PUBLIC REPORTS.—Not later than 1 year after
8 the date of enactment of this Act, and periodically there-
9 after, the working group shall publish a report on the re-
10 view and assessment under subsection (b), including a
11 summary of available research and best practices, any rec-
12 ommendations for Federal actions to promote a diverse
13 and inclusive Federal STEM workforce, and updates on
14 the implementation of previous recommendations for Fed-
15 eral actions.

16 (e) TERMINATION OF EFFECTIVENESS.—The author-
17 ity provided by subsection (a) terminates effective on the
18 date that is 10 years after the date that the working group
19 is established.

20 **SEC. 310. IMPROVING UNDERGRADUATE STEM EXPERI-**
21 **ENCES.**

22 (a) SENSE OF CONGRESS.—It is the sense of Con-
23 gress that each Federal science agency should invest in
24 and expand research opportunities for undergraduate stu-
25 dents attending institutions of higher education during the

1 undergraduate student's first 2 academic years of postsec-
 2 ondary education.

3 (b) IDENTIFICATION OF RESEARCH PROGRAMS.—

4 Not later than 1 year after the date of enactment of this
 5 Act, the head of each Federal agency shall submit to the
 6 President recommendations regarding how the agency
 7 could best fulfill the goals described in subsection (a).

8 (c) BROADER IMPACTS.—Section 526(a)(6) of the
 9 America COMPETES Act of 2010 (Public Law 111–358;
 10 124 Stat. 4019) is amended to read as follows:

11 “(6) Improved undergraduate STEM education
 12 and instruction.”.

13 **SEC. 311. COMPUTER SCIENCE EDUCATION RESEARCH.**

14 (a) FINDINGS.—Congress finds that as the lead Fed-
 15 eral agency for building the research knowledge base for
 16 computer science education, the Foundation is well posi-
 17 tioned to make investments that will accelerate ongoing
 18 efforts to enable rigorous and engaging computer science
 19 throughout the Nation.

20 (b) GRANT PROGRAM.—

21 (1) IN GENERAL.—The Director of the Founda-
 22 tion shall award grants to eligible entities to re-
 23 search computer science education and computa-
 24 tional thinking.

1 (2) RESEARCH.—The research described in
 2 paragraph (1) may include the development or adap-
 3 tation, piloting or full implementation, and testing
 4 of—

5 (A) models of preservice preparation for
 6 teachers who will teach computer science and
 7 computational thinking;

8 (B) scalable and sustainable models of pro-
 9 fessional development and ongoing support for
 10 the teachers described in subparagraph (A);

11 (C) tools and models for teaching and
 12 learning aimed at supporting student success
 13 and inclusion in computing within and across
 14 diverse populations, particularly poor, rural,
 15 and tribal populations and other populations
 16 that have been traditionally underrepresented in
 17 computer science and STEM fields; and

18 (D) instructional materials and high-qual-
 19 ity learning opportunities for teaching computer
 20 science and, especially in poor, rural, or tribal
 21 schools at the elementary school and middle
 22 school levels, for integrating computational
 23 thinking into STEM teaching and learning.

24 (c) COLLABORATIONS.—In carrying out the grants
 25 established in subsection (b), eligible entities may collabo-

1 rate and partner with local or remote schools to support
 2 the integration of computing and computational thinking
 3 within kindergarten through grade 12 STEM curricula
 4 and instruction.

5 (d) METRICS.—The Director of the Foundation shall
 6 develop metrics to measure the success of the grant pro-
 7 gram funded under this section in achieving program
 8 goals.

9 (e) DEFINITION OF ELIGIBLE ENTITY.—In this sec-
 10 tion, the term “eligible entity” means an institution of
 11 higher education or a nonprofit research organization.

12 **TITLE IV—LEVERAGING THE** 13 **PRIVATE SECTOR**

14 **SEC. 401. PRIZE COMPETITION AUTHORITY UPDATE.**

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

17 (1) in subsection (c)—

18 (A) in the subsection heading, by striking
 19 “PRIZES” and by inserting “PRIZE COMPETI-
 20 TIONS”;

21 (B) in the matter preceding paragraph (1),
 22 by striking “prize may be one or more of the
 23 following” and inserting “prize competition may
 24 be one or more of the following types of activi-
 25 ties”;

1 (C) in paragraph (2), by inserting “com-
2 petition” after “prize”; and

3 (D) in paragraphs (3) and (4), by striking
4 “prizes” and inserting “prize competitions”;
5 (2) in subsection (f)—

6 (A) in the matter preceding paragraph (1),
7 by striking “in the Federal Register” and in-
8 serting “on a publicly accessible Government
9 website, such as www.challenge.gov,”;

10 (B) in paragraphs (1), (2), and (3), by in-
11 serting “prize” before “competition” each place
12 it appears; and

13 (C) in paragraph (4), by striking “prize”
14 and inserting “cash prize purse or non-cash
15 prize award”;

16 (3) in subsection (g)—

17 (A) in the matter preceding paragraph (1),
18 by striking “prize” and inserting “cash prize
19 purse”; and

20 (B) in paragraph (1), by inserting “prize”
21 before “competition”;

22 (4) in subsection (h), by inserting “prize” be-
23 fore “competition” each place it appears;

24 (5) in subsection (i)—

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

3 (B) in paragraph (2)(A), by inserting
4 “prize” before “competition” each place it ap-
5 pears;

6 (C) by redesignating paragraph (3) as
7 paragraph (4); and

8 (D) by inserting after paragraph (2) the
9 following:

10 “(3) WAIVERS.—

11 “(A) IN GENERAL.—An agency may waive
12 the requirement under paragraph (2).

13 “(B) LIST.—The Director shall include a
14 list of all of the waivers granted under this
15 paragraph during the preceding fiscal year, in-
16 cluding a detailed explanation of the reason for
17 granting the waiver.”;

18 (6) in subsection (j)—

19 (A) in paragraph (1), by inserting “prize”
20 before “competition”;

21 (B) by amending paragraph (2) to read as
22 follows:

23 “(2) LICENSES.—As appropriate and to further
24 the goals of a prize competition, the Federal Govern-
25 ment may—

1 “(A) negotiate a license for the use of in-
2 tellectual property developed by a registered
3 participant in a prize competition; or

4 “(B) require a registered participant in a
5 prize competition to provide an open license to
6 the public for the use of the intellectual prop-
7 erty if that requirement is disclosed prior to
8 registration.”; and

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

10 “(3) ELECTRONIC CONSENT.—The Federal
11 Government may obtain consent to the intellectual
12 property and licensing terms of a prize competition
13 from participants during the online registration for
14 the prize competition.”;

15 (7) in subsection (k)—

16 (A) in paragraph (1), by striking “each
17 competition” and inserting “each prize competi-
18 tion” each place it appears;

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

21 (C) in paragraph (3), by inserting “prize”
22 before “competitions” each place it appears;

23 (8) in subsection (l), by striking “an agreement
24 with” and all that follows through the period at the
25 end and inserting “a grant, contract, cooperative

1 agreement, or other agreement with a private sector
 2 for-profit or nonprofit entity or State or local gov-
 3 ernment agency to administer the prize competition,
 4 subject to the provisions of this section.”;

5 (9) in subsection (m)—

6 (A) by amending paragraph (1) to read as
 7 follows:

8 “(1) IN GENERAL.—Support for a prize com-
 9 petition under this section, including financial sup-
 10 port for the design and administration of a prize
 11 competition or funds for a cash prize purse, may
 12 consist of Federal appropriated funds and funds
 13 provided by private sector for-profit and nonprofit
 14 entities. The head of an agency may request and ac-
 15 cept funds from other Federal agencies, State,
 16 United States territory, local, or tribal government
 17 agencies, private sector for-profit entities, and non-
 18 profit entities, to be available to the extent provided
 19 by appropriations Acts, to support such prize com-
 20 petitions. The head of an agency may not give any
 21 special consideration to any agency or entity in re-
 22 turn for a donation.”;

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

1 (C) in paragraph (3)—

2 (i) by amending subparagraph (A) to
3 read as follows:

4 “(A) ANNOUNCEMENT.—No prize competi-
5 tion may be announced under subsection (f)
6 until all the funds needed to pay out the an-
7 nounced amount of the cash prize purse have
8 been appropriated or committed in writing by a
9 private or State, United States territory, local,
10 or tribal government source.”; and

11 (ii) in subparagraph (B)—

12 (I) in the matter preceding clause
13 (i), by striking “a prize” and inserting
14 “a cash prize purse or non-cash prize
15 award”;

16 (II) in clause (i), by inserting
17 “competition” after “prize”; and

18 (III) in clause (ii), by inserting
19 “or State, United States territory,
20 local, or tribal government” after
21 “private”; and

22 (D) in paragraph (4)—

23 (i) in subparagraph (A)—

1 (I) by striking “a prize” and in-
 2 serting “a cash prize purse or a non-
 3 cash prize award”; and

4 (II) by striking “Science and
 5 Technology” and inserting “Science,
 6 Space, and Technology”; and

7 (ii) in subparagraph (B), by striking
 8 “cash prizes” and inserting “cash prize
 9 purses or non-cash prize awards”;

10 (10) in subsection (n)—

11 (A) in the heading, by striking “SERVICE”
 12 and inserting “SERVICES”;

13 (B) by striking “the date of the enactment
 14 of the America COMPETES Reauthorization
 15 Act of 2010” and inserting “the date of enact-
 16 ment of the American Innovation and Competi-
 17 tiveness Act,”; and

18 (C) by inserting “for both for-profit and
 19 nonprofit entities and State, United States ter-
 20 ritory, local, and tribal government entities,”
 21 after “contract vehicle”;

22 (11) in subsection (o)(1), by striking “or pro-
 23 viding a prize” and inserting “a prize competition or
 24 providing a cash prize purse or non-cash prize
 25 award”; and

1 (12) in subsection (p)—

2 (A) in the heading, by striking “ANNUAL”
3 and inserting “BIENNIAL”;

4 (B) in paragraph (1)—

5 (i) by striking “each year” and insert-
6 ing “every other year”;

7 (ii) by striking “Science and Tech-
8 nology” and inserting “Science, Space, and
9 Technology”; and

10 (iii) by striking “fiscal year” and in-
11 serting “2 fiscal years”; and

12 (C) in paragraph (2)—

13 (i) by striking “The report for a fiscal
14 year” and inserting “A report”;

15 (ii) in subparagraph (C)—

16 (I) in the heading, by striking
17 “PRIZES” and inserting “PRIZE
18 PURSES OR NON-CASH PRIZE
19 AWARDS”; and

20 (II) by striking “cash prizes”
21 each place it appears and inserting
22 “cash prize purses or non-cash prize
23 awards”; and

24 (iii) by adding at the end the fol-
25 lowing:

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

6 **SEC. 402. CROWDSOURCING AND CITIZEN SCIENCE.**

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

9 (1) the authority granted to Federal agencies
 10 under the America COMPETES Reauthorization
 11 Act of 2010 (Public Law 111–358; 124 Stat. 3982)
 12 to pursue the use of incentive prizes and challenges
 13 has yielded numerous benefits;

14 (2) crowdsourcing and citizen science projects
 15 have a number of additional unique benefits, includ-
 16 ing accelerating scientific research, addressing soci-
 17 etal needs, providing hands-on learning in STEM,
 18 and connecting members of the public directly to
 19 Federal agency missions and to each other; and

20 (3) granting Federal agencies the direct, ex-
 21 plicit authority to use crowdsourcing and citizen
 22 science will encourage its appropriate use to advance
 23 agency missions and stimulate and facilitate broader
 24 public participation in the innovation process; yield-

ing numerous benefits to the Federal Government
and citizens who participate in such projects.

(b) DEFINITIONS.—In this section:

(1) CITIZEN SCIENCE.—The term “citizen science” means a form of open collaboration in which individuals or organizations participate voluntarily in the scientific process in various ways, including—

(A) enabling the formulation of research questions;

(B) creating and refining project design;

(C) conducting scientific experiments;

(D) collecting and analyzing data;

(E) interpreting the results of data;

(F) developing technologies and applications;

(G) making discoveries; and

(H) solving problems.

(2) CROWDSOURCING.—The term “crowdsourcing” means a method to obtain needed services, ideas, or content by soliciting voluntary contributions from a group of individuals or organizations, especially from an online community.

(3) PARTICIPANT.—The term “participant” means any individual or other entity that has volun-

1 teered in a crowdsourcing or citizen science project
 2 under this section.

3 ~~(c) CROWDSOURCING AND CITIZEN SCIENCE.—~~

4 ~~(1) IN GENERAL.—~~The head of each Federal
 5 agency, or the heads of multiple Federal agencies
 6 working cooperatively, may utilize crowdsourcing
 7 and citizen science to conduct activities designed to
 8 advance the mission of the respective Federal agency
 9 or the joint mission of Federal agencies, as applica-
 10 ble.

11 ~~(2) VOLUNTARY SERVICES.—~~Notwithstanding
 12 section 1342 of title 31, United States Code, the
 13 head of a Federal agency may accept, subject to reg-
 14 ulations issued by the Director of the Office of Per-
 15 sonnel Management, services from participants
 16 under this section if such services—

17 (A) are performed voluntarily as a part of
 18 a crowdsourcing or citizen science project au-
 19 thorized under paragraph (1);

20 (B) are not financially compensated for
 21 their time; and

22 (C) will not be used to displace any em-
 23 ployee of the Federal Government.

24 ~~(3) OUTREACH.—~~The head of each Federal
 25 agency engaged in a crowdsourcing or citizen science

1 project under this section shall make public and pro-
 2 mote such project to encourage broad participation.

3 ~~(4) CONSENT, REGISTRATION, AND TERMS OF~~
 4 ~~USE.—~~

5 (A) IN GENERAL.—Each Federal agency is
 6 authorized to determine the appropriate level of
 7 consent, registration, or acknowledgment of the
 8 terms of use that are required from participants
 9 in crowdsourcing or citizen science projects
 10 under this section on a per-project basis.

11 (B) DISCLOSURES.—In seeking consent,
 12 conducting registration, or developing terms of
 13 use for a project under this subsection, a Fed-
 14 eral agency shall disclose the privacy, intellec-
 15 tual property, data ownership, compensation,
 16 service, program, and other terms of use to the
 17 participant in a clear and reasonable manner.

18 (C) MODE OF CONSENT.—A Federal agen-
 19 cy or Federal agencies, as applicable, may ob-
 20 tain consent electronically or in written form
 21 from participants under this section.

22 ~~(5) PROTECTIONS FOR HUMAN SUBJECTS.—~~
 23 Any crowdsourcing or citizen science project under
 24 this section that involves research involving human

1 subjects shall be subject to part 46 of title 28, Code
2 of Federal Regulations (or any successor regulation).

3 ~~(6) DATA.—~~

4 ~~(A) IN GENERAL.—~~A Federal agency shall,
5 where appropriate and to the extent practicable,
6 make data collected through a crowdsourcing or
7 citizen science project under this section avail-
8 able to the public, in a machine readable for-
9 mat, unless prohibited by law.

10 ~~(B) NOTICE.—~~As part of the consent proc-
11 ess, the Federal agency shall notify all partici-
12 pants—

13 ~~(i)~~ of the expected uses of the data
14 compiled through the project;

15 ~~(ii)~~ if the Federal agency will retain
16 ownership of such data;

17 ~~(iii)~~ if and how the data and results
18 from the project would be made available
19 for public or third party use; and

20 ~~(iv)~~ if participants are authorized to
21 publish such data.

22 ~~(7) TECHNOLOGIES AND APPLICATIONS.—~~Fed-
23 eral agencies shall endeavor to make technologies,
24 applications, code, and derivations of such intellec-
25 tual property developed through a crowdsourcing or

1 citizen science project under this section available to
2 the public.

3 (8) LIABILITY.—Each participant in a
4 crowdsourcing or citizen science project under this
5 section shall agree—

6 (A) to assume any and all risks associated
7 with such participation; and

8 (B) to waive all claims against the Federal
9 Government and its related entities, except for
10 claims based on willful misconduct, for any in-
11 jury, death, damage, or loss of property, rev-
12 enue, or profits (whether direct, indirect, or
13 consequential) arising from participation in the
14 project.

15 (9) SCIENTIFIC INTEGRITY.—Federal agencies
16 coordinating crowdsourcing or citizen science
17 projects under this section shall make all practicable
18 efforts to ensure that participants adhere to all rel-
19 evant scientific integrity or other applicable ethics
20 policies.

21 (10) MULTISECTOR PARTNERSHIPS.—The head
22 of each Federal agency engaged in crowdsourcing or
23 citizen science under this section, or the heads of
24 multiple Federal agencies working cooperatively,

1 may enter into a contract or other agreement to
2 share administrative duties for such activities with—

3 (A) a for-profit or nonprofit private sector
4 entity, including a private institution of higher
5 education;

6 (B) a State, tribal, local, or foreign govern-
7 ment agency, including a public institution of
8 higher education; or

9 (C) a public-private partnership.

10 (11) FUNDING.—In carrying out crowdsourcing
11 and citizen science projects under this section, the
12 head of a Federal agency, or the heads of multiple
13 Federal agencies working cooperatively—

14 (A) may use funds appropriated by Con-
15 gress;

16 (B) may publicize projects and solicit and
17 accept funds or in-kind support for such activi-
18 ties from—

19 (i) other Federal agencies;

20 (ii) for-profit or nonprofit private sec-
21 tor entities, including private institutions
22 of higher education; or

23 (iii) State, tribal, local, or foreign gov-
24 ernment agencies, including public institu-
25 tions of higher education; and

(C) may not give any special consideration to any entity described in subparagraph (B)(ii) in return for such funds or in-kind support.

~~(12)~~ FACILITATION.—

(A) GENERAL SERVICES ADMINISTRATION ASSISTANCE.—The Administrator of the General Services Administration, in coordination with the Director of the Office of Personnel Management, shall, at no cost to Federal agencies, identify and develop relevant products, training, and services to facilitate the use of crowdsourcing and citizen science projects under this section, including by specifying the appropriate contract vehicles and technology and organizational platforms to enhance the ability of Federal agencies to carry out the activities under this section.

(B) ADDITIONAL GUIDANCE.—The head of each Federal agency engaged in crowdsourcing or citizen science under this section is encouraged—

(i) to consult any guidance provided by the Director of the Office of Science and Technology Policy, including the Fed-

1 eral Crowdsourcing and Citizen Science
2 Toolkit;

3 (ii) to designate a coordinator for that
4 Federal agency's crowdsourcing and citizen
5 science projects; and

6 (iii) to share best practices with other
7 Federal agencies, including participation of
8 staff in the Federal Community of Practice
9 for Crowdsourcing and Citizen Science.

10 ~~(d) REPORT.—~~

11 ~~(1) IN GENERAL.—~~Not later than 2 years after
12 the date of the enactment of this Act, the Director
13 of the Office of Science and Technology Policy shall
14 include, as a component of a report required under
15 section 24(p) of the Stevenson-Wydler Technology
16 Innovation Act of 1980 (15 U.S.C. 3719(p)), a re-
17 port on the activities carried out under this section.

18 ~~(2) INFORMATION INCLUDED.—~~The report re-
19 quired under paragraph (1) shall include—

20 ~~(A)~~ a summary of each crowdsourcing and
21 citizen science project conducted by a Federal
22 agency during the most recently completed 2
23 fiscal years, including a description of the pro-
24 posed goals of each crowdsourcing and citizen
25 science project;

1 ~~(B)~~ the participation rates, submission lev-
 2 els, number of consents, or any other statistic
 3 that might be considered relevant in each
 4 crowdsourcing and citizen science project;

5 ~~(C)~~ a description of—

6 ~~(i)~~ the resources (including personnel
 7 and funding) that were used in the execu-
 8 tion of each crowdsourcing and citizen
 9 science project;

10 ~~(ii)~~ the activities for which such re-
 11 sources were used; and

12 ~~(iii)~~ how the obligations and expendi-
 13 tures relating to the project's execution
 14 were allocated among the accounts of the
 15 Federal agency;

16 ~~(D)~~ a summary of the use of
 17 crowdsourcing and citizen science by all Federal
 18 agencies, including interagency and multisector
 19 partnerships; and

20 ~~(E)~~ any other information that the Direc-
 21 tor of the Office of Science and Technology Pol-
 22 icy considers relevant.

23 ~~(e)~~ SAVINGS PROVISION.—Nothing in this section
 24 may be construed—

1 (1) to affect the authority to conduct
2 crowdsourcing and citizen science authorized by any
3 other provision of law; or

4 (2) to displace Federal Government resources
5 allocated to the Federal agencies that use
6 crowdsourcing or citizen science authorized under
7 this section to carry out a project.

8 **SEC. 403. NIST OTHER TRANSACTION AUTHORITY UPDATE.**

9 Section 2(b)(4) of the National Institute of Stand-
10 ards and Technology Act (15 U.S.C. 272(b)(4)) is amend-
11 ed to read as follows:

12 “(4) to enter into and perform such contracts;
13 including cooperative research and development ar-
14 rangements, grants, cooperative agreements, real
15 property leases, or other transactions, as may be
16 necessary in furtherance of the purposes of this Act
17 and on such terms as the Director considers appro-
18 priate;”.

19 **SEC. 404. NIST VISITING COMMITTEE ON ADVANCED TECH-**
20 **NOLOGY UPDATE.**

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

23 (1) in the second sentence, by striking “15
24 members appointed by the Director, at least 10 of

1 whom” and “not fewer than 9 members appointed
 2 by the Director, a majority of whom”; and
 3 (2) in the third sentence, by striking “National
 4 Bureau of Standards” and inserting “National Insti-
 5 tute of Standards and Technology”.

6 **TITLE V—MANUFACTURING**

7 **SEC. 501. HOLLINGS MANUFACTURING EXTENSION PART-** 8 **NERSHIP IMPROVEMENTS.**

9 (a) IN GENERAL.—Section 25 of the National Insti-
 10 tute of Standards and Technology Act (15 U.S.C. 278k)
 11 is amended to read as follows:

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

14 “(a) DEFINITIONS.—In this section:

15 “(1) APPROPRIATE COMMITTEES OF CON-
 16 GRESS.—The term ‘appropriate committees of Con-
 17 gress’ means—

18 “(A) the Committee on Commerce,
 19 Science, and Transportation of the Senate; and

20 “(B) the Committee on Science, Space,
 21 and Technology of the House of Representa-
 22 tives.

23 “(2) AREA CAREER AND TECHNICAL EDU-
 24 CATION SCHOOL.—The term ‘area career and tech-
 25 nical education school’ has the meaning given the

1 term in section 3 of the Vocational Education Act of
 2 1963 (20 U.S.C. 2302).

3 “(3) CENTER.—The term ‘Center’ means a
 4 manufacturing extension center that—

5 “(A) is created under subsection (b); and

6 “(B) is affiliated with an eligible entity
 7 that applies for and is awarded financial sup-
 8 port under subsection (c).

9 “(4) COMMUNITY COLLEGE.—The term ‘com-
 10 munity college’ means an institution of higher edu-
 11 cation (as defined under section 101(a) of the High-
 12 er Education Act of 1965 (20 U.S.C. 1001(a))) at
 13 which the highest degree that is predominately
 14 awarded to students is an associate’s degree.

15 “(5) ELIGIBLE ENTITY.—The term ‘eligible en-
 16 tity’ means a United States-based nonprofit institu-
 17 tion, or consortium thereof, an institution of higher
 18 education, or a State, United States territory, local,
 19 or tribal government.

20 “(6) HOLLINGS MANUFACTURING EXTENSION
 21 PARTNERSHIP OR PROGRAM.—The term ‘Hollings
 22 Manufacturing Extension Partnership’ or ‘Program’
 23 means the program established under subsection (b).

24 “(7) MEP ADVISORY BOARD.—The term ‘MEP
 25 Advisory Board’ means the Manufacturing Exten-

1 sion Partnership Advisory Board established under
2 subsection (n).

3 “(b) ESTABLISHMENT AND PURPOSE.—The Sec-
4 retary, acting through the Director and, if appropriate,
5 through other Federal officials, shall establish a program
6 to provide assistance for the creation and support of man-
7 ufacturing extension centers for the transfer of manufac-
8 turing technology and best business practices.

9 “(c) OBJECTIVE.—The objective of the Program shall
10 be to enhance competitiveness, productivity, and techno-
11 logical performance in United States manufacturing
12 through—

13 “(1) the transfer of manufacturing technology
14 and techniques developed at the Institute to Centers
15 and, through them, to manufacturing companies
16 throughout the United States;

17 “(2) the participation of individuals from indus-
18 try, institutions of higher education, State govern-
19 ments, other Federal agencies, and, when appro-
20 priate, the Institute in cooperative technology trans-
21 fer activities;

22 “(3) efforts to make new manufacturing tech-
23 nology and processes usable by United States-based
24 small and medium-sized companies;

1 “(4) the active dissemination of scientific, engi-
 2 neering, technical, and management information
 3 about manufacturing to industrial firms, including
 4 small and medium-sized manufacturing companies;

5 “(5) the utilization, when appropriate, of the
 6 expertise and capability that exists in Federal agen-
 7 cies, other than the Institute, and federally spon-
 8 sored laboratories;

9 “(6) the provision to community colleges and
 10 area career and technical education schools of infor-
 11 mation about the job skills needed in manufacturing
 12 companies, including small and medium-sized manu-
 13 facturing businesses in the regions they serve;

14 “(7) the promotion and expansion of certifi-
 15 cation systems offered through industry, associa-
 16 tions, and community colleges, when appropriate;
 17 and

18 “(8) the growth in employment and wages at
 19 United States-based small and medium-sized compa-
 20 nies.

21 “(d) ACTIVITIES.—The activities of a Center shall in-
 22 clude—

23 “(1) the establishment of automated manufac-
 24 turing systems and other advanced production tech-
 25 nologies, based on Institute-supported research, for

1 the purpose of demonstrations and technology trans-
 2 fer;

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

7 “(3) the facilitation of collaborations and part-
 8 nerships between small and medium-sized manufac-
 9 turing companies, community colleges, and area ca-
 10 reer and technical education schools, to help those
 11 entities better understand the specific needs of man-
 12 ufacturers and to help manufacturers better under-
 13 stand the skill sets that students learn in the pro-
 14 grams offered by such colleges and schools.

15 “(c) FINANCIAL ASSISTANCE.—

16 “(1) AUTHORIZATION.—Except as provided in
 17 paragraph (2), the Secretary may provide financial
 18 assistance for the creation and support of a Center
 19 through a cooperative agreement with an eligible en-
 20 tity.

21 “(2) COST SHARING.—The Secretary may not
 22 provide more than 50 percent of the capital and an-
 23 nual operating and maintenance funds required to
 24 establish and support a Center.

1 “(3) RULE OF CONSTRUCTION.—For purposes
 2 of paragraph (2), any amount received by an eligible
 3 entity for a Center under a provision of law other
 4 than paragraph (1) shall not be considered an
 5 amount provided under paragraph (1).

6 “(f) APPLICATIONS.—

7 “(1) IN GENERAL.—An eligible entity shall sub-
 8 mit an application to the Secretary at such time, in
 9 such manner, and containing such information as
 10 the Secretary may require.

11 “(2) PROGRAM DESCRIPTION.—The Secretary
 12 shall establish and update, as necessary—

13 “(A) a description of the Program;

14 “(B) the application procedures;

15 “(C) performance metrics;

16 “(D) criteria for determining qualified ap-
 17 plicants;

18 “(E) criteria for choosing recipients of fi-
 19 nancial assistance from among the qualified ap-
 20 plicants;

21 “(F) procedures for determining allowable
 22 cost share contributions; and

23 “(G) such other program policy objections
 24 and operational procedures as the Secretary
 25 deems necessary.

1 ~~“(3) COST SHARING.—~~

2 ~~“(A) IN GENERAL.—To be considered for~~
 3 ~~financial assistance under this section, an appli-~~
 4 ~~cant shall provide adequate assurances that the~~
 5 ~~applicant and if applicable, the applicant’s~~
 6 ~~partnering organizations, will obtain funding~~
 7 ~~for not less than 50 percent of the capital and~~
 8 ~~annual operating and maintenance funds re-~~
 9 ~~quired to establish and support the Center from~~
 10 ~~sources other than the financial assistance pro-~~
 11 ~~vided under subsection (e).~~

12 ~~“(B) AGREEMENTS WITH OTHER ENTI-~~
 13 ~~TIES.—In meeting the cost-sharing requirement~~
 14 ~~under subparagraph (A), an eligible entity may~~
 15 ~~enter into an agreement with one or more other~~
 16 ~~entities, such as a private industry, an institu-~~
 17 ~~tion of higher education, or a State, United~~
 18 ~~States territory, local, or tribal government for~~
 19 ~~the contribution by that other entity of funding~~
 20 ~~if the Secretary determines the agreement—~~

21 ~~“(i) is programmatically reasonable;~~

22 ~~“(ii) will help accomplish pro-~~
 23 ~~grammatic objectives; and~~

24 ~~“(iii) is allocable under Program pro-~~
 25 ~~cedures under subsection (f)(2).~~

1 ~~“(4) LEGAL RIGHTS.—~~Each applicant shall in-
2 clude in the application a proposal for the allocation
3 of the legal rights associated with any intellectual
4 property which may result from the activities of the
5 Center.

6 ~~“(5) MERIT REVIEW OF APPLICATIONS.—~~

7 ~~“(A) IN GENERAL.—~~The Secretary shall
8 subject each application to merit review.

9 ~~“(B) CONSIDERATIONS.—~~In making a de-
10 cision whether to approve an application and
11 provide financial assistance under subsection
12 (e), the Secretary shall consider, at a min-
13 imum—

14 ~~“(i) the merits of the application, par-~~
15 ticularly those portions of the application
16 regarding technology transfer, training and
17 education, and adaptation of manufac-
18 turing technologies to the needs of par-
19 ticular industrial sectors;

20 ~~“(ii) the quality of service to be pro-~~
21 vided;

22 ~~“(iii) the geographical diversity and~~
23 extent of the service area; and

1 “(iv) the type and percentage of fund-
 2 ing from other sources under paragraph
 3 (3).

4 “(g) EVALUATIONS.—

5 “(1) THIRD AND EIGHTH YEAR EVALUATIONS
 6 BY PANEL.—

7 “(A) IN GENERAL.—The Secretary shall
 8 ensure that each Center is evaluated during its
 9 third and eighth years of operation by an eval-
 10 uation panel appointed by the Secretary.

11 “(B) COMPOSITION.—The Secretary shall
 12 ensure that each evaluation panel appointed
 13 under subparagraph (A) is composed of—

14 “(i) private experts, none of whom are
 15 connected with the Center evaluated by the
 16 panel; and

17 “(ii) Federal officials.

18 “(C) CHAIRPERSON.—For each evaluation
 19 panel appointed under subparagraph (B), the
 20 Secretary shall appoint a chairperson who is an
 21 official of the Institute.

22 “(2) FIFTH YEAR EVALUATIONS BY SEC-
 23 RETARY.—In the fifth year of operation of a Center,
 24 the Secretary shall conduct a review of the Center.

1 “(3) PERFORMANCE MEASUREMENT.—In evalu-
 2 ating a Center an evaluation panel or the Secretary,
 3 as applicable, shall measure the performance of the
 4 Center against—

5 “(A) the objective specified in subsection
 6 (e);

7 “(B) the performance metrics under sub-
 8 section (f)(2)(C); and

9 “(C) such other criterion as deemed appro-
 10 priate by the Secretary.

11 “(4) POSITIVE EVALUATIONS.—If an evaluation
 12 of a Center is positive, the Secretary may continue
 13 to provide financial assistance for the Center—

14 “(A) in the case of an evaluation occurring
 15 in the third year of a Center, through the fifth
 16 year of the Center;

17 “(B) in the case of an evaluation occurring
 18 in the fifth year of a Center, through the eighth
 19 year of the Center; and

20 “(C) in the case of an evaluation occurring
 21 in the eighth year of a Center, through the
 22 tenth year of the Center.

23 “(5) OTHER THAN POSITIVE EVALUATIONS.—

24 “(A) PROBATION.—If an evaluation of a
 25 Center is other than positive, the Secretary

1 shall put the Center on probation during the
 2 period beginning on the date that the Center
 3 receives notice under subparagraph (B)(i) and
 4 ending on the date that the reevaluation is com-
 5 plete under subparagraph (B)(iii).

6 “(B) NOTICE AND REEVALUATION.—If a
 7 Center receives an evaluation that is other than
 8 positive, the evaluation panel or Secretary, as
 9 applicable, shall—

10 “(i) notify the Center of the reason;
 11 including any deficiencies in the perform-
 12 ance of the Center identified during the
 13 evaluation;

14 “(ii) assist the Center in remedying
 15 the deficiencies by providing the Center,
 16 not less frequently than once every 3
 17 months, an analysis of the Center, if con-
 18 sidered appropriate by the panel or Sec-
 19 retary, as applicable; and

20 “(iii) reevaluate the Center not later
 21 than 1 year after the date of the notice
 22 under clause (i).

23 “(C) CONTINUED SUPPORT DURING PE-
 24 RIOD OF PROBATION.—The Secretary may con-
 25 tinue to provide financial assistance under sub-

1 section (e) for a Center during the probation
2 period.

3 ~~“(6) FAILURE TO REMEDY.—~~

4 ~~“(A) IN GENERAL.—~~If a Center fails to
5 remedy a deficiency or to show significant im-
6 provement in performance before the end of the
7 probation period under paragraph (5), the Sec-
8 retary shall conduct a competition to select an
9 operator for the Center under subsection (h).

10 ~~“(B) TREATMENT OF CENTERS SUBJECT~~
11 ~~TO NEW COMPETITION.—~~Upon the selection of
12 an operator for a Center under subsection (h),
13 the Center shall be considered a new Center
14 and the calculation of the years of operation of
15 that Center for purposes of paragraphs (1)
16 through (5) of this subsection and subsection
17 (h)(1) shall start anew.

18 ~~“(h) REAPPLICATION COMPETITION FOR FINANCIAL~~
19 ~~ASSISTANCE AFTER 10 YEARS.—~~

20 ~~“(1) IN GENERAL.—~~If an eligible entity has op-
21 erated a Center under this section for a period of 10
22 consecutive years, the Secretary shall conduct a com-
23 petition to select an eligible entity to operate the
24 Center in accordance with the process plan under
25 subsection (i).

1 “(2) INCUMBENT ELIGIBLE ENTITIES.—An eli-
 2 gible entity that has received financial assistance
 3 under this section for a period of 10 consecutive
 4 years and that the Secretary determines is in good
 5 standing shall be eligible to compete in the competi-
 6 tion under paragraph (1).

7 “(3) TREATMENT OF CENTERS SUBJECT TO RE-
 8 APPLICATION COMPETITION.—Upon the selection of
 9 an operator for a Center under paragraph (1), the
 10 Center shall be considered a new Center and the cal-
 11 culation of the years of operation of that Center for
 12 purposes of paragraphs (1) through (5) of sub-
 13 section (g) shall start anew.

14 “(i) PROCESS PLAN.—Not later than 180 days after
 15 the date of the enactment of the American Innovation and
 16 Competitiveness Act, the Secretary shall implement and
 17 submit to Congress a plan for how the Institute will con-
 18 duct an evaluation, competition, and reapplication com-
 19 petition under this section.

20 “(j) OPERATIONAL REQUIREMENTS.—

21 “(1) PROTECTION OF CONFIDENTIAL INFORMA-
 22 TION OF CENTER CLIENTS.—The following informa-
 23 tion, if obtained by the Federal Government in con-
 24 nection with an activity of a Center or the Program,

1 shall be exempt from public disclosure under section
2 552 of title 5, United States Code:

3 “(A) Information on the business operation
4 of any participant in the Program or of a client
5 of a Center.

6 “(B) Trade secrets of any client of a Cen-
7 ter.

8 “(k) OVERSIGHT BOARDS.—

9 “(1) IN GENERAL.—As a condition on receipt of
10 financial assistance for a Center under subsection
11 (e), an eligible entity shall establish a board to over-
12 see the operations of the Center.

13 “(2) STANDARDS.—

14 “(A) IN GENERAL.—The Director shall es-
15 tablish appropriate standards for each board
16 described under paragraph (1).

17 “(B) CONSIDERATIONS.—In establishing
18 the standards, the Director shall take into ac-
19 count the type and organizational structure of
20 an eligible entity.

21 “(C) REQUIREMENTS.—The standards
22 shall address, at a minimum—

23 “(i) membership;

24 “(ii) composition;

25 “(iii) term limits;

1 “(iv) conflicts of interest; and

2 “(v) whether to limit board members
3 serving on multiple boards under this sec-
4 tion.

5 “(3) MEMBERSHIP.—

6 “(A) IN GENERAL.—Each board estab-
7 lished under paragraph (1) shall be composed
8 of members as follows:

9 “(i) The membership of each board
10 shall be representative of stakeholders in
11 the region in which the Center is located.

12 “(ii) A majority of the members of the
13 board shall be selected from among indi-
14 viduals who own or are employed by small
15 or medium-sized manufacturers.

16 “(B) LIMITATION.—A member of a board
17 established under paragraph (1) may not serve
18 on more than 1 board established under that
19 paragraph.

20 “(4) BYLAWS.—

21 “(A) IN GENERAL.—Each board estab-
22 lished under paragraph (1) shall adopt and sub-
23 mit to the Director bylaws to govern the oper-
24 ation of the board.

1 “(B) CONFLICTS OF INTEREST.—Bylaws
2 adopted under subparagraph (A) shall include
3 policies to minimize conflicts of interest, includ-
4 ing such policies relating to disclosure of rela-
5 tionships and recusal as may be necessary to
6 minimize conflicts of interest.

7 “(1) ACCEPTANCE OF FUNDS.—In addition to such
8 sums as may be appropriated to the Secretary and Direc-
9 tor to operate the Program, the Secretary and Director
10 may also accept funds from other Federal departments
11 and agencies and from the private sector under section
12 2(c)(7) of this Act (15 U.S.C. 272(c)(7)), to be available
13 to the extent provided by appropriations Acts, for the pur-
14 pose of strengthening United States manufacturing.

15 “(m) MEP ADVISORY BOARD.—

16 “(1) ESTABLISHMENT.—There is established
17 within the Institute a Manufacturing Extension
18 Partnership Advisory Board.

19 “(2) MEMBERSHIP.—

20 “(A) COMPOSITION.—

21 “(i) IN GENERAL.—The MEP Advi-
22 sory Board shall consist of not fewer than
23 10 members appointed by the Director and
24 broadly representative of stakeholders.

1 “(ii) REQUIREMENTS.—Of the mem-
2 bers appointed under clause (i)—

3 “~~(I)~~ at least 2 members shall be
4 employed by or on an advisory board
5 for a Center; and

6 “~~(II)~~ at least 5 other members
7 shall be from United States small
8 businesses in the manufacturing sec-
9 tor.

10 “~~(iii)~~ LIMITATION.—No member of
11 the MEP Advisory Board shall be an em-
12 ployee of the Federal Government.

13 “~~(B)~~ TERM.—Except as provided in sub-
14 paragraph (C), the term of office of each mem-
15 ber of the MEP Advisory Board shall be 3
16 years.

17 “~~(C)~~ VACANCIES.—Any member appointed
18 to fill a vacancy occurring prior to the expira-
19 tion of the term for which his predecessor was
20 appointed shall be appointed for the remainder
21 of such term.

22 “~~(D)~~ SERVING CONSECUTIVE TERMS.—
23 Any person who has completed 2 consecutive
24 full terms of service on the MEP Advisory
25 Board shall thereafter be ineligible for appoint-

ment during the 1-year period following the expiration of the second such term.

~~“(3) MEETINGS.—The MEP Advisory Board shall—~~

~~“(A) meet not less than biannually; and~~

~~“(B) provide to the Director—~~

~~“(i) advice on the activities, plans, and policies of the Program;~~

~~“(ii) assessments of the soundness of the plans and strategies of the Program; and~~

~~“(iii) assessments of current performance against the plans of the Program.~~

~~“(4) FACA APPLICABILITY.—~~

~~“(A) IN GENERAL.—In discharging its duties under this subsection, the MEP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act (5 U.S.C. App.).~~

~~“(B) EXCEPTION.—Section 14 of the Federal Advisory Committee Act shall not apply to the MEP Advisory Board.~~

~~“(5) ANNUAL REPORT.—~~

~~“(A) IN GENERAL.—At a minimum, the MEP Advisory Board shall transmit an annual~~

1 report to the Secretary for transmittal to Con-
 2 gress not later than 30 days after the submis-
 3 sion to Congress of the President's annual
 4 budget request in each year.

5 “(B) CONTENTS.—The report shall ad-
 6 dress the status of the Program and describe
 7 the relevant sections of the programmatic plan-
 8 ning document and updates thereto transmitted
 9 to Congress by the Director under subsections
 10 (c) and (d) of section 23 (15 U.S.C. 278i).

11 “(n) SMALL MANUFACTURERS.—

12 “(1) EVALUATION OF OBSTACLES.—As part of
 13 the Program, the Director shall—

14 “(A) identify obstacles that prevent small
 15 manufacturers from effectively competing in the
 16 global market;

17 “(B) implement a comprehensive plan to
 18 train the Centers to address the obstacles iden-
 19 tified in paragraph (2); and

20 “(C) facilitate improved communication be-
 21 tween the Centers to assist such manufacturers
 22 in implementing appropriate, targeted solutions
 23 to the obstacles identified in paragraph (2).

24 “(2) DEVELOPMENT OF OPEN ACCESS RE-
 25 SOURCES.—As part of the Program, the Secretary

1 shall develop open access resources that address best
 2 practices related to inventory sourcing, supply chain
 3 management, manufacturing techniques, available
 4 Federal resources, and other topics to further the
 5 competitiveness and profitability of small manufac-
 6 turers.”.

7 (b) COMPETITIVE AWARDS PROGRAM.—The National
 8 Institute of Standards and Technology Act (15 U.S.C. 271
 9 et seq.) is amended by inserting after section 25 the fol-
 10 lowing:

11 **“SEC. 25A. COMPETITIVE AWARDS PROGRAM.**

12 “(a) ESTABLISHMENT.—The Director shall establish
 13 within the Hollings Manufacturing Extension Partnership
 14 under section 25 (15 U.S.C. 278k) and section 26 (15
 15 U.S.C. 278l) a program of competitive awards among par-
 16 ticipants described in subsection (b) of this section for the
 17 purposes described in subsection (c).

18 “(b) PARTICIPANTS.—Participants receiving awards
 19 under this section shall be Centers, or a consortium of
 20 Centers.

21 “(c) PURPOSE, THEMES, AND REIMBURSEMENT.—

22 “(1) PURPOSE.—The purpose of the program
 23 established under subsection (a) is to add capabili-
 24 ties to the Hollings Manufacturing Extension Part-
 25 nership, including the development of projects to

1 solve new or emerging manufacturing problems as
 2 determined by the Director, in consultation with the
 3 Director of the Hollings Manufacturing Extension
 4 Partnership, the MEP Advisory Board, other Fed-
 5 eral agencies, and small and medium-sized manufac-
 6 turers.

7 “(2) THEMES.—The Director may identify one
 8 or more themes for a competition carried out under
 9 this section, which may vary from year to year, as
 10 the Director considers appropriate after assessing
 11 the needs of manufacturers and the success of pre-
 12 vious competitions.

13 “(3) REIMBURSEMENT.—Centers may be reim-
 14 bursed for costs incurred by the Centers under this
 15 section.

16 “(d) APPLICATIONS.—Applications for awards under
 17 this section shall be submitted in such manner, at such
 18 time, and containing such information as the Director
 19 shall require in consultation with the MEP Advisory
 20 Board.

21 “(e) SELECTION.—

22 “(1) PEER REVIEW AND COMPETITIVELY
 23 AWARDED.—The Director shall ensure that awards
 24 under this section are peer reviewed and competi-
 25 tively awarded.

1 “(2) GEOGRAPHIC DIVERSITY.—The Director
2 shall endeavor to have broad geographic diversity
3 among selected proposals.

4 “(3) CRITERIA.—The Director shall select ap-
5 plications to receive awards that the Director deter-
6 mines will achieve one or more of the following:

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.

12 “(C) Promote the transfer and commer-
13 cialization of research and technology from in-
14 stitutions of higher education, national labora-
15 tories or other federally funded research pro-
16 grams, and nonprofit research institutes.

17 “(D) Recruit a diverse manufacturing
18 workforce, including through outreach to
19 women and minorities.

20 “(E) Such other result as the Director de-
21 termines will advance the objective set forth in
22 section 25(c) (15 U.S.C. 278k) or in section 26
23 (15 U.S.C. 278l).

1 “(f) PROGRAM CONTRIBUTION.—Recipients of
2 awards under this section shall not be required to provide
3 a matching contribution.

4 “(g) GLOBAL MARKETPLACE PROJECTS.—In making
5 an award under this section, the Director, in consultation
6 with the MEP Advisory Board and the Secretary, may
7 take into consideration whether an application has signifi-
8 cant potential for enhancing the competitiveness of small
9 and medium-sized United States manufacturers in the
10 global marketplace.

11 “(h) DURATION.—The duration of an award under
12 this section shall be for not more than 3 years.

13 “(i) DEFINITIONS.—The terms used in this section
14 have the meanings given the terms in section 25 (15
15 U.S.C. 278k).”.

16 “(e) GAO REPORT.—Not later than 2 years after the
17 date of enactment of this Act, the Comptroller General
18 of the United States, in consultation with the MEP Advi-
19 sory Board (as defined in section 25 of the National Insti-
20 tute of Standards and Technology Act (15 U.S.C. 278k),
21 shall submit to the Committee on Commerce, Science, and
22 Transportation of the Senate and the Committee on
23 Science, Space, and Technology of the House of Rep-
24 resentatives a report analyzing—

1 (1) the effectiveness of the changes in the cost
2 share to Centers under section 25 of the National
3 Institute of Standards and Technology Act (15
4 U.S.C. 278k);

5 (2) the engagement in services and the charac-
6 teristics of services provided by 2 types of Centers;
7 including volume and type of service; and

8 (3) whether the cost-sharing ratio has any ef-
9 fect on the services provided by either type of Cen-
10 ter.

11 (d) CONFORMING AMENDMENTS.—

12 (1) DEFINITIONS.—Section 2199(3) of title 10,
13 United States Code, is amended—

14 (A) by striking “regional center” and in-
15 serting “manufacturing extension center”;

16 (B) by inserting “and best business prac-
17 tices” before “referred”; and

18 (C) by striking “25(a)” and inserting
19 “25(b)”.

20 (2) ENTERPRISE INTEGRATION INITIATIVE.—

21 Section 3(a) of the Enterprise Integration Act of
22 2002 (15 U.S.C. 278g–5(a)) is amended by inserting
23 “Hollings” before “Manufacturing Extension Part-
24 nership”.

1 ~~(3)~~ ASSISTANCE TO STATE TECHNOLOGY PRO-
 2 GRAMS.—Section 26(a) of the National Institute of
 3 Standards and Technology Act (~~15 U.S.C. 278l(a)~~)
 4 is amended by striking “Centers program created”
 5 and inserting “Hollings Manufacturing Extension
 6 Partnership”.

7 ~~(e)~~ SAVINGS PROVISIONS.—Notwithstanding the
 8 amendments made by subsections (a) and (b) of this sec-
 9 tion, the Secretary of Commerce may carry out section
 10 ~~25~~ of the National Institute of Standards and Technology
 11 Act (~~15 U.S.C. 278k~~) as that section was in effect on the
 12 day before the date of enactment of this Act, with respect
 13 to existing grants, agreements, cooperative agreements, or
 14 contracts, and with respect to applications for such items
 15 that are received by the Secretary prior to the date of en-
 16 actment of this Act.

17 **SEC. 502. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**
 18 **TECHNOLOGIES IN MANUFACTURING.**

19 Section 26(o) of the Stevenson-Wydler Technology
 20 Innovation Act of 1980 (~~15 U.S.C. 3721(o)~~) is amended—

- 21 ~~(1)~~ by inserting “~~(1)~~ IN GENERAL.—” before
 22 “~~To~~ the maximum” and indenting appropriately;
 23 and
 24 ~~(2)~~ by adding at the end the following:

1 “(2) ACCESS TO CAPITAL.—The Secretary, in
 2 coordination with the Small Business Administration
 3 and the National Institute of Standards and Tech-
 4 nology, shall identify any gaps in the access of small
 5 or medium-sized manufacturers to capital for the
 6 use or production of innovative technologies that the
 7 program could fill, and develop marketing materials
 8 and conduct outreach to target those gaps.”.

9 **TITLE VI—INNOVATION, COM-**
 10 **MERCIALIZATION, AND TECH-**
 11 **NOLOGY TRANSFER**

12 **SEC. 601. INNOVATION CORPS.**

13 (a) FINDINGS.—Congress makes the following find-
 14 ings:

15 (1) The National Science Foundation Innova-
 16 tion Corps (referred to in this section as the “I-
 17 Corps”) was established to foster a national innova-
 18 tion ecosystem by encouraging institutions, sci-
 19 entists, engineers, and entrepreneurs to identify and
 20 explore the innovation and commercial potential of
 21 National Science Foundation-funded research well
 22 beyond the laboratory.

23 (2) Through I-Corps, the Foundation invests in
 24 entrepreneurship and commercialization education,
 25 training, and mentoring that can ultimately lead to

1 the practical deployment of technologies, products,
 2 processes, and services that improve the Nation's
 3 competitiveness, promote economic growth, and ben-
 4 efit society.

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

10 (4) By translating federally funded research to
 11 a commercial stage more quickly and efficiently, pro-
 12 grams like the I-Corps create new jobs and compa-
 13 nies, help solve societal problems, and provide tax-
 14 payers with a greater return on their investment in
 15 research.

16 (5) The I-Corps program model has a strong
 17 record of success that should be replicated at all
 18 Federal science agencies.

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

21 (1) commercialization of federally funded re-
 22 search can improve the Nation's competitiveness,
 23 grow the economy, and benefit society;

24 (2) I-Corps is a useful tool in promoting the
 25 commercialization of federally funded research by

1 training researchers funded by the Foundation in
2 entrepreneurship and commercialization;

3 (3) I-Corps should continue to build a network
4 of entrepreneurs, educators, mentors, and institu-
5 tions and support specialized education and training;
6 and

7 (4) researchers other than those funded by the
8 Foundation may also benefit from the education and
9 training described in paragraph (3).

10 (c) I-CORPS PROGRAM.—

11 (1) IN GENERAL.—In order to promote a
12 strong, lasting foundation for the national innova-
13 tion ecosystem and increase the positive economic
14 and social impact of federally funded research, the
15 Director of the Foundation shall set forth eligibility
16 requirements and carry out a program to award
17 grants for entrepreneurship and commercialization
18 education, training, and mentoring.

19 (2) EXPANSION OF I-CORPS.—

20 (A) IN GENERAL.—The Director—

21 (i) shall encourage the development
22 and expansion of I-Corps and other train-
23 ing programs that focus on professional
24 development, including education in entre-
25 preneurship and commercialization; and

1 (ii) may establish an agreement with
2 another Federal science agency—

3 (I) to make researchers, stu-
4 dents, and institutions funded by that
5 agency eligible to participate in the I-
6 Corps program; or

7 (II) to assist that agency with
8 the design and implementation of its
9 own program that is similar to the I-
10 Corps program.

11 (B) PARTNERSHIP FUNDING.—In negoti-
12 ating an agreement with another Federal
13 science agency under subparagraph (A)(ii), the
14 Director shall require that Federal science
15 agency to provide funding for—

16 (i) the training for researchers, stu-
17 dents, and institutions selected for the I-
18 Corps program; and

19 (ii) the locations that Federal science
20 agency designates as regional and national
21 infrastructure for science and engineering
22 entrepreneurship.

23 (3) FOLLOW-ON COMMERCIALIZATION
24 GRANTS.—

1 (A) ~~IN GENERAL.~~—Subject to subpara-
 2 graph (B), the Director, in consultation with
 3 the Director of the Small Business Innovation
 4 Research Program, shall make funds available
 5 for competitive grants, including to I-Corps par-
 6 ticipants, to help support—

7 (i) prototype or proof-of-concept devel-
 8 opment; and

9 (ii) such activities as the Director con-
 10 siders necessary to build local, regional,
 11 and national infrastructure for science and
 12 engineering entrepreneurship.

13 (B) ~~LIMITATION.~~—Grants under subpara-
 14 graph (A) shall be limited to participants with
 15 innovations that because of the early stage of
 16 development are not eligible to participate in a
 17 Small Business Innovation Research Program
 18 or a Small Business Technology Transfer Pro-
 19 gram.

20 (4) ~~STATE AND LOCAL PARTNERSHIPS.~~—The
 21 Director may engage in partnerships with State and
 22 local governments, economic development organiza-
 23 tions, and nonprofit organizations to provide access
 24 to the I-Corps program to support entrepreneurship
 25 and commercialization education and training for re-

1 searchers, students, and institutions under this sub-
2 section.

3 (5) **REPORTS.**—The Director shall submit to
4 the appropriate committees of Congress a biennial
5 report on I-Corps program efficacy, including
6 metrics on the effectiveness of the program. Each
7 Federal science agency participating in the I-Corps
8 program or that implements a similar program
9 under paragraph (2)(A) shall contribute to the re-
10 port.

11 (6) **DEFINITIONS.**—In this subsection, the
12 terms “Small Business Innovation Research Pro-
13 gram” and “Small Business Technology Transfer
14 Program” have the meanings given those terms in
15 section 9 of the Small Business Act (15 U.S.C.
16 638).

17 **SEC. 602. TRANSLATIONAL RESEARCH GRANTS.**

18 (a) **SENSE OF CONGRESS.**—It is the sense of Con-
19 gress that—

20 (1) commercialization of federally funded re-
21 search may benefit society and the economy; and

22 (2) not-for-profit organizations support the
23 commercialization of federally funded research by
24 providing useful business and technical expertise to
25 researchers.

1 (b) ~~COMMERCIALIZATION GRANTS PROGRAM.~~—The
2 Director of the Foundation shall continue to award grants
3 on a competitive, merit-reviewed basis to eligible entities
4 to promote the commercialization of federally funded re-
5 search results.

6 (c) ~~USE OF FUNDS.~~—Activities supported by grants
7 under this section may include—

8 (1) identifying Foundation-sponsored research
9 and technologies that have the potential for acceler-
10 ated commercialization;

11 (2) supporting prior or current Foundation-
12 sponsored investigators in undertaking proof-of-con-
13 cept work, including development of prototypes of
14 technologies that are derived from Foundation-spon-
15 sored research and have potential market value;

16 (3) promoting sustainable partnerships between
17 Foundation-funded institutions, industry, and other
18 organizations within academia and the private sector
19 with the purpose of accelerating the transfer of tech-
20 nology;

21 (4) developing multidisciplinary innovation eco-
22 systems which involve and are responsive to specific
23 needs of academia and industry; and

24 (5) providing professional development, men-
25 toring, and advice in entrepreneurship, project man-

1 agement, and technology and business development
2 to innovators.

3 ~~(d) ELIGIBILITY.—~~

4 ~~(1) IN GENERAL.—~~The following organizations
5 may be eligible for grants under this section:

6 ~~(A) Institutions of higher education.~~

7 ~~(B) Public or nonprofit technology transfer~~
8 ~~organizations.~~

9 ~~(C) A nonprofit organization that partners~~
10 ~~with an institution of higher education.~~

11 ~~(D) A consortia of two or more of the or-~~
12 ~~ganizations described under subparagraphs (A)~~
13 ~~through (C).~~

14 ~~(2) LEAD ORGANIZATIONS.—~~Any eligible orga-
15 ~~nization under paragraph (1) may apply as a lead~~
16 ~~organization.~~

17 ~~(e) APPLICATIONS.—~~An eligible entity seeking a
18 ~~grant under this section shall submit an application to the~~
19 ~~Director at such time, in such manner, and containing~~
20 ~~such information as the Director may require.~~

21 **SEC. 603. OPTICS AND PHOTONICS TECHNOLOGY INNOVA-**
22 **TIONS.**

23 ~~(a) FINDINGS.—~~Congress makes the following find-
24 ~~ings:~~

1 (1) The 1998 National Research Council Re-
 2 port, “Harnessing Light” presented a comprehensive
 3 overview on the importance of optics and photonics
 4 to various sectors of the United States economy.

5 (2) In 2012, in response to increased coordina-
 6 tion and investment by other nations, the National
 7 Research Council released a follow up study recom-
 8 mending a national photonics initiative to increase
 9 collaboration and coordination among United States
 10 industry, Federal and State government, and aca-
 11 demia to identify and further advance areas of
 12 photonics critical to regaining United States com-
 13 petitiveness and maintaining national security.

14 (3) Publicly traded companies focused on optics
 15 and photonics in the United States enable more than
 16 \$3 trillion in revenue annually.

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

19 (1) optics and photonics research and tech-
 20 nologies promote United States global competitive-
 21 ness in industry sectors, including telecommuni-
 22 cations and information technology, energy,
 23 healthcare and medicine, manufacturing, and de-
 24 fense;

1 (2) Federal science agencies, industry, and aca-
2 demia should seek partnerships with each other to
3 develop basic research in optics and photonics into
4 more mature technologies and capabilities; and

5 (3) each Federal science agency, as appropriate,
6 should—

7 (A) survey and identify optics and
8 photonics-related programs within that Federal
9 science agency and share results with other
10 Federal science agencies for the purpose of gen-
11 erating multiple applications and uses;

12 (B) partner with the private sector and
13 academia to leverage knowledge and resources
14 to maximize opportunities for innovation in op-
15 tics and photonics;

16 (C) explore research and development op-
17 portunities, including Federal and private sec-
18 tor-sponsored internships, to ensure a highly
19 trained optics and photonics workforce in the
20 United States; and

21 (D) encourage partnerships between aca-
22 demia and industry to promote improvement in
23 the education of optics and photonics techni-
24 cians at the secondary school level, under-
25 graduate level, and 2-year college level, includ-

1 ing through the Foundation’s Advanced Tech-
 2 nological Education program.

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) *SHORT TITLE.*—This Act may be cited as the
 5 “American Innovation and Competitiveness Act”.

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

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

Sec. 3. Authorization of appropriations.

TITLE I—MAXIMIZING BASIC RESEARCH

Sec. 101. Reaffirmation of merit-based peer review.

Sec. 102. Transparency and accountability.

Sec. 103. EPSCoR reaffirmation and update.

Sec. 104. Cybersecurity research.

*Sec. 105. Networking and information technology research and development up-
 date.*

Sec. 106. High-energy physics coordination.

Sec. 107. Laboratory program improvements.

Sec. 108. International activities.

Sec. 109. Standard Reference Data Act update.

Sec. 110. NSF mid-scale project investments.

Sec. 111. Oversight of NSF large-scale research facility projects.

Sec. 112. Conflicts of interest.

Sec. 113. Management of the NSF Antarctic Program.

Sec. 114. NIST campus security.

Sec. 115. Federal coordination of sustainable chemistry research and development.

**TITLE II—ADMINISTRATIVE AND REGULATORY BURDEN
 REDUCTION**

Sec. 201. Interagency working group on research regulation.

Sec. 202. Scientific and technical collaboration.

Sec. 203. NIST grants and cooperative agreements update.

Sec. 204. Repeal of certain obsolete reports.

Sec. 205. Repeal of certain provisions.

Sec. 206. Grant subrecipient transparency and oversight.

*Sec. 207. Micro-purchase threshold for procurement solicitations by research insti-
 tutions.*

**TITLE III—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH
 EDUCATION**

Sec. 301. Robert Noyce Teacher Scholarship Program update.

Sec. 302. Space grants.

Sec. 303. STEM Education Advisory Panel.

- Sec. 304. Committee on STEM Education.*
- Sec. 305. Grant programs to expand STEM opportunities.*
- Sec. 306. Centers of excellence for inclusion in STEM.*
- Sec. 307. NIST education and outreach.*
- Sec. 308. Presidential awards for excellence in STEM mentoring.*
- Sec. 309. Working group on inclusion in STEM fields.*
- Sec. 310. Improving undergraduate STEM experiences.*
- Sec. 311. Computer science education research.*
- Sec. 312. Informal STEM education.*
- Sec. 313. Developing STEM apprenticeships.*
- Sec. 314. NSF report on broadening participation.*
- Sec. 315. NOAA ocean and atmospheric science education programs.*

TITLE IV—LEVERAGING THE PRIVATE SECTOR

- Sec. 401. Prize competition authority update.*
- Sec. 402. Crowdsourcing and citizen science.*
- Sec. 403. NIST other transaction authority update.*
- Sec. 404. NIST Visiting Committee on Advanced Technology update.*

TITLE V—MANUFACTURING

- Sec. 501. Hollings manufacturing extension partnership improvements.*
- Sec. 502. Federal loan guarantees for innovative technologies in manufacturing.*
- Sec. 503. Manufacturing communities.*

TITLE VI—INNOVATION, COMMERCIALIZATION, AND TECHNOLOGY TRANSFER

- Sec. 601. Innovation corps.*
- Sec. 602. Translational research grants.*
- Sec. 603. Optics and photonics technology innovations.*
- Sec. 604. Authorization of appropriations for the Regional Innovation Program.*

1 SEC. 2. DEFINITIONS.

2 *In this Act, unless expressly provided otherwise:*

3 (1) *APPROPRIATE COMMITTEES OF CONGRESS.—*

4 *The term “appropriate committees of Congress”*
 5 *means the Committee on Commerce, Science, and*
 6 *Transportation of the Senate and the Committee on*
 7 *Science, Space, and Technology of the House of Rep-*
 8 *resentatives.*

9 (2) *FEDERAL SCIENCE AGENCY.—The term “Fed-*
 10 *eral science agency” has the meaning given the term*

1 *in section 103 of the America COMPETES Reauthor-*
 2 *ization Act of 2010 (42 U.S.C. 6623).*

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

5 (4) *INSTITUTION OF HIGHER EDUCATION.—The*
 6 *term “institution of higher education” has the mean-*
 7 *ing given the term in section 101(a) of the Higher*
 8 *Education Act of 1965 920 U.S.C. 1001(a)).*

9 (5) *NIST.—The term “NIST” means the Na-*
 10 *tional Institute of Standards and Technology.*

11 (6) *STEM.—The term “STEM” has the meaning*
 12 *given the term in section 2 of the American COM-*
 13 *PETES Reauthorization Act of 2010 (42 U.S.C. 6621*
 14 *note).*

15 (7) *STEM EDUCATION.—The term “STEM edu-*
 16 *cation” has the meaning given the term in section 2*
 17 *of the STEM Education Act of 2015 (42 U.S.C. 6621*
 18 *note).*

19 **SEC. 3. AUTHORIZATION OF APPROPRIATIONS.**

20 (a) *FISCAL YEAR 2017.—*

21 (1) *NATIONAL INSTITUTE OF STANDARDS AND*
 22 *TECHNOLOGY.—There is authorized to be appro-*
 23 *priated to the Secretary of Commerce \$974,000,000*
 24 *for NIST for fiscal year 2017.*

1 (2) *NATIONAL SCIENCE FOUNDATION.—There is*
 2 *authorized to be appropriated to the Foundation*
 3 *\$7,510,000,000 for fiscal year 2017.*

4 *(b) FISCAL YEAR 2018.—*

5 (1) *NATIONAL INSTITUTE OF STANDARDS AND*
 6 *TECHNOLOGY.—There is authorized to be appro-*
 7 *priated to the Secretary of Commerce \$1,013,000,000*
 8 *for NIST for fiscal year 2018.*

9 (2) *NATIONAL SCIENCE FOUNDATION.—There is*
 10 *authorized to be appropriated to the Foundation*
 11 *\$7,810,000,000 for fiscal year 2018.*

12 ***TITLE I—MAXIMIZING BASIC***
 13 ***RESEARCH***

14 ***SEC. 101. REAFFIRMATION OF MERIT-BASED PEER REVIEW.***

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

17 (1) *the Foundation’s intellectual merit and*
 18 *broader impacts criteria remain appropriate for eval-*
 19 *uating grant proposals, as concluded by the 2011 Na-*
 20 *tional Science Board Task Force on Merit Review;*

21 (2) *evaluating proposals on the basis of the*
 22 *Foundation’s intellectual merit and broader impacts*
 23 *criteria assures that—*

1 (A) proposals funded by the Foundation are
 2 of high quality and advance scientific knowledge;
 3 and

4 (B) the Foundation's overall funding port-
 5 folio addresses societal needs through research
 6 findings or through related activities; and

7 (3) as evidenced by the Foundation's contribu-
 8 tions to scientific advancement, economic develop-
 9 ment, human health, and national security, its peer
 10 review and merit review processes have successfully
 11 identified and funded scientifically and societally rel-
 12 evant research and should be preserved.

13 (b) *MERIT REVIEW CRITERIA.*—The Foundation shall
 14 maintain the intellectual merit and broader impacts cri-
 15 teria, among other specific criteria as appropriate, as the
 16 basis for evaluating grant proposals in the merit review
 17 process.

18 (c) *UPDATES.*—If after the date of enactment of this
 19 Act a change is made to the merit-review process, the Direc-
 20 tor shall submit a report to the appropriate committees of
 21 Congress not later than 30 days after the date of the change.

22 **SEC. 102. TRANSPARENCY AND ACCOUNTABILITY.**

23 (a) *FINDINGS.*—Congress finds that the Foundation
 24 has improved transparency and accountability of the out-
 25 comes made through the merit review process.

1 (b) *GUIDANCE.*—

2 (1) *IN GENERAL.*—*The Director of the Founda-*
 3 *tion shall issue and periodically update, as appro-*
 4 *priate, policy guidance for both Foundation staff and*
 5 *other Foundation merit review process participants,*
 6 *clarifying the importance of transparency and ac-*
 7 *countability of the outcomes made through the merit*
 8 *review process.*

9 (2) *REQUIREMENTS.*—*The guidance under para-*
 10 *graph (1) shall require that each abstract for a Foun-*
 11 *dation-funded research project—*

12 (A) *provide a clear justification for any*
 13 *Federal funds that will be expended, including*
 14 *by—*

15 (i) *describing how the project—*

16 (I) *reflects the mission statement*
 17 *of the Foundation; and*

18 (II) *addresses both of the National*
 19 *Science Board-approved merit review*
 20 *criteria; and*

21 (ii) *clearly identifying the research*
 22 *priorities of the project in a manner that*
 23 *can be easily understood by both technical*
 24 *and non-technical audiences; and*

1 (B) be publicly available at the time of
2 award.

3 (c) *EXAMINATION*.—Not later than 180 days after the
4 date of enactment of this Act, the National Science Board
5 shall—

6 (1) examine the efforts by the Foundation to im-
7 prove transparency and accountability in the merit-
8 review process; and

9 (2) submit to the appropriate committees of Con-
10 gress a report on the examination, including any rec-
11 ommendations for how to further improve trans-
12 parency and accountability of the outcomes made
13 through the merit-review process.

14 **SEC. 103. EPSCOR REAFFIRMATION AND UPDATE.**

15 (a) *FINDINGS*.—Section 517(a) of the America COM-
16 PETES Reauthorization Act of 2010 (42 U.S.C. 1862p-
17 9(a)) is amended—

18 (1) in paragraph (1)—

19 (A) by striking “The National” and insert-
20 ing “the National”; and

21 (B) by striking “education,” and inserting
22 “education”;

23 (2) in paragraph (2), by striking “with 27
24 States” and all that follows through the semicolon at
25 the end and inserting “with 28 States and jurisdic-

1 *tions, taken together, receiving only about 12 percent*
 2 *of all National Science Foundation research fund-*
 3 *ing;”;*

4 *(3) by striking paragraph (3) and inserting the*
 5 *following:*

6 *“(3) each of the States described in paragraph*
 7 *(2) receives only a fraction of 1 percent of the Foun-*
 8 *dation’s research dollars each year;”;* and

9 *(4) by adding at the end the following:*

10 *“(4) first established at the National Science*
 11 *Foundation in 1979, the Experimental Program to*
 12 *Stimulate Competitive Research (referred to in this*
 13 *section as ‘EPSCoR’) assists States and jurisdictions*
 14 *historically underserved by Federal research and de-*
 15 *velopment funding in strengthening their research*
 16 *and innovation capabilities;*

17 *“(5) the EPSCoR structure requires each partici-*
 18 *parting State to develop a science and technology plan*
 19 *suited to State and local research, education, and eco-*
 20 *nomic interests and objectives;*

21 *“(6) EPSCoR has been credited with advancing*
 22 *the research competitiveness of participating States,*
 23 *improving awareness of science, promoting policies*
 24 *that link scientific investment and economic growth,*

1 *and encouraging partnerships between government,*
 2 *industry, and academia;*

3 “(7) *EPSCoR proposals are evaluated through a*
 4 *rigorous and competitive merit-review process to en-*
 5 *sure that awarded research and development efforts*
 6 *meet high scientific standards; and*

7 “(8) *according to the National Academy of*
 8 *Sciences, EPSCoR has strengthened the national re-*
 9 *search infrastructure and enhanced the educational*
 10 *opportunities needed to develop the science and engi-*
 11 *neering workforce.”.*

12 *(b) SENSE OF CONGRESS.—*

13 *(1) IN GENERAL.—It is the sense of Congress*
 14 *that—*

15 *(A) since maintaining the Nation’s sci-*
 16 *entific and economic leadership requires the par-*
 17 *ticipation of talented individuals nationwide,*
 18 *EPSCoR investments into State research and*
 19 *education capacities are in the Federal interest*
 20 *and should be sustained; and*

21 *(B) EPSCoR should maintain its experi-*
 22 *mental component by supporting innovative*
 23 *methods for improving research capacity and*
 24 *competitiveness.*

1 (2) *DEFINITION OF EPSCOR.*—*In this subsection,*
 2 *the term “EPSCoR” has the meaning given the term*
 3 *in section 502 of the America COMPETES Reauthor-*
 4 *ization Act of 2010 (42 U.S.C. 1862p note).*

5 (c) *AWARD STRUCTURE UPDATES.*—*Section 517 of the*
 6 *America COMPETES Reauthorization Act of 2010 (42*
 7 *U.S.C. 1862p–9) is amended by adding at the end the fol-*
 8 *lowing:*

9 “(g) *AWARD STRUCTURE UPDATES.*—*In imple-*
 10 *menting the mandate to maximize the impact of Federal*
 11 *EPSCoR support on building competitive research infra-*
 12 *structure, and based on the inputs and recommendations*
 13 *of previous EPSCoR reviews, the head of each Federal agen-*
 14 *cy administering an EPSCoR program shall—*

15 “(1) *consider modifications to EPSCoR proposal*
 16 *solicitation, award type, and project evaluation—*

17 “(A) *to more closely align with current*
 18 *agency priorities and initiatives;*

19 “(B) *to focus EPSCoR funding on achiev-*
 20 *ing critical scientific, infrastructure, and edu-*
 21 *cational needs of that agency;*

22 “(C) *to encourage collaboration between*
 23 *EPSCoR-eligible institutions and researchers, in-*
 24 *cluding with institutions and researchers in*
 25 *other States and jurisdictions;*

1 “(D) to improve communication between
2 State and Federal agency proposal reviewers;
3 and

4 “(E) to continue to reduce administrative
5 burdens associated with EPSCoR;

6 “(2) consider modifications to EPSCoR award
7 structures—

8 “(A) to emphasize long-term investments in
9 building research capacity, potentially through
10 the use of larger, renewable funding opportuni-
11 ties; and

12 “(B) to allow the agency, States, and juris-
13 dictions to experiment with new research and de-
14 velopment funding models; and

15 “(3) consider modifications to the mechanisms
16 used to monitor and evaluate EPSCoR awards—

17 “(A) to increase collaboration between
18 EPSCoR-funded researchers and agency staff, in-
19 cluding by providing opportunities for men-
20 toring young researchers and for the use of Fed-
21 eral facilities;

22 “(B) to identify and disseminate best prac-
23 tices; and

24 “(C) to harmonize metrics across partici-
25 pating Federal agencies, as appropriate.”.

1 (d) *REPORTS*.—

2 (1) *CONGRESSIONAL REPORTS*.—Section 517 of
3 the *America COMPETES Reauthorization Act of*
4 2010 (42 U.S.C. 1862p–9), as amended, is further
5 amended—

6 (A) by striking subsection (c);

7 (B) by redesignating subsections (d) through
8 (g) as subsections (c) through (f), respectively;

9 (C) in subsection (c), as redesignated—

10 (i) in paragraph (1), by striking “*Ex-*
11 *perimental Programs to Stimulate Competi-*
12 *tive Research*” and inserting “*EPSCoR*”;
13 and

14 (ii) in paragraph (2)—

15 (I) in subparagraphs (A) and (E),
16 by striking “*EPSCoR and Federal*
17 *EPSCoR-like programs*” and inserting
18 “*each EPSCoR*”;

19 (II) in subparagraph (D), by
20 striking “*EPSCoR and other Federal*
21 *EPSCoR-like programs*” and inserting
22 “*each EPSCoR*”;

23 (III) in subparagraph (E), by
24 striking “*EPSCoR or Federal*

1 *EPSCoR-like programs” and inserting*
 2 *“each EPSCoR”; and*

3 *(IV) in subparagraph (G), by*
 4 *striking “EPSCoR programs” and in-*
 5 *serting “each EPSCoR”; and*

6 *(D) by amending subsection (d), as redesign-*
 7 *ated, to read as follows:*

8 *“(d) FEDERAL AGENCY REPORTS.—Each Federal*
 9 *agency that administers an EPSCoR shall submit to Con-*
 10 *gress, as part of its Federal budget submission—*

11 *“(1) a description of the program strategy and*
 12 *objectives;*

13 *“(2) a description of the awards made in the*
 14 *previous fiscal year, including—*

15 *“(A) the total amount made available, by*
 16 *State, under EPSCoR;*

17 *“(B) the total amount of agency funding*
 18 *made available to all institutions and entities*
 19 *within each EPSCoR State;*

20 *“(C) the efforts and accomplishments to*
 21 *more fully integrate the EPSCoR States in*
 22 *major agency activities and initiatives;*

23 *“(D) the percentage of EPSCoR reviewers*
 24 *from EPSCoR States; and*

1 “(E) the number of programs or large col-
 2 laborator awards involving a partnership of or-
 3 ganizations and institutions from EPSCoR and
 4 non-EPSCoR States; and

5 “(3) an analysis of the gains in academic re-
 6 search quality and competitiveness, and in science
 7 and technology human resource development, achieved
 8 by the program over the last 5 fiscal years.”; and

9 (E) in subsection (e)(1), as redesignated, by
 10 striking “Experimental Program to Stimulate
 11 Competitive Research or a program similar to
 12 the Experimental Program to Stimulate Com-
 13 petitive Research” and inserting “EPSCoR”.

14 (2) RESULTS OF AWARD STRUCTURE PLAN.—Not
 15 later than 1 year after the date of enactment of this
 16 Act, the EPSCoR Interagency Coordinating Com-
 17 mittee shall brief the appropriate committees of Con-
 18 gress on the updates made to the award structure
 19 under 517(f) of the America COMPETES Reauthor-
 20 ization Act of 2010 (42 U.S.C. 1862p–9(f)), as
 21 amended by this subsection.

22 (e) DEFINITION OF EPSCoR.—

23 (1) IN GENERAL.—Section 502 of the America
 24 COMPETES Reauthorization Act of 2010 (42 U.S.C.

1 1862p note) is amended by amending paragraph (2)
 2 to read as follows:

3 “(2) *EPSCoR*.—The term ‘*EPSCoR*’ means—

4 “(A) the *Established Program to Stimulate*
 5 *Competitive Research established by the Founda-*
 6 *tion; or*

7 “(B) a program similar to the *Established*
 8 *Program to Stimulate Competitive Research at*
 9 *another Federal agency.*”.

10 (2) *TECHNICAL AND CONFORMING AMEND-*
 11 *MENTS*.—Section 113 of the *National Science Foun-*
 12 *dation Authorization Act of 1988 (42 U.S.C. 1862g)*
 13 *is amended—*

14 (A) in the heading, by striking “**EXPERI-**
 15 **MENTAL**” and inserting “**ESTABLISHED**”;

16 (B) in subsection (a), by striking “an *Ex-*
 17 *perimental Program to Stimulate Competitive*
 18 *Research*” and inserting “a program to stimu-

19 *late competitive research (known as the ‘Estab-*
 20 *lished Program to Stimulate Competitive Re-*
 21 *search’)*”; and

22 (C) in subsection (b), by striking “the pro-

23 *gram*” and inserting “the *Program*”.

1 **SEC. 104. CYBERSECURITY RESEARCH.**

2 (a) *FOUNDATION CYBERSECURITY RESEARCH.*—Sec-
3 tion 4(a)(1) of the Cyber Security Research and Develop-
4 ment Act, as amended (15 U.S.C. 7403(a)(1)) is amended—

5 (1) in subparagraph (O), by striking “and” at
6 the end;

7 (2) in subparagraph (P), by striking the period
8 at the end and inserting a semicolon; and

9 (3) by adding at the end the following:

10 “(Q) security of election-dedicated voting
11 system software and hardware; and

12 “(R) role of the human factor in cybersecu-
13 rity and the interplay of computers and humans
14 and the physical world.”.

15 (b) *NIST CYBERSECURITY PRIORITIES.*—

16 (1) *CRITICAL INFRASTRUCTURE AWARENESS.*—
17 The Director of NIST, in coordination with the Sec-
18 retary of Homeland Security, shall continue to raise
19 public awareness of the voluntary, industry-led cyber-
20 security standards and best practices for critical in-
21 frastructure developed under section 2(c)(15) of the
22 National Institute of Standards and Technology Act
23 (15 U.S.C. 272(c)(15)).

24 (2) *QUANTUM COMPUTING.*—Under section 2(b)
25 of the National Institute of Standards and Technology

1 *Act (15 U.S.C. 272(b)) and section 20 of that Act (15*
2 *U.S.C. 278g-3), the Director of NIST shall—*

3 *(A) research information systems for future*
4 *cybersecurity needs; and*

5 *(B) coordinate with relevant stakeholders to*
6 *develop a process—*

7 *(i) to research and identify or, if nec-*
8 *essary, develop cryptography standards and*
9 *guidelines for future cybersecurity needs, in-*
10 *cluding quantum-resistant cryptography*
11 *standards; and*

12 *(ii) to provide recommendations to*
13 *Congress, Federal agencies, and industry for*
14 *a secure and smooth transition to the stand-*
15 *ards under clause (i).*

16 *(3) VOTING.—Section 2(c) of the National Insti-*
17 *tute of Standards and Technology Act (15 U.S.C.*
18 *272(c)) is amended—*

19 *(A) by redesignating paragraphs (16)*
20 *through (23) as paragraphs (17) through (24),*
21 *respectively; and*

22 *(B) by inserting after paragraph (15) the*
23 *following:*

24 *“(16) perform research to support the develop-*
25 *ment of voluntary, consensus-based, industry-led*

1 *standards and recommendations on the security of*
 2 *computers, computer networks, and computer data*
 3 *storage used in voting systems to ensure voters can*
 4 *vote securely and privately.”.*

5 **SEC. 105. NETWORKING AND INFORMATION TECHNOLOGY**
 6 **RESEARCH AND DEVELOPMENT UPDATE.**

7 *(a) NETWORKING AND INFORMATION TECHNOLOGY*
 8 *RESEARCH AND DEVELOPMENT.—Section 101(a)(1) of the*
 9 *High-Performance Computing Act of 1991 (15 U.S.C.*
 10 *5511(a)(1)) is amended—*

11 *(1) in the matter preceding subparagraph (A),*
 12 *by inserting “IN GENERAL.—” before “The Presi-*
 13 *dent”;*

14 *(2) in subparagraph (H), by striking “and” at*
 15 *the end;*

16 *(3) in subparagraph (I), by striking the period*
 17 *at the end and inserting a semicolon; and*

18 *(4) by adding at the end the following:*

19 *“(J) provide for research on the interplay of*
 20 *computing and people, including social com-*
 21 *puting and human-robot interaction;*

22 *“(K) provide for research on cyber-physical*
 23 *systems and improving the methods available for*
 24 *the design, development, and operation of those*

1 *systems that are characterized by high reli-*
 2 *ability, safety, and security;*

3 *“(L) provide for the understanding of the*
 4 *science, engineering, policy, and privacy protec-*
 5 *tion related to networking and information tech-*
 6 *nology;*

7 *“(M) provide for the understanding of the*
 8 *human facets of cyber threats and secure cyber*
 9 *systems;*

10 *“(N) provide for the transition of high-per-*
 11 *formance computing in hardware, system soft-*
 12 *ware, development tools, and applications into*
 13 *development and operations; and*

14 *“(O) foster public-private collaboration with*
 15 *government, industry research laboratories, aca-*
 16 *demia, and nonprofit organizations to maximize*
 17 *research and development efforts and the benefits*
 18 *of networking and information technology, in-*
 19 *cluding high-performance computing.”.*

20 *(b) REVIEW AND PLAN.—Section 101 of the High-Per-*
 21 *formance Computing Act of 1991 (15 U.S.C. 5511) is*
 22 *amended by adding at the end the following:*

23 *“(d) PERIODIC REVIEWS.—The heads of the applicable*
 24 *agencies and departments working through the National*
 25 *Science and Technology Council and the Networking and*

1 *Information Technology Research and Development Pro-*
2 *gram shall—*

3 “(1) *not later than 1 year after the date the ad-*
4 *visory committee submits a report under subsection*
5 *(b)(2), assess the structure of the Program, including*
6 *the Program Component Areas and associated con-*
7 *tents and funding levels, taking into consideration*
8 *any relevant recommendations of the advisory com-*
9 *mittee; and*

10 “(2) *ensure that the Program includes*
11 *foundational and interdisciplinary information tech-*
12 *nology research and development activities.*

13 “(e) *STRATEGIC PLANS.—*

14 “(1) *IN GENERAL.—The heads of the applicable*
15 *agencies and departments, working through the Na-*
16 *tional Science and Technology Council and the Net-*
17 *working and Information Technology Research and*
18 *Development Program shall develop and implement*
19 *strategic plans to guide emerging activities in specific*
20 *Program Component Areas, as the advisory committee*
21 *determines relevant under subsection (b), of Federal*
22 *networking and information technology research and*
23 *development, and to guide the activities described in*
24 *subsection (a)(1).*

1 “(2) *UPDATES.*—*The heads of the applicable*
2 *agencies and departments shall update the strategic*
3 *plans as appropriate.*

4 “(3) *CONTENTS.*—*Each strategic plan shall—*

5 “(A) *specify near-term and long-term objec-*
6 *tives for the Program, the anticipated schedule*
7 *for achieving the near-term and long-term objec-*
8 *tives, and the metrics to be used for assessing*
9 *progress toward the near-term and long-term ob-*
10 *jectives;*

11 “(B) *specify how the near-term and long-*
12 *term objectives complement research and develop-*
13 *ment areas in which academia and the private*
14 *sector is actively engaged;*

15 “(C) *describe how the heads of the applica-*
16 *ble agencies and departments will support mech-*
17 *anisms for foundational and interdisciplinary*
18 *research and development in networking and in-*
19 *formation technology, including through collabo-*
20 *rations—*

21 “(i) *across Federal agencies and de-*
22 *partments;*

23 “(ii) *across Program Component*
24 *Areas; and*

1 “(iii) with industry, Federal and pri-
 2 vate research laboratories, research entities,
 3 universities, institutions of higher edu-
 4 cation, relevant nonprofit organizations,
 5 and international partners of the United
 6 States;

7 “(D) describe how the heads of the applica-
 8 ble agencies and departments will foster the
 9 rapid transfer of research and development re-
 10 sults into new technologies and applications;

11 “(E) describe how the Program will address
 12 long-term challenges for which solutions require
 13 large-scale, long-term, foundational and inter-
 14 disciplinary research and development; and

15 “(F) place emphasis on innovative and
 16 high-risk projects having the potential for sub-
 17 stantial societal returns on the research invest-
 18 ment.

19 “(4) PRIVATE SECTOR EFFORTS.—In developing,
 20 implementing, and updating strategic plans, the
 21 heads of the applicable agencies and departments,
 22 working through the National Science and Technology
 23 Council and Networking and Information Technology
 24 Research and Development Program, shall coordinate
 25 with industry, academia, and other interested stake-

1 *holders to ensure, to the extent practicable, that the*
 2 *Federal networking and information technology re-*
 3 *search and development activities carried out under*
 4 *this section do not duplicate the efforts of the private*
 5 *sector.*

6 “(5) *RECOMMENDATIONS.—In developing and*
 7 *updating strategic plans, the heads of the applicable*
 8 *agencies and departments shall solicit recommenda-*
 9 *tions and advice from—*

10 “(A) *the advisory committee under sub-*
 11 *section (b); and*

12 “(B) *a wide range of stakeholders, including*
 13 *industry, academia, including representatives of*
 14 *minority serving institutions and community*
 15 *colleges, National Laboratories, and other rel-*
 16 *evant organizations and institutions.*

17 “(f) *REPORTS.—The heads of the applicable agencies*
 18 *and departments, working through the National Science*
 19 *and Technology Council and the Networking and Informa-*
 20 *tion Technology Research and Development Program, shall*
 21 *submit to the advisory committee, the Committee on Com-*
 22 *merce, Science, and Transportation of the Senate, and the*
 23 *Committee on Science, Space, and Technology of the House*
 24 *of Representatives—*

1 “(1) the strategic plans developed under sub-
2 section (e)(1); and

3 “(2) each update under subsection (e)(2).

4 “(g) *DEFINITION OF APPLICABLE AGENCIES AND DE-*
5 *PARTMENTS.—In this section, the term ‘applicable agencies*
6 *and departments’ means the Federal agencies and depart-*
7 *ments identified in subsection (a)(3)(B) or designated*
8 *under clause (xii) of that subsection.”.*

9 (c) *RESEARCH COORDINATION.—Section 101(a)(2) of*
10 *the High-Performance Computing Act of 1991 (15 U.S.C.*
11 *5511(a)(2)) is amended—*

12 (1) *in the matter preceding subparagraph (A),*
13 *by inserting “REQUIREMENTS.—” before “The Direc-*
14 *tor”;* and

15 (2) *by amending subparagraph (C) to read as*
16 *follows:*

17 “(C) *provide for the coordination of Federal*
18 *networking and information technology research,*
19 *development, networking, and other activities—*

20 “(i) *among the applicable agencies and*
21 *departments under the Program; and*

22 “(ii) *to the extent practicable, with*
23 *other Federal agencies not identified in sub-*
24 *section (a)(3)(B), other Federal and private*
25 *research laboratories, industry, research en-*

1 *tities, universities, institutions of higher*
 2 *education, relevant nonprofit organizations,*
 3 *and international partners of the United*
 4 *States;”.*

5 *(d) BUDGET.—Section 101(a)(3) of the High-Perform-*
 6 *ance Computing Act of 1991 (15 U.S.C. 5511(a)(3)) is*
 7 *amended—*

8 *(1) in the matter preceding subparagraph (A),*
 9 *by inserting “CONTENTS OF ANNUAL REPORTS.—” be-*
 10 *fore “The annual”;*

11 *(2) in subparagraph (B), by striking clauses (i)*
 12 *through (xi) and inserting the following—*

13 *“(i) the Department of Commerce;*

14 *“(ii) the Department of Defense;*

15 *“(iii) the Department of Education;*

16 *“(iv) the Department of Energy;*

17 *“(v) the Department of Health and*
 18 *Human Services;*

19 *“(vi) the Department of Homeland Se-*
 20 *curity;*

21 *“(vii) the Department of Justice;*

22 *“(viii) the Environmental Protection*
 23 *Agency;*

24 *“(ix) the National Aeronautics and*
 25 *Space Administration;*

1 “(x) the National Archives and Records
2 Administration;

3 “(xi) the National Science Foundation;
4 and

5 “(xii) such other agencies and depart-
6 ments as the President or the Director con-
7 siders appropriate;”;

8 (3) in subparagraph (C), by striking “is sub-
9 mitted,” and inserting “is submitted, the levels for the
10 previous fiscal year,”;

11 (4) in subparagraph (D)—

12 (A) by striking “is submitted,” and insert-
13 ing “is submitted, the levels for the previous fis-
14 cal year,”; and

15 (B) by striking “and” after the semicolon;

16 (5) by redesignating subparagraph (E) as sub-
17 paragraph (F); and

18 (6) by inserting after subparagraph (D) the fol-
19 lowing:

20 “(E) include a description of how the objec-
21 tives for each Program Component Area, and the
22 objectives for activities that involve multiple Pro-
23 gram Component Areas, relate to the objectives of
24 the Program identified in the strategic plan
25 under subsection (e);”.

1 (e) *CONFORMING AMENDMENTS TO HIGH-PERFORM-*
 2 *ANCE COMPUTING ACT OF 1991.—The High-Performance*
 3 *Computing Act of 1991 (15 U.S.C. 5501 et seq.) is amend-*
 4 *ed—*

5 (1) *in section 2 (15 U.S.C. 5501)—*

6 (A) *in paragraphs (2) and (5), by striking*
 7 *“high-performance computing” and inserting*
 8 *“networking and information technology, includ-*
 9 *ing high-performance computing,”; and*

10 (B) *in paragraph (3), by striking “high-*
 11 *performance computing” and inserting “net-*
 12 *working and information technology, including*
 13 *high-performance computing”;*

14 (2) *in section 3 (15 U.S.C. 5502)—*

15 (A) *in the matter preceding paragraph (1)*
 16 *and paragraph (1), by striking “high-perform-*
 17 *ance computing” and inserting “networking and*
 18 *information technology” each place it appears;*
 19 *and*

20 (B) *in paragraph (2)—*

21 (i) *by striking “high-performance com-*
 22 *puting and” and inserting “networking and*
 23 *information technology and”;* *and*

1 (ii) by striking “high-performance
2 computing network” and inserting “net-
3 working and information technology”;

4 (3) in section 4 (15 U.S.C. 5503)—

5 (A) in paragraphs (2) and (3), by striking
6 “high-performance computing” and inserting
7 “networking and information technology”;

8 (B) by striking paragraph (5);

9 (C) in paragraph (6), by striking “National
10 High-Performance Computing” and inserting
11 “Networking and Information Technology Re-
12 search and Development”; and

13 (D) by redesignating paragraphs (3), (4),
14 (6), and (7) as paragraphs (4), (3), (5), and (6),
15 respectively;

16 (4) in section 101 (15 U.S.C. 5511)—

17 (A) in the heading, by striking “**NATIONAL**
18 **HIGH-PERFORMANCE COMPUTING**” and in-
19 serting “**NETWORKING AND INFORMATION**
20 **TECHNOLOGY RESEARCH AND DEVELOP-**
21 **MENT**”;

22 (B) in subsection (a)—

23 (i) in the heading, by striking “**NA-**
24 **TIONAL HIGH-PERFORMANCE COMPUTING**”
25 and inserting “**NETWORKING AND INFORMA-**

1 *TION TECHNOLOGY RESEARCH AND DEVEL-*
2 *OPMENT”;*

3 *(ii) in paragraph (1)—*

4 *(I) in the matter preceding sub-*
5 *paragraph (A), by striking “National*
6 *High-Performance Computing” and*
7 *inserting “Networking and Informa-*
8 *tion Technology Research and Develop-*
9 *ment”;*

10 *(II) in subparagraph (A), by*
11 *striking “high-performance computing,*
12 *including networking” and inserting*
13 *“networking and information tech-*
14 *nology”;*

15 *(III) in subparagraphs (B) and*
16 *(C), by striking “high-performance*
17 *computing” and inserting “high-end*
18 *computing, including high-performance*
19 *computing,”; and*

20 *(IV) in subparagraph (G), by*
21 *striking “high-performance computing”*
22 *and inserting “networking and infor-*
23 *mation technology, including high-per-*
24 *formance computing,”; and*

25 *(iii) in paragraph (2)—*

1 (I) in subparagraph (A), by strik-
 2 ing “high-performance computing re-
 3 search, development, networking” and
 4 inserting “networking and information
 5 technology research and development”;

6 (II) in subparagraph (E), by
 7 striking “high-performance computing
 8 and networking systems” and inserting
 9 “high-end computing and networking
 10 systems”; and

11 (III) in subparagraph (F), by
 12 striking “high-performance computing”
 13 and inserting “high-end, including
 14 high-performance, computing”;

15 (C) in subsection (b)(1), in the matter pre-
 16 ceding subparagraph (A), by striking “high-per-
 17 formance computing” each place it appears and
 18 inserting “networking and information tech-
 19 nology”;

20 (D) in subsection (b)(2), by striking “Com-
 21 mittee on Science and Technology” and inserting
 22 “Committee on Science, Space, and Technology”;
 23 and

1 (E) in subsection (c)(1)(A), by striking
 2 “high-performance computing” and inserting
 3 “networking and information technology”;

4 (5) in section 201(a)(1) (15 U.S.C. 5521(a)(1)),
 5 by striking “high-performance computing and ad-
 6 vanced high-speed computer networking” and insert-
 7 ing “networking and information technology”;

8 (6) in section 202(a) (15 U.S.C. 5522(a)), by
 9 striking “high-performance computing” and inserting
 10 “networking and information technology”;

11 (7) in section 203 (15 U.S.C. 5523(a))—

12 (A) by striking “high-performance com-
 13 puting and networking” and inserting “net-
 14 working and information technology”; and

15 (B) by striking “high-performance com-
 16 puting systems” and inserting “high-end, includ-
 17 ing high-performance, computing systems”;

18 (8) in section 204 (15 U.S.C. 5524)—

19 (A) in subsection (a)(1)—

20 (i) in subparagraph (A), by striking
 21 “high-performance computing systems and
 22 networks” and inserting “networking and
 23 information technology systems”;

24 (ii) in subparagraph (B), by striking
 25 “high-performance computing systems in

1 *networks” and inserting “networking and*
 2 *information technology systems”; and*

3 *(iii) in subparagraph (C), by striking*
 4 *“high-performance computing systems” and*
 5 *inserting “networking and information*
 6 *technology”; and*

7 *(B) in subsection (b)—*

8 *(i) in the heading, by striking “HIGH-*
 9 *PERFORMANCE COMPUTING AND NETWORK”*
 10 *and inserting “NETWORK AND INFORMA-*
 11 *TION TECHNOLOGY SECURITY”; and*

12 *(ii) by striking “sensitive information*
 13 *in Federal computer systems” and inserting*
 14 *“agency information and information sys-*
 15 *tems”; and*

16 *(9) in section 207 (15 U.S.C. 5527)—*

17 *(A) in subsection (a)(2), by striking “sec-*
 18 *tion 2315(a) of title 10” and inserting “section*
 19 *3552(b)(6)(A) of title 44”; and*

20 *(B) in subsection (b), by striking “high-per-*
 21 *formance computing systems” and inserting*
 22 *“networking and information technology”.*

23 (f) *ADDITIONAL TECHNICAL AND CONFORMING*
 24 *AMENDMENTS.—*

(1) *NATIONAL NETWORKING AND INFORMATION TECHNOLOGY PROGRAM.*—Section 101 of the *High-Performance Computing Act of 1991* (15 U.S.C. 5511), as amended, is further amended—

(A) in subsection (b)—

(i) in paragraph (1), by inserting “*ADVISORY COMMITTEE.*—” before “*The President shall*”;

(ii) in paragraph (2), by inserting “*ADDITIONAL DUTIES.*—” before “*In addition to*”; and

(iii) in paragraph (3), by inserting “*FACA.*—” before “*Section 14*”; and

(B) in subsection (c)—

(i) in paragraph (1), by inserting “*REPORTS.*—” before “*Each Federal*”; and

(ii) in paragraph (2), by inserting “*OMB REVIEW.*—” before “*The Office*”.

(2) *MISCELLANEOUS.*—

(A) *NATIONAL SCIENCE FOUNDATION RESEARCH.*—Section 4(b)(5)(K) of the *Cyber Security Research and Development Act* (15 U.S.C. 7403(b)(5)(K)) is amended by striking “*high-performance computing*” and inserting “*networking and information technology*”.

1 (B) *NATIONAL INFORMATION TECHNOLOGY*
2 *RESEARCH AND DEVELOPMENT PROGRAM.*—*Sec-*
3 *tion 13202(b) of the American Recovery and Re-*
4 *investment Act of 2009 (42 U.S.C. 17912(b)) is*
5 *amended by striking “National High-Perform-*
6 *ance Computing Program” and inserting “Net-*
7 *working and Information Technology Research*
8 *and Development Program”.*

9 (C) *FEDERAL CYBERSECURITY RESEARCH*
10 *AND DEVELOPMENT.*—*Section 201(a)(4) of the*
11 *Cybersecurity Enhancement Act of 2014 (15*
12 *U.S.C. 7431(a)(4)) is amended by striking*
13 *“clauses (i) through (x) of section 101(a)(3)(B)*
14 *of the High-Performance Computing Act of 1991*
15 *(15 U.S.C. 5511(a)(3)(B)) or designated under*
16 *clause (xi) of that section” and inserting*
17 *“clauses (i) through (xi) of section 101(a)(3)(B)*
18 *of the High-Performance Computing Act of 1991*
19 *(15 U.S.C. 5511(a)(3)(B)) or designated under*
20 *clause (xii) of that section”.*

21 (D) *NATIONAL RESEARCH AND EDUCATION*
22 *NETWORK.*—*Section 102 of the High-Perform-*
23 *ance Computing Act of 1991 (15 U.S.C. 5512) is*
24 *repealed.*

1 (E) *NEXT GENERATION INTERNET*.—Section
 2 103 of the *High-Performance Computing Act of*
 3 1991 (15 U.S.C. 5513) is repealed.

4 (F) *FOSTERING UNITED STATES COMPETI-*
 5 *TIVENESS IN HIGH-PERFORMANCE COMPUTING*
 6 *AND RELATED ACTIVITIES*.—Section 208 of the
 7 *High-Performance Computing Act of 1991* (15
 8 U.S.C. 5528) is repealed.

9 **SEC. 106. HIGH-ENERGY PHYSICS COORDINATION.**

10 (a) *IN GENERAL*.—The *Physical Science Sub-*
 11 *committee of the National Science and Technology Council*
 12 *shall define and continue to coordinate Federal efforts, in-*
 13 *cluding activities of relevant advisory committees, related*
 14 *to high-energy physics research to maximize the efficiency*
 15 *and effectiveness of United States investment in high-energy*
 16 *physics.*

17 (b) *PURPOSES*.—The *purposes of the Physical Science*
 18 *Subcommittee include—*

19 (1) *to advise and assist the Committee on*
 20 *Science and the National Science and Technology*
 21 *Council on United States policies, procedures, and*
 22 *plans in the physical sciences, including high-energy*
 23 *physics; and*

24 (2) *to identify emerging opportunities, stimulate*
 25 *international cooperation, and foster the development*

1 *of the physical sciences in the United States, includ-*
2 *ing—*

3 *(A) in high-energy physics research, includ-*
4 *ing related underground science and engineering*
5 *research;*

6 *(B) in physical infrastructure and facili-*
7 *ties;*

8 *(C) in information and analysis; and*

9 *(D) in coordination activities.*

10 *(c) RESPONSIBILITIES.—In regard to coordinating*
11 *Federal efforts related to high-energy physics research, the*
12 *Physical Science Subcommittee shall—*

13 *(1) provide recommendations on planning for*
14 *construction and stewardship of large facilities par-*
15 *ticipating in high-energy physics;*

16 *(2) provide recommendations on research coordi-*
17 *nation and collaboration among the programs and*
18 *activities of Federal agencies;*

19 *(3) establish goals and priorities for high-energy*
20 *physics, related underground science, and research*
21 *and development that will strengthen United States*
22 *competitiveness in high-energy physics;*

23 *(4) propose methods for engagement with inter-*
24 *national, Federal, and State agencies and Federal*
25 *laboratories not represented on the National Science*

1 *and Technology Council to identify and reduce regu-*
 2 *latory, logistical, and fiscal barriers that inhibit*
 3 *United States leadership in high-energy physics and*
 4 *related underground science; and*

5 *(5) develop, and update as necessary, a strategic*
 6 *plan to guide Federal programs and activities in sup-*
 7 *port of high-energy physics research, including—*

8 *(A) the efforts taken in support of sub-*
 9 *section (b) since the last strategic plan;*

10 *(B) an evaluation of the current research*
 11 *needs for maintaining United States leadership*
 12 *in high-energy physics; and*

13 *(C) an identification of future priorities in*
 14 *the area of high-energy physics.*

15 **SEC. 107. LABORATORY PROGRAM IMPROVEMENTS.**

16 *(a) IN GENERAL.—The Director of NIST, acting*
 17 *through the Associate Director for Laboratory Programs,*
 18 *shall develop and implement a comprehensive strategic plan*
 19 *for laboratory programs that expands—*

20 *(1) interactions with academia, international re-*
 21 *searchers, and industry; and*

22 *(2) commercial and industrial applications.*

23 *(b) OPTIMIZING COMMERCIAL AND INDUSTRIAL APPLI-*
 24 *CATIONS.—In accordance with the purpose under section*
 25 *1(b)(3) of the National Institute of Standards and Tech-*

1 *nology Act (15 U.S.C. 271(b)(3)), the comprehensive stra-*
 2 *tegic plan shall—*

3 *(1) include performance metrics for the dissemi-*
 4 *nation of fundamental research results, measurements,*
 5 *and standards research results to industry, including*
 6 *manufacturing, and other interested parties;*

7 *(2) document any positive benefits of research on*
 8 *the competitiveness of the parties described in para-*
 9 *graph (1); and*

10 *(3) clarify the current approach to the technology*
 11 *transfer activities of NIST.*

12 **SEC. 108. INTERNATIONAL ACTIVITIES.**

13 *Section 17(a) of the National Institute of Standards*
 14 *and Technology Act (15 U.S.C. 278g(a)) is amended to read*
 15 *as follows:*

16 “(a) *FINANCIAL ASSISTANCE TO FOREIGN NATION-*
 17 *ALS.—The Secretary is authorized, notwithstanding any*
 18 *other provision of law, to expend such sums, within the*
 19 *limit of appropriated funds, through direct support for ac-*
 20 *tivities of international organizations and foreign national*
 21 *metrology institutes with which the Institute cooperates to*
 22 *advance measurement methods, standards, and related basic*
 23 *technologies and, as the Secretary may deem desirable,*
 24 *through the grant of fellowships or any other form of finan-*
 25 *cial assistance, to defray the expenses of foreign nationals*

1 *not in service to the Government of the United States while*
 2 *they are performing scientific or engineering work at the*
 3 *Institute or participating in the exchange of scientific or*
 4 *technical information at the Institute.”.*

5 **SEC. 109. STANDARD REFERENCE DATA ACT UPDATE.**

6 *Section 2 of the Standard Reference Data Act (15*
 7 *U.S.C. 290a) is amended to read as follows:*

8 **“SEC. 2. DEFINITIONS.**

9 *“For the purposes of this Act:*

10 *“(1) STANDARD REFERENCE DATA.—The term*
 11 *‘standard reference data’ means data that is—*

12 *“(A) either—*

13 *“(i) quantitative information related*
 14 *to a measurable physical or chemical prop-*
 15 *erty of a substance or system of substances*
 16 *of known composition and structure;*

17 *“(ii) measurable characteristics of a*
 18 *physical artifact or artifacts;*

19 *“(iii) engineering properties or per-*
 20 *formance characteristics of a system; or*

21 *“(iv) 1 or more digital data objects*
 22 *that serve—*

23 *“(I) to calibrate or characterize*
 24 *the performance of a detection or meas-*
 25 *urement system; or*

1 “(II) to interpolate or extrapolate,
 2 or both, data described in subpara-
 3 graph (A) through (C); and
 4 “(B) that is critically evaluated as to its re-
 5 liability under section 3 of this Act.

6 “(2) SECRETARY.—The term ‘Secretary’ means
 7 the Secretary of Commerce.”.

8 **SEC. 110. NSF MID-SCALE PROJECT INVESTMENTS.**

9 (a) FINDINGS.—Congress makes the following findings:

10 (1) The Foundation funds major research facili-
 11 ties, infrastructure, and instrumentation that provide
 12 unique capabilities at the frontiers of science and en-
 13 gineering.

14 (2) Modern and effective research infrastructure
 15 is critical to maintaining United States leadership in
 16 science and engineering.

17 (3) Many proposed instruments, equipment, or
 18 upgrades to major research facilities fall between pro-
 19 grams currently funded by the Foundation, creating
 20 a gap between Major Research Instrumentation and
 21 Major Research Equipment and Facilities Construc-
 22 tion, including projects that have been identified as
 23 cost-effective additions of high priority to the ad-
 24 vancement of scientific understanding.

1 (4) *The 2010 Astronomy and Astrophysics*
 2 *Decadal Survey recommended a vigorous mid-scale*
 3 *innovations program.*

4 (b) *SENSE OF CONGRESS.—It is the sense of Congress*
 5 *that the addition of a competitive mid-scale funding oppor-*
 6 *tunity that includes research, instruments, and infrastruc-*
 7 *ture is essential to the portfolio of the Foundation and ad-*
 8 *vancing scientific understanding.*

9 (c) *MID-SCALE PROJECTS.—*

10 (1) *IN GENERAL.—The Foundation shall evalu-*
 11 *ate the existing and future needs, across all dis-*
 12 *ciplines supported by the Foundation, for mid-scale*
 13 *projects.*

14 (2) *STRATEGY.—The Director of the Foundation*
 15 *shall develop a strategy to meet the needs identified*
 16 *in paragraph (1).*

17 (3) *BRIEFING.—Not later than 180 days after*
 18 *the date of enactment of this Act, the Director of the*
 19 *Foundation shall provide a briefing to the appro-*
 20 *priate committees of Congress on the evaluation under*
 21 *paragraph (1) and the strategy under paragraph (2).*

22 (4) *DEFINITION OF MID-SCALE PROJECTS.—In*
 23 *this subsection, the term “mid-scale projects” means*
 24 *research, instrumentation, and infrastructure invest-*
 25 *ments that fall between the instrumentation funded by*

1 *the major research instrumentation program and the*
 2 *very large projects funded by the major research*
 3 *equipment and facilities construction program as de-*
 4 *scribed in section 507 of the AMERICA Competes Re-*
 5 *authorization Act of 2010 (Public Law 111–358; 124*
 6 *Stat. 4008).*

7 **SEC. 111. OVERSIGHT OF NSF LARGE-SCALE RESEARCH FA-**
 8 **CILITY PROJECTS.**

9 *(a) FACILITIES OVERSIGHT.—*

10 *(1) IN GENERAL.—The Director of the Founda-*
 11 *tion shall strengthen oversight and accountability*
 12 *over the full life-cycle of large-scale research facility*
 13 *projects, including planning, development, procure-*
 14 *ment, construction, operations, and support, and*
 15 *shut-down of such facilities, in order to maximize re-*
 16 *search investment.*

17 *(2) REQUIREMENTS.—In carrying out para-*
 18 *graph (1), the Director shall—*

19 *(A) prioritize the scientific outcomes of*
 20 *large-scale research facility projects and the in-*
 21 *ternal management and financial oversight of*
 22 *the projects;*

23 *(B) clarify the roles and responsibilities of*
 24 *all organizations, including offices, panels, com-*
 25 *mittees, and directorates, involved in supporting*

1 *large-scale research facility projects, including*
 2 *the role of the Major Research Equipment and*
 3 *Facilities Construction Panel;*

4 *(C) establish policies and procedures for the*
 5 *planning, management, and oversight of large-*
 6 *scale research facility projects at each phase of*
 7 *the life-cycle of the project;*

8 *(D) ensure that policies for estimating and*
 9 *managing costs and schedules are consistent with*
 10 *the best practices described in the Government*
 11 *Accountability Office Cost Estimating and As-*
 12 *essment Guide, the Government Accountability*
 13 *Office Schedule Assessment Guide, and the Office*
 14 *of Management and Budget Uniform Guidance*
 15 *(2 C.F.R. Part 200);*

16 *(E) establish the appropriate project man-*
 17 *agement and financial management expertise re-*
 18 *quired for Foundation staff to oversee large-scale*
 19 *research facility projects effectively, including by*
 20 *improving project management training and cer-*
 21 *tification; and*

22 *(F) coordinate the sharing of the best man-*
 23 *agement practices and lessons learned from*
 24 *large-scale research facility projects.*

25 *(b) FACILITIES FULL LIFE-CYCLE COSTS.—*

1 (1) *IN GENERAL.*—Subject to subsection (c)(1),
 2 the Director of the Foundation shall require that any
 3 pre-award analysis of a large-scale research facility
 4 includes the development and consideration of the full
 5 life-cycle cost (as defined in section 2 of the National
 6 Science Foundation Authorization Act of 1998 (42
 7 U.S.C. 1862k note)) in accordance with section 14 of
 8 the National Science Foundation Authorization Act of
 9 2002 (42 U.S.C. 1862n-4).

10 (2) *IMPLEMENTATION.*—Based on the pre-award
 11 analysis described in paragraph (1), the Director
 12 shall include projected operational costs within the
 13 Foundation’s out years as part of the President’s
 14 yearly budget submissions to Congress.

15 (c) *COST OVERSIGHT.*—

16 (1) *PRE-AWARD ANALYSIS.*—

17 (A) *IN GENERAL.*—The Director of the
 18 Foundation and the National Science Board
 19 may not approve any proposed large-scale re-
 20 search facility project unless—

21 (i) an analysis of the proposed budget
 22 has been conducted to ensure the proposal is
 23 complete and reasonable;

1 (ii) the analysis under clause (i) fol-
 2 lows the Government Accountability Office
 3 *Cost Estimating and Assessment Guide*;

4 (iii) except as provided under subpara-
 5 graph (C), an analysis of the accounting
 6 systems has been conducted;

7 (iv) an independent cost estimate of the
 8 construction of the project has been con-
 9 ducted using the same detailed technical in-
 10 formation as the project proposal estimate
 11 to determine whether the estimate is well-
 12 supported and realistic; and

13 (v) the Foundation and the National
 14 Science Board has considered the analyses
 15 under clauses (i) and (iii) and the inde-
 16 pendent cost estimate under clause (iv) and
 17 resolved any major issues identified therein.

18 (B) AUDITS.—A Foundation analysis under
 19 subparagraph (A)(i) may include an audit.

20 (C) EXCEPTION.—The Director, at the Di-
 21 rector's discretion, may waive the requirement
 22 under subparagraph (A)(iii) if a similar anal-
 23 ysis of the accounting systems was conducted in
 24 the prior years.

1 (2) *CONSTRUCTION OVERSIGHT.*—*The Director*
 2 *shall require for each large-scale research facility*
 3 *project—*

4 (A) *periodic external reviews on project*
 5 *management and performance;*

6 (B) *adequate internal controls, policies, and*
 7 *procedures, and reliable accounting systems in*
 8 *preparation for the incurred cost audits under*
 9 *subparagraph (D);*

10 (C) *annual incurred cost submissions of fi-*
 11 *nancial expenditures; and*

12 (D) *an incurred cost audit of the project—*

13 (i) *at least once during construction at*
 14 *a time determined based on risk analysis*
 15 *and length of the award, except that the*
 16 *length of time between audits may not ex-*
 17 *ceed 3 years; and*

18 (ii) *at the completion of the construc-*
 19 *tion phase.*

20 (3) *OPERATIONS COST ESTIMATE.*—*The Director*
 21 *shall require an independent cost estimate of the oper-*
 22 *ational proposal for each large-scale research facility*
 23 *project.*

24 (d) *CONTINGENCY.*—

1 (1) *IN GENERAL.*—*The Foundation shall*
2 *strengthen internal controls to improve oversight of*
3 *contingency on a large-scale research facility project.*

4 (2) *REQUIREMENTS.*—*In carrying out para-*
5 *graph (1), not later than 180 days after the date of*
6 *enactment of this Act, the Foundation shall—*

7 (A) *retain control over a portion of the*
8 *budget contingency funds of each awardee;*

9 (B) *distribute the retained funds with other*
10 *incremental funds as needed; and*

11 (C) *track contingency use.*

12 (e) *OVERSIGHT IMPLEMENTATION PROGRESS.*—*The*
13 *Director of the Foundation shall—*

14 (1) *not later than 90 days after the date of en-*
15 *actment of this Act, and periodically thereafter until*
16 *the completion date, provide a briefing to the appro-*
17 *priate committees of Congress on the response to or*
18 *progress made toward implementation of—*

19 (A) *this section;*

20 (B) *all of the issues and recommendations*
21 *identified in cooperative agreement audit reports*
22 *and memoranda issued by the Inspector General*
23 *of the National Science Foundation in the last 5*
24 *years; and*

1 (C) *all of the issues and recommendations*
 2 *identified by a panel of the National Academy of*
 3 *Public Administration in the December 2015 re-*
 4 *port entitled “National Science Foundation: Use*
 5 *of Cooperative Agreements to Support Large*
 6 *Scale Investment in Research”;* and

7 (2) *not later than 1 year after the date of enact-*
 8 *ment of this Act, notify the appropriate committees of*
 9 *Congress when the Foundation has implemented the*
 10 *recommendations identified in a panel of the Na-*
 11 *tional Academy of Public Administration report*
 12 *issued December 2015.*

13 (f) *DEFINITIONS.—In this section:*

14 (1) *APPROPRIATE COMMITTEES OF CONGRESS.—*
 15 *The term “appropriate committees of Congress”*
 16 *means the Committee on Commerce, Science, and*
 17 *Transportation and the Committee on Appropriations*
 18 *of the Senate and the Committee on Science, Space,*
 19 *and Technology and the Committee on Appropria-*
 20 *tions of the House of Representatives.*

21 (2) *LARGE-SCALE RESEARCH FACILITY*
 22 *PROJECT.—The term “large-scale research facility*
 23 *project” means a science and engineering facility*
 24 *project funded by the major research equipment and*

1 *facilities construction account, or any successor there-*
2 *to.*

3 **SEC. 112. CONFLICTS OF INTEREST.**

4 *The Director of the Foundation shall update the policy*
5 *and procedure of the Foundation relating to conflicts of in-*
6 *terest to improve documentation and management of any*
7 *known conflict of interest of an individual on temporary*
8 *assignment at the Foundation, including an individual on*
9 *assignment under the Intergovernmental Personnel Act of*
10 *1970 (42 U.S.C. 4701 et seq.).*

11 **SEC. 113. MANAGEMENT OF THE NSF ANTARCTIC PROGRAM.**

12 *(a) REVIEW.—*

13 *(1) IN GENERAL.—The Director of the Founda-*
14 *tion shall continue to review the efforts by the Foun-*
15 *dation to sustain and strengthen scientific efforts in*
16 *the face of logistical challenges for the United States*
17 *Antarctic Program.*

18 *(2) ISSUES TO BE EXAMINED.—In conducting*
19 *the review, the Director shall examine, at a min-*
20 *imum, the following:*

21 *(A) Implementation by the Foundation of*
22 *issues and recommendations identified by—*

23 *(i) the Inspector General of the Na-*
24 *tional Science Foundation in audit reports*

1 *and memoranda on the United States Ant-*
2 *arctic Program in the last 4 years;*

3 (ii) *the U.S. Antarctic Program Blue*
4 *Ribbon Panel report, More and Better*
5 *Science in Antarctica through Increased*
6 *Logistical Effectiveness, issued July 23,*
7 *2012; and*

8 (iii) *the National Research Council re-*
9 *port, Future Science Opportunities in Ant-*
10 *arctica and the Southern Ocean, issued Sep-*
11 *tember 2011.*

12 (B) *Efforts by the Foundation to track its*
13 *progress in addressing the issues and rec-*
14 *ommendations under subparagraph (A).*

15 (C) *Efforts by the Foundation to address*
16 *other opportunities and challenges, including ef-*
17 *forts on scientific research, coordination with*
18 *other Federal agencies and international part-*
19 *ners, logistics and transportation, health and*
20 *safety of participants, oversight and financial*
21 *management of awardees and contractors, and*
22 *resources and policy challenges.*

23 (b) *BRIEFING.*—*Not later than 180 days after the date*
24 *of enactment of this Act, the Director shall brief the appro-*

1 *priate committees of Congress on the ongoing review, in-*
 2 *cluding findings and any recommendations.*

3 **SEC. 114. NIST CAMPUS SECURITY.**

4 (a) *SUPERVISORY AUTHORITY.*—Consistent with the
 5 *enforcement authority delegated by the Secretary of Home-*
 6 *land Security under section 1315 of title 40, United States*
 7 *Code, the Department of Commerce Office of Security shall*
 8 *directly manage the law enforcement and security programs*
 9 *of NIST through an assigned Director of Security for NIST.*

10 (b) *REPORTS.*—The Director of Security for NIST
 11 *shall provide an activities and security report on a quar-*
 12 *terly basis for the first year after the date of enactment of*
 13 *this Act, and on an annual basis thereafter, to the Under*
 14 *Secretary for Standards and Technology.*

15 **SEC. 115. FEDERAL COORDINATION OF SUSTAINABLE**
 16 **CHEMISTRY RESEARCH AND DEVELOPMENT.**

17 (a) *IMPORTANCE OF SUSTAINABLE CHEMISTRY.*—It is
 18 *the sense of Congress that—*

19 (1) *the science of chemistry is vital to improving*
 20 *the quality of human life and plays an important*
 21 *role in addressing critical global challenges, including*
 22 *water quality, energy, health care, and agriculture;*

23 (2) *sustainable chemistry can reduce risk to*
 24 *human health and the environment, reduce waste and*
 25 *improve pollution prevention, promote safe and effi-*

1 *cient manufacturing, and promote efficient use of re-*
2 *sources in developing new materials, processes, and*
3 *technologies that support viable long-term solutions;*

4 *(3) sustainable chemistry can stimulate innova-*
5 *tion, encourage new and creative approaches to prob-*
6 *lems, create jobs, and save money; and*

7 *(4) a coordinated national effort on sustainable*
8 *chemistry will allow for a greater return on Federal*
9 *research investment in this space.*

10 *(b) NATIONAL COORDINATION FOR SUSTAINABLE*
11 *CHEMISTRY.—*

12 *(1) ESTABLISHMENT.—Not later than 180 days*
13 *after the date of enactment of this Act, the Director*
14 *of the Office of Science and Technology Policy shall*
15 *convene an entity under the National Science and*
16 *Technology Council with the responsibility to coordi-*
17 *nate Federal programs and activities in support of*
18 *sustainable chemistry, including, as appropriate, at*
19 *the National Science Foundation, the Department of*
20 *Energy, the Department of Agriculture, the Environ-*
21 *mental Protection Agency, the National Institute of*
22 *Standards and Technology, the Department of De-*
23 *fense, the National Institutes of Health, and other re-*
24 *lated Federal agencies.*

1 (2) *CHAIRS*.—*The entity described in paragraph*
2 *(1) shall be chaired by representatives from the Na-*
3 *tional Science Foundation, the Environmental Pro-*
4 *tection Agency, or other agencies, as appropriate.*

5 (3) *DUTIES*.—

6 (A) *IN GENERAL*.—*The entity described in*
7 *paragraph (1) shall—*

8 (i) *develop a working definition of sus-*
9 *tainable chemistry, after seeking advice and*
10 *input from stakeholders as described in*
11 *clause (iv);*

12 (ii) *coordinate and support existing*
13 *Federal research, development, education,*
14 *and training efforts in sustainable chem-*
15 *istry;*

16 (iii) *develop a strategic plan to guide*
17 *Federal programs and activities in support*
18 *of sustainable chemistry research, develop-*
19 *ment, technology transfer, education, and*
20 *training as described in subsection (c), in-*
21 *cluding support for public-private partner-*
22 *ships; and*

23 (iv) *as appropriate, consult and co-*
24 *ordinate with stakeholders qualified to pro-*
25 *vide advice and information on the develop-*

1 *ment of the definition of sustainable chem-*
 2 *istry and the strategic plan.*

3 *(B) STAKEHOLDERS.—In choosing the*
 4 *stakeholders described in subparagraph (A)(iv),*
 5 *the entity described in paragraph (1) is strongly*
 6 *encouraged to include representatives from—*

7 *(i) industry (including small- and me-*
 8 *dium-sized enterprises from across the value*
 9 *chain);*

10 *(ii) the scientific community (includ-*
 11 *ing the National Academy of Sciences, sci-*
 12 *entific professional societies, and academia);*

13 *(iii) the defense community;*

14 *(iv) State, tribal, and local govern-*
 15 *ments;*

16 *(v) State or regional sustainable chem-*
 17 *istry programs;*

18 *(vi) non-governmental organizations;*

19 *and*

20 *(vii) other appropriate organizations.*

21 *(c) STRATEGIC PLAN.—*

22 *(1) IN GENERAL.—Not later than 1 year after*
 23 *the date of enactment of this Act, the entity described*
 24 *in subsection (b)(1) shall submit to the Committee on*
 25 *Science, Space, and Technology and the Committee on*

1 *Energy and Commerce of the House of Representa-*
2 *tives and the Committee on Environment and Public*
3 *Works and the Committee on Commerce, Science, and*
4 *Transportation of the Senate, a 5-year strategic plan*
5 *that shall include—*

6 *(A) a summary of Federally funded sustain-*
7 *able chemistry research, development, demonstra-*
8 *tion, technology transfer, commercialization,*
9 *education, and training activities;*

10 *(B) a summary of the financial resources*
11 *allocated to sustainable chemistry activities;*

12 *(C) an evaluation of best practices and co-*
13 *ordination among participating agencies; and*

14 *(D) a framework for advancing sustainable*
15 *chemistry, including strategies for and benefits of*
16 *Federal support for—*

17 *(i) sustainable chemistry research and*
18 *development conducted at Federal and na-*
19 *tional laboratories, Federal agencies, and*
20 *public and private institutions of higher*
21 *education;*

22 *(ii) technology transfer and commer-*
23 *cialization of sustainable chemistry, includ-*
24 *ing incentives and impediments to develop-*

1 *ment of sustainable chemicals, best prac-*
2 *tices, and costs and benefits;*

3 *(iii) education and training of under-*
4 *graduate and graduate students and profes-*
5 *sional scientists and engineers, including*
6 *through partnerships with industry, in sus-*
7 *tainable chemistry science and engineering;*

8 *(iv) economic, legal, and other appro-*
9 *priate social science research to identify*
10 *barriers to commercialization and methods*
11 *to advance commercialization of sustainable*
12 *chemistry; and*

13 *(v) public-private partnerships in sup-*
14 *port of sustainable chemistry research, de-*
15 *velopment, education, and training.*

16 *(2) SUBMISSION TO GAO.—The entity described*
17 *in subsection (b)(1) shall submit the strategic plan de-*
18 *scribed in paragraph (1) to the Government Account-*
19 *ability Office for consideration in future Congres-*
20 *sional inquiries.*

21 *(d) SUSTAINABLE CHEMISTRY BASIC RESEARCH.—*
22 *Subject to the availability of appropriated funds, the Direc-*
23 *tor of the National Science Foundation shall continue to*
24 *carry out the Sustainable Chemistry Basic Research pro-*
25 *gram authorized under section 509 of the National Science*

1 *Foundation Authorization Act of 2010 (42 U.S.C. 1862p–*
 2 *3).*

3 ***TITLE II—ADMINISTRATIVE AND***
 4 ***REGULATORY BURDEN RE-***
 5 ***DUCTION***

6 ***SEC. 201. INTERAGENCY WORKING GROUP ON RESEARCH***
 7 ***REGULATION.***

8 *(a) FINDINGS.—Congress makes the following findings:*

9 *(1) Scientific and technological advancement*
 10 *have been the largest drivers of economic growth in*
 11 *the last 50 years, with the Federal Government being*
 12 *the largest investor in basic research.*

13 *(2) Federally funded grants are increasingly*
 14 *competitive, with the Foundation funding only ap-*
 15 *proximately 1 in every 5 grant proposals.*

16 *(3) Researchers spend as much as 42 percent of*
 17 *their time complying with Federal regulations, in-*
 18 *cluding administrative tasks such as applying for*
 19 *grants or meeting reporting requirements.*

20 *(4) The time spent on the activities described in*
 21 *paragraph (3) affects efficiency and reduces valuable*
 22 *research time.*

23 *(b) SENSE OF CONGRESS.—It is the sense of Congress*
 24 *that administrative burdens faced by researchers may be*

1 *reducing the return on investment of federally funded re-*
 2 *search and development.*

3 (c) *ESTABLISHMENT.*—*The Director of the Office of*
 4 *Management and Budget, in coordination with the Office*
 5 *of Science and Technology Policy, shall establish an inter-*
 6 *agency working group (referred to in this section as the*
 7 *“Working Group”)* *to reduce administrative burdens on fed-*
 8 *erally funded researchers while protecting the public inter-*
 9 *est in the transparency of and accountability for federally*
 10 *funded activities.*

11 (d) *RESPONSIBILITIES.*—

12 (1) *IN GENERAL.*—*The Working Group shall—*

13 (A) *regularly review relevant, administra-*
 14 *tion-related regulations imposed on federally*
 15 *funded researchers; and*

16 (B) *recommend those regulations or proc-*
 17 *esses that may be eliminated, streamlined, or*
 18 *otherwise improved for the purpose described in*
 19 *subsection (c).*

20 (2) *GRANT REVIEW.*—

21 (A) *IN GENERAL.*—*The Working Group, in*
 22 *consultation with the Office of Management and*
 23 *Budget, shall—*

1 (i) conduct a comprehensive review of
 2 Federal science agency grant proposal docu-
 3 ments; and

4 (ii) develop, to the extent practicable, a
 5 simplified, uniform grant format to be used
 6 by all Federal science agencies.

7 (B) CONSIDERATIONS.—In developing the
 8 uniform grant format, the Working Group shall
 9 consider whether to implement—

10 (i) procedures for preliminary project
 11 proposals in advance of peer-review selec-
 12 tion;

13 (ii) increased use of “Just-In-Time”
 14 procedures for documentation that does not
 15 bear directly on the scientific merit of a
 16 proposal;

17 (iii) simplified initial budget proposals
 18 in advance of peer review selection; and

19 (iv) detailed budget proposals for ap-
 20 plicants that peer review selection identifies
 21 as likely to be funded.

22 (3) CENTRALIZED RESEARCHER PROFILE DATA-
 23 BASE.—

24 (A) ESTABLISHMENT.—The Working Group
 25 shall establish, to the extent practicable, a secure,

1 *centralized database for investigator biosketches,*
2 *curriculum vitae, licenses, publications, and*
3 *other documents considered relevant by the Work-*
4 *ing Group.*

5 *(B) CONSIDERATIONS.—In establishing the*
6 *centralized database under subparagraph (A),*
7 *the Working Group shall consider incorporating*
8 *existing investigator databases.*

9 *(C) GRANT PROPOSALS.—To the extent*
10 *practicable, all grant proposals shall utilize the*
11 *centralized researcher profile database established*
12 *under subparagraph (A).*

13 *(D) REQUIREMENTS.—Each investigator*
14 *shall—*

15 *(i) be responsible for ensuring the in-*
16 *vestigator's profile is current and accurate;*
17 *and*

18 *(ii) be assigned a unique identifier*
19 *linked to the database and accessible to all*
20 *Federal funding agencies.*

21 *(4) CENTRALIZED ASSURANCES REPOSITORY.—*
22 *The Working Group shall—*

23 *(A) establish a central repository for all of*
24 *the assurances required for Federal research*
25 *grants; and*

1 (B) provide guidance to universities and
 2 Federal science agencies on the use of the central-
 3 ized assurances repository.

4 (5) COMPREHENSIVE REVIEW.—

5 (A) IN GENERAL.—The Working Group, in
 6 consultation with the Office of Management and
 7 Budget, shall—

8 (i) conduct a comprehensive review of
 9 the mandated progress reports for federally
 10 funded research; and

11 (ii) develop a strategy to simplify in-
 12 vestigator progress reports.

13 (B) CONSIDERATIONS.—In developing the
 14 strategy, the Working Group shall consider lim-
 15 iting progress reports to performance outcomes.

16 (e) CONSULTATION.—In carrying out its responsibil-
 17 ities under subsection (d)(1), the Working Group shall con-
 18 sult with academic researchers outside the Federal Govern-
 19 ment, including—

20 (1) federally funded researchers;

21 (2) non-federally funded researchers;

22 (3) institutions of higher education and their
 23 representative associations;

24 (4) scientific and engineering disciplinary soci-
 25 eties and associations;

1 (5) *nonprofit research institutions;*

2 (6) *industry, including small businesses;*

3 (7) *federally funded research and development*
4 *centers; and*

5 (8) *members of the public with a stake in ensur-*
6 *ing effectiveness, efficiency, and accountability in the*
7 *performance of scientific research.*

8 (f) *REPORTS.*—*Not later than 1 year after the date of*
9 *enactment of this Act, and periodically thereafter, the Work-*
10 *ing Group shall submit to the appropriate committees of*
11 *Congress an annual report on its responsibilities under this*
12 *section, including recommendations under subsection*
13 *(d)(1)(B).*

14 **SEC. 202. SCIENTIFIC AND TECHNICAL COLLABORATION.**

15 (a) *DEFINITION OF SCIENTIFIC AND TECHNICAL*
16 *WORKSHOP.*—*In this section, the term “scientific and tech-*
17 *nical workshop” means a symposium, seminar, or any*
18 *other organized, formal gathering where scientists or engi-*
19 *neers working in STEM research and development fields as-*
20 *semble to coordinate, exchange and disseminate information*
21 *or to explore or clarify a defined subject, problem or area*
22 *of knowledge in the STEM fields.*

23 (b) *POLICY.*—*It is the policy of the United States to*
24 *encourage broad dissemination of Federal research findings*

1 *and engagement of Federal researchers with the scientific*
2 *and technical community.*

3 (c) *AUTHORITY.—Laboratory, test center, and field*
4 *center directors and other similar heads of offices may ap-*
5 *prove scientific and technical workshop attendance if—*

6 (1) *that attendance would meet the mission of*
7 *the laboratory or test center; and*

8 (2) *sufficient laboratory or test center funds are*
9 *available for that purpose.*

10 (d) *ATTENDANCE POLICIES.—*

11 (1) *IN GENERAL.—Not later than 180 days after*
12 *the date of enactment of this Act, the Director of the*
13 *Office of Management and Budget, in consultation*
14 *with the Director of the Office of Science and Tech-*
15 *nology Policy and the heads of other relevant Federal*
16 *science agencies, shall revise current policies and*
17 *streamline processes, in accordance with the policy*
18 *under subsection (b), for attendance at scientific and*
19 *technical workshops while ensuring appropriate over-*
20 *sight, accountability, and transparency.*

21 (2) *CONSIDERATIONS.—In revising the policy*
22 *under paragraph (1), the Director of the Office of*
23 *Management and Budget shall consider the goal of*
24 *adjudicating a request to attend a scientific and tech-*

1 *nical workshop not later than 30 days after the date*
2 *of the request.*

3 (3) *IMPLEMENTATION.—Not later than 90 days*
4 *after the date the Director of the Office of Manage-*
5 *ment and Budget revises the policies under paragraph*
6 *(1), the head of each Federal science agency shall up-*
7 *date that agency’s policies for attendance at scientific*
8 *and technical workshops.*

9 (e) *NIST WORKSHOPS.—Section 2(c) of the National*
10 *Institute of Standards and Technology Act (15 U.S.C.*
11 *272(c)), as amended by section 104 of this Act, is further*
12 *amended—*

13 (1) *by redesignating paragraphs (19) through*
14 *(24) as paragraphs (22) through (27), respectively;*
15 *and*

16 (2) *by inserting after paragraph (18) the fol-*
17 *lowing:*

18 “(19) *host, participate in, and support scientific*
19 *and technical workshops (as defined in section 202 of*
20 *the American Innovation and Competitiveness Act);*

21 “(20) *collect and retain any fees charged by the*
22 *Secretary for hosting a scientific and technical work-*
23 *shop described in paragraph (19);*

24 “(21) *notwithstanding title 31 of the United*
25 *States Code, use the fees described in paragraph (20)*

1 to pay for any related expenses, including subsistence
2 expenses for participants;”.

3 **SEC. 203. NIST GRANTS AND COOPERATIVE AGREEMENTS**

4 **UPDATE.**

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

10 **SEC. 204. REPEAL OF CERTAIN OBSOLETE REPORTS.**

11 (a) *REPEAL OF CERTAIN OBSOLETE REPORTS.*—

12 (1) *NIST REPORTS.*—

13 (A) *REPORT ON DONATION OF EDUCATION-*
14 *ALLY USEFUL FEDERAL EQUIPMENT TO*
15 *SCHOOLS.*—Section 6(b) of the Technology Ad-
16 *ministration Act of 1998 (15 U.S.C. 272 note) is*
17 *amended—*

18 (i) in paragraph (1), by striking “(1)
19 *IN GENERAL.*—” and indenting appro-
20 *priately; and*

21 (ii) by striking paragraph (2).

22 (B) *THREE-YEAR PROGRAMMATIC PLANNING*
23 *DOCUMENT.*—

24 (i) *IN GENERAL.*—Section 23 of the
25 *National Institute of Standards and Tech-*

nology Act (15 U.S.C. 278i) is amended by striking subsections (c) and (d).

(ii) *CONFORMING AMENDMENT.*—Section 10(h)(1) of the National Institute of Standards and Technology Act (15 U.S.C. 278(h)(1)) is amended by striking the last sentence.

(2) *MULTIAGENCY REPORT ON INNOVATION ACCELERATION RESEARCH.*—Section 1008 of the America COMPETES Act (42 U.S.C. 6603) is amended—

(A) by striking subsection (c); and

(B) by redesignating subsection (d) as subsection (c).

(3) *NSF REPORTS.*—

(A) *FUNDING FOR SUCCESSFUL STEM EDUCATION PROGRAMS; REPORT TO CONGRESS.*—Section 7012 of the America COMPETES Act (42 U.S.C. 1862o-4) is amended by striking subsection (c).

(B) *ENCOURAGING PARTICIPATION; EVALUATION AND REPORT.*—Section 7031 of the America COMPETES Act (42 U.S.C. 1862o-11) is amended by striking subsection (b).

(C) *MATH AND SCIENCE PARTNERSHIPS PROGRAM COORDINATION REPORT.*—Section 9(c)

1 *of the National Science Foundation Authoriza-*
 2 *tion Act of 2002 (42 U.S.C. 1862n(c)) is amend-*
 3 *ed—*

4 *(i) by striking paragraph (4); and*
 5 *(ii) by redesignating paragraph (5) as*
 6 *paragraph (4).*

7 **(b) NATIONAL NANOTECHNOLOGY INITIATIVE RE-**
 8 **PORTS.—***The 21st Century Nanotechnology Research and*
 9 *Development Act (15 U.S.C. 7501 et seq.) is amended—*

10 *(1) by amending section 2(c)(4) (15 U.S.C.*
 11 *7501(c)(4)) to read as follows:*

12 *“(4) develop, not later than 5 years after the*
 13 *date of the release of the most-recent strategic plan,*
 14 *and update every 5 years thereafter, a strategic plan*
 15 *to guide the activities described under subsection (b)*
 16 *that describes—*

17 *“(A) the near-term and long-term objectives*
 18 *for the Program;*

19 *“(B) the anticipated schedule for achieving*
 20 *the near-term objectives; and*

21 *“(C) the metrics that will be used to assess*
 22 *progress toward the near-term and long-term ob-*
 23 *jectives;*

1 “(D) how the Program will move results out
 2 of the laboratory and into application for the
 3 benefit of society;

4 “(E) the Program’s support for long-term
 5 funding for interdisciplinary research and devel-
 6 opment in nanotechnology; and

7 “(F) the allocation of funding for inter-
 8 agency nanotechnology projects;”;

9 (2) by amending section 4(d) (15 U.S.C.
 10 7503(d)) to read as follows:

11 “(d) *REPORTS*.—Not later than 4 years after the date
 12 of the most recent assessment under subsection (c), and
 13 quadrennially thereafter, the Advisory Panel shall submit
 14 to the President, the Committee on Commerce, Science, and
 15 Transportation of the Senate, and the Committee on
 16 Science, Space, and Technology of the House of Representa-
 17 tives a report its assessments under subsection (c) and its
 18 recommendations for ways to improve the Program.”; and

19 (3) in section 5 (15 U.S.C. 7504)—

20 (A) in the heading, by striking “**TRI-**
 21 **ENNIAL**” and inserting “**QUADRENNIAL**”;

22 (B) in subsection (a), in the matter pre-
 23 ceding paragraph (1), by striking “triennial”
 24 and inserting “quadrennial”;

1 (C) in subsection (b), by striking “tri-
2 ennial” and inserting “quadrennial”;

3 (D) in subsection (c), by striking “tri-
4 ennial” and inserting “quadrennial”; and

5 (E) by amending subsection (d) to read as
6 follows:

7 “(d) *REPORT.*—

8 “(1) *IN GENERAL.*—Not later than 30 days after
9 the date the first evaluation under subsection (a) is
10 received, and quadrennially thereafter, the Director of
11 the National Nanotechnology Coordination Office
12 shall report to the President its assessments under
13 subsection (c) and its recommendations for ways to
14 improve the Program.

15 “(2) *CONGRESS.*—Not later than 30 days after
16 the date the President receives the report under para-
17 graph (1), the Director of the Office of Science and
18 Technology Policy shall transmit a copy of the report
19 to Congress.”.

20 (c) *MAJOR RESEARCH EQUIPMENT AND FACILITIES*
21 *CONSTRUCTION.*—Section 14 of the National Science Foun-
22 dation Authorization Act of 2002 (42 U.S.C. 1862n-4) is
23 amended—

24 (1) by amending subsection (a) to read as fol-
25 lows:

1 “(a) *PRIORITIZATION OF PROPOSED MAJOR RE-*
 2 *SEARCH EQUIPMENT AND FACILITIES CONSTRUCTION.*—

3 “(1) *DEVELOPMENT OF PRIORITIES.*—*The Direc-*
 4 *tor shall—*

5 “(A) *develop a list indicating by number*
 6 *the relative priority for funding under the major*
 7 *research equipment and facilities construction*
 8 *account that the Director assigns to each project*
 9 *the Board has approved for inclusion in a future*
 10 *budget request; and*

11 “(B) *submit the list described in subpara-*
 12 *graph (A) to the Board for approval.*

13 “(2) *CRITERIA.*—*The Director shall include in*
 14 *the criteria for developing the list under paragraph*
 15 *(1) the readiness of plans for construction and oper-*
 16 *ation, including confidence in the estimates of the full*
 17 *life-cycle cost (as defined in section 2 of the National*
 18 *Science Foundation Authorization Act of 1998 (42*
 19 *U.S.C. 1862k note)) and the proposed schedule of*
 20 *completion.*

21 “(3) *UPDATES.*—*The Director shall update the*
 22 *list prepared under paragraph (1) each time the*
 23 *Board approves a new project that would receive*
 24 *funding under the major research equipment and fa-*

1 *cilities construction account and periodically submit*
 2 *any updated list to the Board for approval.”;*

3 *(2) by striking subsection (e);*

4 *(3) by redesignating subsections (c) and (d) as*
 5 *subsections (b) and (c), respectively; and*

6 *(4) by amending subsection (c), as redesignated,*
 7 *to read as follows:*

8 *“(c) BOARD APPROVAL OF MAJOR RESEARCH EQUIP-*
 9 *MENT AND FACILITIES PROJECTS.—The Board shall explic-*
 10 *itly approve any project to be funded out of the major re-*
 11 *search equipment and facilities construction account before*
 12 *any funds may be obligated from such account for such*
 13 *project.”.*

14 **SEC. 205. REPEAL OF CERTAIN PROVISIONS.**

15 *(a) TECHNOLOGY INNOVATION PROGRAM.—*

16 *(1) IN GENERAL.—Section 28 of the National In-*
 17 *stitute of Standards and Technology Act (15 U.S.C.*
 18 *278n) is repealed.*

19 *(2) CONFORMING AMENDMENTS.—*

20 *(A) ADDITIONAL AWARD CRITERIA.—Section*
 21 *4226(b) of the Small Business Jobs Act of 2010*
 22 *(15 U.S.C. 278n note) is repealed.*

23 *(B) MANAGEMENT COSTS.—Section 2(d) of*
 24 *the National Institute of Standards and Tech-*
 25 *nology Act (15 U.S.C. 272(d)) is amended by*

1 *striking “sections 25, 26, and 28” and inserting*
 2 *“sections 25 and 26”.*

3 (C) *ANNUAL AND OTHER REPORTS TO SEC-*
 4 *RETARY AND CONGRESS.—Section 10(h)(1) of the*
 5 *National Institute of Standards and Technology*
 6 *Act (15 U.S.C. 278(h)(1)) is amended by strik-*
 7 *ing “, including the Program established under*
 8 *section 28,”.*

9 (b) *TEACHERS FOR A COMPETITIVE TOMORROW.—Sec-*
 10 *tions 6111 through 6116 of the America COMPETES Act*
 11 *(20 U.S.C. 9811, 9812, 9813, 9814, 9815, 9816) and the*
 12 *items relating to those sections in the table of contents under*
 13 *section 2 of that Act (Public Law 110-69; 121 Stat. 572)*
 14 *are repealed.*

15 **SEC. 206. GRANT SUBRECIPIENT TRANSPARENCY AND**
 16 **OVERSIGHT.**

17 *By not later than 1 year after the date of enactment*
 18 *of this Act, the Inspector General of the Foundation shall*
 19 *prepare and submit to the appropriate committees of Con-*
 20 *gress an audit of the Foundation’s policies and procedures*
 21 *governing the monitoring of pass-through entities with re-*
 22 *spect to subrecipients. The audit shall include the following:*

23 (1) *Information regarding the Foundation’s*
 24 *process to oversee—*

1 (A) the compliance of pass-through entities
 2 pursuant to section 200.331 and subpart F of
 3 part 200 of chapter II of subtitle A of title 2,
 4 Code of Federal Regulations, and the other re-
 5 quirements of such title 2 for subrecipients;

6 (B) whether pass-through entities have proc-
 7 esses and controls in place regarding financial
 8 compliance of subrecipients, where appropriate;
 9 and

10 (C) whether pass-through entities have proc-
 11 esses and controls in place to maintain approved
 12 grant objectives for subrecipients, where appro-
 13 priate.

14 (2) Any recommendations to increase the trans-
 15 parency and oversight of the selection process, grant
 16 objectives, and financial oversight of the pass-through
 17 entities, while balancing administrative burdens.

18 **SEC. 207. MICRO-PURCHASE THRESHOLD FOR PROCURE-**
 19 **MENT SOLICITATIONS BY RESEARCH INSTI-**
 20 **TUTIONS.**

21 (a) *MICRO-PURCHASE THRESHOLD.*—The micro-pur-
 22 chase threshold for procurement activities administered
 23 under sections 6303 through 6305 of title 31, United States
 24 Code, awarded by the National Science Foundation, the Na-
 25 tional Aeronautics and Space Administration, or the Na-

1 tional Institute of Standards and Technology to institutions
 2 of higher education (as defined in section 101(a) of the
 3 Higher Education Act of 1965 (20 U.S.C. 1001(a))), or re-
 4 lated or affiliated nonprofit entities, or to nonprofit re-
 5 search organizations or independent research institutes is—

6 (1) \$10,000 (as adjusted periodically to account
 7 for inflation); or

8 (2) such higher threshold as determined appro-
 9 priate by the head of the relevant executive agency
 10 and consistent with audit findings under chapter 75
 11 of title 31, United States Code, internal institutional
 12 risk assessment, or State law.

13 (b) *UNIFORM GUIDANCE.*—The Uniform Guidance
 14 shall be revised to conform with the requirements of this
 15 section. For purposes of the preceding sentence, the term
 16 “Uniform Guidance” means the uniform administrative re-
 17 quirements, cost principles, and audit requirements for
 18 Federal awards contained in part 200 of title 2 of the Code
 19 of Federal Regulations.

1 **TITLE III—SCIENCE, TECH-**
 2 **NOLOGY, ENGINEERING, AND**
 3 **MATH EDUCATION**

4 **SEC. 301. ROBERT NOYCE TEACHER SCHOLARSHIP PRO-**
 5 **GRAM UPDATE.**

6 *Section 10A of the National Science Foundation Au-*
 7 *thorization Act of 2002 (42 U.S.C. 1862n–1a) is amended*
 8 *by adding at the end the following:*

9 *“(k) STEM TEACHER SERVICE AND RETENTION.—*

10 *“(1) IN GENERAL.—The Director shall develop*
 11 *and implement practices for increasing the propor-*
 12 *tion of individuals receiving fellowships under this*
 13 *section who—*

14 *“(A) fulfill the service obligation required*
 15 *under subsection (h); and*

16 *“(B) remain in the teaching profession in a*
 17 *high need local educational agency beyond the*
 18 *service obligation.*

19 *“(2) PRACTICES.—The practices described under*
 20 *paragraph (1) may include—*

21 *“(A) partnering with nonprofit or profes-*
 22 *sional associations or with other government en-*
 23 *tities to provide individuals receiving fellowships*
 24 *under this section with opportunities for profes-*
 25 *sional development, including mentorship pro-*

1 *grams that pair those individuals with currently*
 2 *employed and recently retired science, tech-*
 3 *nology, engineering, mathematics, or computer*
 4 *science professionals;*

5 *“(B) increasing recruitment from high need*
 6 *districts;*

7 *“(C) establishing a system to better collect,*
 8 *track, and respond to data on the career deci-*
 9 *sions of individuals receiving fellowships under*
 10 *this section;*

11 *“(D) conducting research to better under-*
 12 *stand factors relevant to teacher service and re-*
 13 *tention, including factors specifically impacting*
 14 *the retention of teachers from underrepresented*
 15 *groups, including women and minorities; and*

16 *“(E) conducting pilot programs to improve*
 17 *teacher service and retention.”.*

18 **SEC. 302. SPACE GRANTS.**

19 *(a) SENSE OF CONGRESS.—It is the sense of Congress*
 20 *that the National Space Grant College and Fellowship Pro-*
 21 *gram has been an important program by which the Federal*
 22 *Government has partnered with universities, colleges, in-*
 23 *dustry, and other organizations to provide hands-on STEM*
 24 *experiences, fostering of multidisciplinary space research,*

1 *and supporting graduate fellowships in space-related fields,*
 2 *among other purposes.*

3 (b) *ADMINISTRATIVE COSTS.—Section 40303 of title*
 4 *51, United States Code, is amended by adding at the end*
 5 *the following:*

6 “(d) *PROGRAM ADMINISTRATION COSTS.—In carrying*
 7 *out the provisions of this chapter, the Administrator—*

8 “(1) *shall maximize appropriated funds for*
 9 *grants and contracts made under section 40304 in*
 10 *each fiscal year; and*

11 “(2) *in each fiscal year, the Administrator shall*
 12 *limit its program administration costs to no more*
 13 *than 5 percent of funds appropriated for this pro-*
 14 *gram for that fiscal year.*

15 “(e) *REPORTS.—For any fiscal year in which the Ad-*
 16 *ministrator cannot meet the administration cost target*
 17 *under subsection (d)(2), if the Administration is unable to*
 18 *limit program costs under subsection (b), the Administrator*
 19 *shall submit to the appropriate committees of Congress a*
 20 *report, including—*

21 “(1) *a description of why the Administrator did*
 22 *not meet the cost target under subsection (d); and*

23 “(2) *the measures the Administrator will take in*
 24 *the next fiscal year to meet the cost target under sub-*

1 *section (d) without drawing upon other Federal fund-*
 2 *ing.”.*

3 **SEC. 303. STEM EDUCATION ADVISORY PANEL.**

4 *(a) ESTABLISHMENT.—Not later than 180 days after*
 5 *the date of enactment this Act, Director of the Foundation,*
 6 *the Secretary of Education, the Administrator of the Na-*
 7 *tional Aeronautics and Space Administration, and the Ad-*
 8 *ministrator of the National Oceanic and Atmospheric Ad-*
 9 *ministration shall jointly establish an advisory panel (re-*
 10 *ferred to in this section as the “STEM Education Advisory*
 11 *Panel”)* *to advise the Committee on STEM Education of*
 12 *the National Science and Technology Council (referred to*
 13 *in this section as “CoSTEM”) on matters relating to STEM*
 14 *education.*

15 *(b) MEMBERS.—*

16 *(1) IN GENERAL.—The STEM Education Advi-*
 17 *sory Panel shall be composed of not less than 11 mem-*
 18 *bers.*

19 *(2) APPOINTMENT.—*

20 *(A) IN GENERAL.—Subject to subparagraph*
 21 *(B), the Director of the Foundation, in consulta-*
 22 *tion with the Secretary of Education and the*
 23 *heads of the Federal science agencies, shall ap-*
 24 *point the members of the STEM Education Advi-*
 25 *sory Panel.*

1 (B) *CONSIDERATION.*—*In selecting individ-*
2 *uals to appoint under subparagraph (A), the Di-*
3 *rector of the Foundation shall seek and give con-*
4 *sideration to recommendations from Congress,*
5 *industry, the scientific community, including the*
6 *National Academy of Sciences, scientific profes-*
7 *sional societies, academia, State and local gov-*
8 *ernments, organizations representing groups*
9 *underrepresented in STEM fields, such as women*
10 *and minorities, and such other organizations as*
11 *the Director considers appropriate.*

12 (C) *QUALIFICATIONS.*—*Members shall—*

13 (i) *primarily be individuals from aca-*
14 *demic institutions, nonprofit organizations,*
15 *and industry, including in-school, out-of-*
16 *school, and informal education practi-*
17 *tioners; and*

18 (ii) *be individuals who are qualified to*
19 *provide advice and information on STEM*
20 *education research, development, training,*
21 *implementation, interventions, professional*
22 *development, or workforce needs or concerns.*

23 (c) *RESPONSIBILITIES.*—

24 (1) *ASSESSMENT.*—

1 (A) *IN GENERAL.*—*The STEM Education*
2 *Advisory Panel shall advise CoSTEM and peri-*
3 *odically assess its progress in carrying out its re-*
4 *sponsibilities under section 101(b) of the Amer-*
5 *ica COMPETES Reauthorization Act of 2010*
6 *(42 U.S.C. 6621(b)).*

7 (B) *CONSIDERATIONS.*—*In its advisory role,*
8 *the STEM Education Advisory Panel shall con-*
9 *sider—*

10 (i) *the appropriateness of criteria used*
11 *by Federal agencies to evaluate the effective-*
12 *ness of Federal STEM education programs*
13 *and activities;*

14 (ii) *ways to leverage private and non-*
15 *profit STEM investments and encourage*
16 *public-private partnerships to strengthen*
17 *STEM education and help build the STEM*
18 *workforce pipeline; and*

19 (iii) *how Federal agencies incentivize*
20 *colleges and universities to improve reten-*
21 *tion of STEM students.*

22 (2) *RECOMMENDATIONS.*—*The STEM Education*
23 *Advisory Panel shall make recommendations to im-*
24 *prove Federal STEM education programs and activi-*
25 *ties based on the assessment under paragraph (1).*

1 (d) *FUNDING.*—*The Director of the Foundation, the*
2 *Secretary of Education, the Administrator of the National*
3 *Aeronautics and Space Administration, and the Adminis-*
4 *trator of the National Oceanic and Atmospheric Adminis-*
5 *tration shall jointly make funds available on an annual*
6 *basis to support the activities of the STEM Education Advi-*
7 *sory Panel.*

8 (e) *REPORTS.*—*Not later than 1 year after the date*
9 *of enactment of this Act, and every 3 years thereafter, the*
10 *STEM Education Advisory Panel shall submit to the ap-*
11 *propriate committees of Congress, and CoSTEM a report*
12 *on its assessment under subsection (c)(1) and recommenda-*
13 *tions under subsection (c)(2).*

14 (f) *TRAVEL EXPENSES OF NON-FEDERAL MEMBERS.*—

15 (1) *IN GENERAL.*—*Non-Federal members of the*
16 *STEM Education Advisory Panel, while attending*
17 *meetings of the panel or while otherwise serving at the*
18 *request of a co-chairperson away from their homes or*
19 *regular places of business, may be allowed travel ex-*
20 *penses, including per diem in lieu of subsistence, as*
21 *authorized by section 5703 of title 5, United States*
22 *Code, for individuals in the Government serving with-*
23 *out pay.*

24 (2) *RULE OF CONSTRUCTION.*—*Nothing in this*
25 *subsection shall be construed to prohibit members of*

1 *the STEM Advisory Panel who are officers or employ-*
 2 *ees of the United States from being allowed travel ex-*
 3 *penses, including per diem in lieu of subsistence, in*
 4 *accordance with existing law.*

5 **SEC. 304. COMMITTEE ON STEM EDUCATION.**

6 *(a) RESPONSIBILITIES.—Section 101(b) of the Amer-*
 7 *ica COMPETES Reauthorization Act of 2010 (42 U.S.C.*
 8 *6621(b)) is amended—*

9 *(1) in paragraph (5)(D), by striking “; and”*
 10 *and inserting a semicolon;*

11 *(2) in paragraph (6), by striking the period at*
 12 *the end and inserting a semicolon; and*

13 *(3) by adding at the end the following:*

14 *“(7) collaborate with the STEM Education Advi-*
 15 *sory Panel established under section 303 of the Amer-*
 16 *ican Innovation and Competitiveness Act and other*
 17 *outside stakeholders to ensure the engagement of the*
 18 *STEM education community;*

19 *“(8) review the measures used by a Federal agen-*
 20 *cy to evaluate its STEM education activities and pro-*
 21 *grams;*

22 *“(9) request and review feedback from States on*
 23 *how the States are utilizing Federal STEM education*
 24 *programs and activities; and*

1 “(10) *recommend the reform, termination, or*
 2 *consolidation of Federal STEM education activities*
 3 *and programs, taking into consideration the rec-*
 4 *ommendations of the STEM Education Advisory*
 5 *Panel.*”.

6 (b) *REPORTS.*—Section 101 of the America COM-
 7 *PETES Reauthorization Act of 2010 (42 U.S.C. 6621) is*
 8 *amended—*

9 (1) *by striking “(c) REPORT.—” and inserting*
 10 *“(d) REPORTS.—”;*

11 (2) *by striking “(b) RESPONSIBILITIES OF*
 12 *OSTP.—” and inserting “(c) RESPONSIBILITIES OF*
 13 *OSTP.—”; and*

14 (3) *in subsection (d), as redesignated—*

15 (A) *in paragraph (4), by striking “; and”*
 16 *and inserting a semicolon;*

17 (B) *in paragraph (5), by striking the period*
 18 *at the end and inserting a semicolon; and*

19 (C) *by adding at the end the following:*

20 “(6) *a description of all consolidations and ter-*
 21 *minations of Federal STEM education programs and*
 22 *activities implemented in the previous fiscal year, in-*
 23 *cluding an explanation for the consolidations and ter-*
 24 *minations;*

1 “(7) recommendations for reforms, consolida-
2 tions, and terminations of STEM education programs
3 or activities in the upcoming fiscal year; and

4 “(8) a description of any significant new STEM
5 education public-private partnerships.”.

6 **SEC. 305. GRANT PROGRAMS TO EXPAND STEM OPPORTUNI-**
7 **TIES.**

8 (a) *FINDINGS.*—Congress makes the following findings:

9 (1) *Economic projections by the Bureau of Labor*
10 *Statistics indicate that by 2018, there could be 2.4*
11 *million unfilled STEM jobs.*

12 (2) *Women represent slightly more than half the*
13 *United States population, and projections indicate*
14 *that 54 percent of the population will be a member*
15 *of a racial or ethnic minority group by 2050.*

16 (3) *Despite representing half the population,*
17 *women comprise only about 30 percent of STEM*
18 *workers according to a 2015 report by the National*
19 *Center for Science and Engineering Statistics.*

20 (4) *A 2014 National Center for Education Sta-*
21 *tistics study found that women and underrepresented*
22 *minorities leave the STEM fields at higher rates than*
23 *their counterparts.*

24 (5) *The representation of women in STEM drops*
25 *significantly at the faculty level. Overall, women hold*

1 *only 25 percent of all tenured and tenure-track posi-*
2 *tions and 17 percent of full professor positions in*
3 *STEM fields in our Nation's universities and 4-year*
4 *colleges.*

5 *(6) Black and Hispanic faculty together hold*
6 *about 6.5 percent of all tenured and tenure-track po-*
7 *sitions and 5 percent of full professor positions.*

8 *(7) Many of the numbers in the American In-*
9 *dian or Alaskan Native and Native Hawaiian or*
10 *Other Pacific Islander categories for different faculty*
11 *ranks were too small for the National Science Foun-*
12 *dation to report publicly without potentially compro-*
13 *mising confidential information about the individuals*
14 *being surveyed.*

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

17 *(1) it is critical to our Nation's economic leader-*
18 *ship and global competitiveness that we educate,*
19 *train, and retain more scientists, engineers, and com-*
20 *puter scientists;*

21 *(2) there is currently a disconnect between the*
22 *availability of and growing demand for STEM-skilled*
23 *workers;*

1 (3) *women, minorities, and persons with disabili-*
 2 *ties are the largest untapped STEM talent pools in*
 3 *the United States; and*

4 (4) *given the shifting demographic landscape, the*
 5 *United States should encourage full participation of*
 6 *individuals described in paragraph (3) in STEM*
 7 *fields.*

8 (c) *REAFFIRMATION.—The Director of the Foundation*
 9 *shall continue to support existing programs designed to*
 10 *broaden participation of women, minorities, and persons*
 11 *with disabilities in STEM fields.*

12 (d) *PROGRAM TO BROADEN PARTICIPATION IN STEM*
 13 *FIELDS.—*

14 (1) *IN GENERAL.—The Director of the Founda-*
 15 *tion shall award grants on a competitive, merit-re-*
 16 *viewed basis, to eligible entities to increase the par-*
 17 *ticipation of women and groups underrepresented in*
 18 *STEM fields.*

19 (2) *APPLICATIONS.—An applicant seeking a*
 20 *grant under this section shall submit an application*
 21 *to the Director at such time, in such manner, and*
 22 *containing such information as the Director may re-*
 23 *quire.*

24 (3) *USE OF FUNDS.—Activities supported by*
 25 *grants under this section may include the following:*

1 (A) *Online workshops.*

2 (B) *Mentoring programs that partner*
 3 *science, technology, engineering, mathematics, or*
 4 *computer science professionals with applicable*
 5 *students.*

6 (C) *Internships for applicable under-*
 7 *graduate and graduate students in STEM fields.*

8 (D) *Conducting outreach programs that*
 9 *provide applicable elementary school and sec-*
 10 *ondary school students with opportunities to in-*
 11 *crease their exposure to STEM fields.*

12 (E) *Programs to increase the recruitment*
 13 *and retention of underrepresented faculty.*

14 (F) *Such additional programs as the Direc-*
 15 *tor of the Foundation may consider appropriate.*

16 (e) *GRANT PROGRAM FOR GRADES K THROUGH 8.—*

17 (1) *IN GENERAL.—The Director of the Founda-*
 18 *tion shall award grants to be used for research to ad-*
 19 *vance the engagement of students in grades kinder-*
 20 *garten through 8 in STEM that are designed to en-*
 21 *courage interest, engagement, and skills development*
 22 *of students in STEM fields, particularly those who*
 23 *are members of groups underrepresented in STEM*
 24 *fields.*

1 (2) *USE OF FUNDS.—Activities supported by*
2 *grants under this section may include—*

3 (A) *development and implementation of*
4 *programming described in paragraph (1) for the*
5 *purpose of research;*

6 (B) *use of a variety of engagement methods,*
7 *including cooperative and hands-on learning;*

8 (C) *exposure of students who are members of*
9 *groups underrepresented in STEM fields to role*
10 *models, including near-peers, in STEM fields;*

11 (D) *mentors;*

12 (E) *training of informal learning educators*
13 *and youth-serving professionals using evidence-*
14 *based methods consistent with the target student*
15 *population being served;*

16 (F) *education of students on the relevance*
17 *and significance of STEM careers, provision of*
18 *academic advice and assistance, and activities*
19 *designed to help students make real-world con-*
20 *nections to STEM content activities;*

21 (G) *attendance of underrepresented students*
22 *at events, competitions, and academic programs*
23 *to provide content expertise and encourage career*
24 *exposure in STEM;*

1 (H) activities designed to engage parents of
2 underrepresented students;

3 (I) innovative strategies to engage underrep-
4 resented students, such as using leadership skill
5 outcome measures to encourage youth with the
6 confidence to pursue STEM course work and
7 academic study;

8 (J) coordination with STEM-rich environ-
9 ments, including other nonprofit, nongovern-
10 mental organizations, classroom and out-of class-
11 room settings, institutions of higher education,
12 vocational facilities, corporations, museums, or
13 science centers; and

14 (K) acquisition of instructional materials
15 or technology-based tools to conduct applicable
16 grant activity.

17 (3) APPLICATIONS.—

18 (A) IN GENERAL.—Subject to subparagraph
19 (B), an applicant seeking a grant under the sec-
20 tion shall submit an application to the Director
21 at such time, in such manner, and containing
22 such information as the Director may require.

23 (B) REQUIREMENTS.—The application shall
24 include, at a minimum, the following:

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

3 (ii) *A description of the process for re-*
4 *ruitment and selection of students, as ap-*
5 *propriate.*

6 (iii) *A description of how such research*
7 *activity may inform programming that en-*
8 *gages underrepresented students in grades*
9 *kindergarten through 8 in STEM.*

10 (iv) *A description of how such research*
11 *activity may inform programming that*
12 *promotes student academic achievement in*
13 *STEM.*

14 (v) *An evaluation plan to determine*
15 *the impact and efficacy of activities being*
16 *researched.*

17 (4) *CONSIDERATION.—In awarding grants under*
18 *this section, the Director shall give consideration to*
19 *applicants which, for the purpose of grant activity,*
20 *include or partner with an organization that has ex-*
21 *tensive experience and expertise in increasing the*
22 *participation of underrepresented students in STEM.*

23 (f) *ACCOUNTABILITY AND DISSEMINATION.—*

24 (1) *EVALUATION.—*

1 (A) *IN GENERAL.*—Not later than 5 years
 2 after the date of enactment of this Act, the Direc-
 3 tor shall evaluate the grants provided under this
 4 section.

5 (B) *REQUIREMENTS.*—In conducting the
 6 evaluation under subparagraph (A), the Director
 7 shall—

8 (i) use a common set of benchmarks
 9 and assessment tools to identify best prac-
 10 tices and materials developed or dem-
 11 onstrated by the research; and

12 (ii) to the extent practicable, combine
 13 the research resulting from the grant activ-
 14 ity under subsection (e) with the current re-
 15 search on serving underrepresented students
 16 in grades kindergarten through 8.

17 (2) *REPORT ON EVALUATIONS.*—Not later than
 18 180 days after the completion of the evaluation under
 19 paragraph (1), the Director shall submit to the appro-
 20 priate committees of Congress and make widely avail-
 21 able to the public a report that includes—

22 (A) the results of the evaluation; and

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

1 (g) *COORDINATION.*—*In carrying out this section, the*
 2 *Director shall consult, cooperate, and coordinate, to enhance*
 3 *program effectiveness and to avoid duplication, with the*
 4 *programs and policies of other relevant Federal agencies.*

5 (h) *DEFINITION OF GROUPS UNDERREPRESENTED IN*
 6 *STEM FIELDS.*—*In this section, the term “groups under-*
 7 *represented in STEM fields” has the meaning given the*
 8 *term “underrepresented in science and engineering” in sec-*
 9 *tion 637.4(b) of title 34, Code of Federal Regulations.*

10 **SEC. 306. CENTERS OF EXCELLENCE FOR INCLUSION IN**
 11 **STEM.**

12 (a) *ESTABLISHMENT.*—*The Director of the Foundation*
 13 *shall carry out a program to award merit-reviewed, com-*
 14 *petitive grants to institutions of higher education, or con-*
 15 *sortia thereof, to establish not less than 1 Center of Excel-*
 16 *lence, (referred to in this section as the “Center”) to collect,*
 17 *maintain, and disseminate information to increase partici-*
 18 *pation of women and groups underrepresented in STEM*
 19 *fields (as defined in section 305(d)(4)).*

20 (b) *PURPOSE.*—*The purpose of the Center is to pro-*
 21 *mote diversity in STEM fields by building on the success*
 22 *of the INCLUDES programs, providing technical assist-*
 23 *ance, maintaining best practices, and providing related*
 24 *training at federally-funded academic institutions.*

1 (c) *PROGRAM.*—*The Director of the Foundation shall*
 2 *establish each Center through a merit-reviewed, competitive*
 3 *award to an eligible entity for at least 3, but not more than*
 4 *to 5 years.*

5 (d) *PUBLIC DOMAIN.*—*All program information devel-*
 6 *oped, collected, or maintained by a Center, except for per-*
 7 *sonally identifiable information, is and shall remain part*
 8 *of the public domain.*

9 (e) *APPLICATION.*—*To be eligible to receive a grant*
 10 *under this section, an eligible institution shall prepare and*
 11 *submit to the Director an application at such a time, in*
 12 *such form, and containing such information as the Director*
 13 *may require.*

14 (f) *ACTIVITIES.*—*Activities of a Center may include—*

15 (1) *conducting and disseminating research on—*

16 (A) *systemic factors and institutional poli-*
 17 *cies that impede or facilitate the recruitment, re-*
 18 *tention, and success of underrepresented groups*
 19 *in STEM fields; and*

20 (B) *best practices for mitigating the sys-*
 21 *temic factors and institutional policies that im-*
 22 *pede inclusion of underrepresented groups in*
 23 *STEM fields;*

24 (2) *collaborating with institutions of higher edu-*
 25 *cation, Federal agencies, industry, and relevant stake-*

1 *holders to develop policies and practices to facilitate*
2 *the recruitment, retention, and success of underrep-*
3 *resented groups in STEM;*

4 (3) *providing educational opportunities for*
5 *STEM faculty members, staff, students, trainees, fel-*
6 *lows, and administrators to learn about inclusion in*
7 *STEM and to improve STEM mentoring;*

8 (4) *developing and hosting intra- or inter-insti-*
9 *tutional workshops, and providing ongoing support to*
10 *workshop participants, to propagate best practices in*
11 *recruiting, retaining, and advancing STEM faculty*
12 *members, staff, students, trainees, fellows, and admin-*
13 *istrators from underrepresented groups at institutions*
14 *of higher education;*

15 (5) *assessing the effectiveness of efforts funded by*
16 *a Center or related efforts designed to increase inclu-*
17 *sion in STEM;*

18 (6) *assessing how modern STEM learning envi-*
19 *ronments can increase the inclusion, engagement, and*
20 *retention of students in STEM fields, particularly for*
21 *women and groups underrepresented in STEM fields;*
22 *and*

23 (7) *such other actions as a Center determines are*
24 *necessary to further the inclusion of underrepresented*
25 *groups in STEM.*

1 **SEC. 307. NIST EDUCATION AND OUTREACH.**

2 (a) *REPEALS.*—*The National Institute of Standards*
3 *and Technology Act (15 U.S.C. 271 et seq.) is amended—*

4 (1) *by striking section 18 (15 U.S.C. 278g-1);*

5 *and*

6 (2) *by striking section 19A (15 U.S.C. 278g-2a).*

7 (b) *EDUCATION AND OUTREACH.*—*The National Insti-*
8 *tute of Standards and Technology Act (15 U.S.C. 271 et*
9 *seq.), as amended, is further amended by inserting after sec-*
10 *tion 17, the following:*

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

12 “(a) *IN GENERAL.*—*The Director is authorized to ex-*
13 *pend funds appropriated for activities of the Institute in*
14 *any fiscal year, to support, promote, and coordinate activi-*
15 *ties and efforts to enhance public awareness and under-*
16 *standing of measurement sciences, standards and tech-*
17 *nology at the national measurement laboratories and other-*
18 *wise in fulfillment of the mission of the Institute. The Direc-*
19 *tor may carry out activities under this subsection, includ-*
20 *ing education and outreach activities to the general public,*
21 *industry and academia in support of the Institute’s mis-*
22 *sion.*

23 “(b) *HIRING.*—*The Director, in coordination with the*
24 *Director of the Office of Personnel Management, may revise*
25 *the procedures the Director applies when making appoint-*

1 *ments to laboratory positions within the competitive serv-*
 2 *ice—*

3 “(1) *to ensure corporate memory of and expertise*
 4 *in the fundamental ongoing work, and on developing*
 5 *new capabilities in priority areas;*

6 “(2) *to maintain high overall technical com-*
 7 *petence;*

8 “(3) *to improve staff diversity;*

9 “(4) *to balance emphases on the noncore and*
 10 *core areas; or*

11 “(5) *to improve the ability of the Institute to*
 12 *compete in the marketplace for qualified personnel.*

13 “(c) *VOLUNTEERS.—*

14 “(1) *IN GENERAL.—The Director may establish a*
 15 *program to use volunteers in carrying out the pro-*
 16 *grams of the Institute.*

17 “(2) *ACCEPTANCE OF PERSONNEL.—The Director*
 18 *may accept, subject to regulations issued by the Office*
 19 *of Personnel Management, voluntary service for the*
 20 *Institute for such purpose if the service—*

21 “(A) *is to be without compensation; and*

22 “(B) *will not be used to displace any cur-*
 23 *rent employee or act as a substitute for any fu-*
 24 *ture full-time employee of the Institute.*

1 “(3) *FEDERAL EMPLOYEE STATUS*.—Any indi-
 2 vidual who provides voluntary service under this sub-
 3 section shall not be considered a Federal employee, ex-
 4 cept for purposes of chapter 81 of title 5, United
 5 States Code (relating to compensation for injury),
 6 and sections 2671 through 2680 of title 28, United
 7 States Code (relating to tort claims).

8 “(d) *RESEARCH FELLOWSHIPS*.—

9 “(1) *IN GENERAL*.—The Director may expend
 10 funds appropriated for activities of the Institute in
 11 any fiscal year, as the Director considers appropriate,
 12 for awards of research fellowships and other forms of
 13 financial and logistical assistance, including direct
 14 stipend awards to—

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

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

22 “(2) *SELECTION CRITERIA*.—The selection of per-
 23 sons to receive such fellowships and assistance shall be
 24 made on the basis of ability and of the relevance of

1 *the proposed work to the mission and programs of the*
2 *Institute.*

3 “(3) *FINANCIAL AND LOGISTICAL ASSISTANCE.*—
4 *Notwithstanding section 1345 of title 31, United*
5 *States Code, or any other law to the contrary, the Di-*
6 *rector may include as a form of financial or logistical*
7 *assistance under this subsection temporary housing*
8 *and transportation to and from Institute facilities.*

9 “(e) *EDUCATIONAL OUTREACH ACTIVITIES.*—*The Di-*
10 *rector may—*

11 “(1) *facilitate education programs for under-*
12 *graduate and graduate students, postdoctoral re-*
13 *searchers, and academic and industry employees;*

14 “(2) *sponsor summer internships for STEM high*
15 *school teachers as appropriate;*

16 “(3) *develop programs for graduate student in-*
17 *ternships and visiting faculty researchers;*

18 “(4) *document publications, presentations, and*
19 *interactions with visiting researchers and sponsoring*
20 *interns as performance metrics for improving and*
21 *continuing interactions with those individuals; and*

22 “(5) *facilitate laboratory tours and provide pres-*
23 *entations for educational, industry, and community*
24 *groups.”.*

1 (c) *POST-DOCTORAL FELLOWSHIP PROGRAM.*—Section
 2 19 of the National Institute of Standards and Technology
 3 Act (15 U.S.C. 278g-2) is amended to read as follows:

4 **“SEC. 19. POST-DOCTORAL FELLOWSHIP PROGRAM.**

5 “(a) *IN GENERAL.*—The Institute and the National
 6 Academy of Sciences, jointly, shall establish and conduct
 7 a post-doctoral fellowship program, subject to the avail-
 8 ability of appropriations.

9 “(b) *ORGANIZATION.*—The post-doctoral fellowship
 10 program shall include not less than 20 nor more than 120
 11 new fellows per fiscal year.

12 “(c) *EVALUATIONS.*—In evaluating applications for
 13 post-doctoral fellowships under this section, the Director of
 14 the Institute and the President of the National Academy
 15 of Sciences shall give consideration to the goal of promoting
 16 the participation of underrepresented minorities in research
 17 areas supported by the Institute.”.

18 (d) *SAVINGS CLAUSES.*—

19 (1) *RESEARCH FELLOWSHIPS AND OTHER FINAN-*
 20 *CIAL ASSISTANCE TO STUDENTS AT INSTITUTES OF*
 21 *HIGHER EDUCATION.*—The repeal made by subsection
 22 (a)(1) of this section shall not affect any award of a
 23 research fellowship or other form of financial assist-
 24 ance made under section 18 of the National Institute
 25 of Standards and Technology Act (15 U.S.C. 278g-1)

1 *before the date of enactment of this Act. Such award*
2 *shall continue to be subject to the requirements to*
3 *which such funds were subject under that section be-*
4 *fore the date of enactment of this Act.*

5 (2) *POST-DOCTORAL FELLOWSHIP PROGRAM.—*
6 *The amendment made by subsection (c) of this section*
7 *shall not affect any award of a post-doctoral fellow-*
8 *ship or other form of financial assistance made under*
9 *section 19 of the National Institute of Standards and*
10 *Technology Act (15 U.S.C. 278g-2) before the date of*
11 *enactment of this Act. Such awards shall continue to*
12 *be subject to the requirements to which such funds*
13 *were subject under that section before the date of en-*
14 *actment of this Act.*

15 **SEC. 308. PRESIDENTIAL AWARDS FOR EXCELLENCE IN**
16 **STEM MENTORING.**

17 (a) *IN GENERAL.—The Director of the Foundation*
18 *shall continue to administer awards on behalf of the Office*
19 *of Science and Technology Policy to recognize outstanding*
20 *mentoring in STEM fields.*

21 (b) *ANNUAL AWARD RECIPIENTS.—The Director of the*
22 *Foundation shall provide Congress with a list of award re-*
23 *cipients, including the name, institution, and a brief syn-*
24 *opsis of the impact of the mentoring efforts.*

1 **SEC. 309. WORKING GROUP ON INCLUSION IN STEM FIELDS.**

2 (a) *ESTABLISHMENT.*—*The Office of Science and Tech-*
3 *nology Policy, in collaboration with Federal departments*
4 *and agencies, shall establish an interagency working group*
5 *to compile and summarize available research and best prac-*
6 *tices on how to promote diversity and inclusions in STEM*
7 *fields and examine whether barriers exist to promoting di-*
8 *versity and inclusion within Federal agencies employing*
9 *scientists and engineers.*

10 (b) *RESPONSIBILITIES.*—*The working group shall be*
11 *responsible for reviewing and assessing research, best prac-*
12 *tices, and policies across Federal science agencies related*
13 *to the inclusion of underrepresented groups in the Federal*
14 *STEM workforce, including available research and best*
15 *practices on how to promote diversity and inclusion in*
16 *STEM fields, including—*

17 (1) *policies providing flexibility for scientists*
18 *and engineers that are also caregivers, particularly*
19 *on the timing of research grants;*

20 (2) *policies to address the proper handling of*
21 *claims of sexual harassment;*

22 (3) *policies to minimize the effects of implicit*
23 *bias and other systemic factors in hiring, promotion,*
24 *evaluation and the workplace in general; and*

1 (4) *other evidence-based strategies that the work-*
2 *ing group considers effective for promoting diversity*
3 *and inclusion in the STEM fields.*

4 (c) *STAKEHOLDER INPUT.*—*In carrying out the re-*
5 *sponsibilities under section (b), the working group shall so-*
6 *licit and consider input and recommendations from non-*
7 *Federal stakeholders, including—*

8 (1) *the Council of Advisors on Science and Tech-*
9 *nology;*

10 (2) *federally funded and non-federally funded re-*
11 *searchers, institutions of higher education, scientific*
12 *disciplinary societies, and associations;*

13 (3) *nonprofit research institutions;*

14 (4) *industry, including small businesses;*

15 (5) *federally funded research and development*
16 *centers;*

17 (6) *non-governmental organizations; and*

18 (7) *such other members of the public interested*
19 *in promoting a diverse and inclusive Federal STEM*
20 *workforce.*

21 (d) *PUBLIC REPORTS.*—*Not later than 1 year after the*
22 *date of enactment of this Act, and periodically thereafter,*
23 *the working group shall publish a report on the review and*
24 *assessment under subsection (b), including a summary of*
25 *available research and best practices, any recommendations*

1 *for Federal actions to promote a diverse and inclusive Fed-*
 2 *eral STEM workforce, and updates on the implementation*
 3 *of previous recommendations for Federal actions.*

4 (e) *TERMINATION OF EFFECTIVENESS.*—*The authority*
 5 *provided by subsection (a) terminates effective on the date*
 6 *that is 10 years after the date that the working group is*
 7 *established.*

8 **SEC. 310. IMPROVING UNDERGRADUATE STEM EXPERI-**
 9 **ENCES.**

10 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*
 11 *that each Federal science agency should invest in and ex-*
 12 *pand research opportunities for undergraduate students at-*
 13 *tending institutions of higher education during the under-*
 14 *graduate student’s first 2 academic years of postsecondary*
 15 *education.*

16 (b) *IDENTIFICATION OF RESEARCH PROGRAMS.*—*Not*
 17 *later than 1 year after the date of enactment of this Act,*
 18 *the head of each Federal agency shall submit to the Presi-*
 19 *dent recommendations regarding how the agency could best*
 20 *fulfill the goals described in subsection (a).*

21 (c) *BROADER IMPACTS.*—*Section 526(a)(6) of the*
 22 *America COMPETES Reauthorization Act of 2010 (Public*
 23 *Law 111–358; 124 Stat. 4019) is amended to read as fol-*
 24 *lows:*

1 “(6) Improved undergraduate STEM education
2 and instruction.”.

3 **SEC. 311. COMPUTER SCIENCE EDUCATION RESEARCH.**

4 (a) *FINDINGS.*—Congress finds that as the lead Federal
5 agency for building the research knowledge base for com-
6 puter science education, the Foundation is well positioned
7 to make investments that will accelerate ongoing efforts to
8 enable rigorous and engaging computer science throughout
9 the Nation.

10 (b) *GRANT PROGRAM.*—

11 (1) *IN GENERAL.*—The Director of the Founda-
12 tion shall award grants to eligible entities to research
13 computer science education and computational think-
14 ing.

15 (2) *RESEARCH.*—The research described in para-
16 graph (1) may include the development or adapta-
17 tion, piloting or full implementation, and testing of—

18 (A) models of preservice preparation for
19 teachers who will teach computer science and
20 computational thinking;

21 (B) scalable and sustainable models of pro-
22 fessional development and ongoing support for
23 the teachers described in subparagraph (A);

24 (C) tools and models for teaching and learn-
25 ing aimed at supporting student success and in-

1 *clusion in computing within and across diverse*
 2 *populations, particularly poor, rural, and tribal*
 3 *populations and other populations that have*
 4 *been traditionally underrepresented in computer*
 5 *science and STEM fields; and*

6 *(D) instructional materials and high-quality*
 7 *learning opportunities for teaching computer*
 8 *science and, especially in poor, rural, or tribal*
 9 *schools at the elementary school and middle*
 10 *school levels, for integrating computational*
 11 *thinking into STEM teaching and learning.*

12 *(c) COLLABORATIONS.—In carrying out the grants es-*
 13 *tablished in subsection (b), eligible entities may collaborate*
 14 *and partner with local or remote schools to support the inte-*
 15 *gration of computing and computational thinking within*
 16 *pre-kindergarten through grade 12 STEM curricula and in-*
 17 *struction.*

18 *(d) METRICS.—The Director of the Foundation shall*
 19 *develop metrics to measure the success of the grant program*
 20 *funded under this section in achieving program goals.*

21 *(e) REPORT.—The Director of the Foundation shall re-*
 22 *port, in the annual budget submission to Congress, on the*
 23 *success of the program as measured by the metrics in sub-*
 24 *section (d).*

1 (f) *DEFINITION OF ELIGIBLE ENTITY.*—*In this section,*
 2 *the term “eligible entity” means an institution of higher*
 3 *education or a nonprofit research organization.*

4 **SEC. 312. INFORMAL STEM EDUCATION.**

5 (a) *NATIONAL STEM PARTNERSHIP GRANTS.*—*The*
 6 *Director of the National Science Foundation may award,*
 7 *through a cross-Directorate process including the Direc-*
 8 *torate for Education and Human Resources and at least*
 9 *one additional Directorate of the Foundation, competitive,*
 10 *merit-reviewed grants to support a national partnership of*
 11 *institutions involved in informal STEM learning.*

12 (b) *USE OF FUNDS.*—*Activities supported by grants*
 13 *under this section may include—*

14 (1) *fostering and implementing on-going part-*
 15 *nerships between institutions involved in informal*
 16 *STEM learning, institutions of higher education, and*
 17 *education research centers; and*

18 (2) *developing, adapting, and making available*
 19 *informal STEM education activities and educational*
 20 *materials for broad implementation.*

21 **SEC. 313. DEVELOPING STEM APPRENTICESHIPS.**

22 (a) *FINDINGS.*—*Congress makes the following findings:*

23 (1) *The lack of data on the return on investment*
 24 *for United States employers using registered appren-*
 25 *ticeships makes it difficult—*

1 (A) to communicate the value of these pro-
2 grams to businesses; and

3 (B) to expand registered apprenticeships.

4 (2) The lack of data on the value and impact of
5 employer-provided worker training, which is likely
6 substantial, hinders the ability of the Federal Govern-
7 ment to formulate policy related to workforce train-
8 ing.

9 (3) The Secretary of Commerce has initiated—

10 (A) the first study on the return on invest-
11 ment for United States employers using reg-
12 istered apprenticeships through case studies of
13 firms in various sectors, occupations, and geo-
14 graphic locations to provide the business commu-
15 nity with data on employer benefits and costs;
16 and

17 (B) discussions with officials at relevant
18 Federal agencies about the need to collect com-
19 prehensive data on—

20 (i) employer-provided worker training;

21 and

22 (ii) existing tools that could be used to
23 collect such data.

24 (b) DEVELOPMENT OF APPRENTICESHIP INFORMA-
25 TION.—The Secretary of Commerce shall continue to re-

1 *search the value to businesses of utilizing apprenticeship*
 2 *programs, including—*

3 *(1) evidence of return on investment of appren-*
 4 *ticeships, including estimates for the average time it*
 5 *takes a business to recover the costs associated with*
 6 *training apprentices; and*

7 *(2) data from the United States Census Bureau*
 8 *and other statistical surveys on employer-provided*
 9 *training, including apprenticeships and other on-the-*
 10 *job training and industry-recognized certification*
 11 *programs.*

12 *(c) DISSEMINATION OF APPRENTICESHIP INFORMA-*
 13 *TION.—The Secretary of Commerce shall disseminate find-*
 14 *ings from research on apprenticeships to businesses and*
 15 *other relevant stakeholders, including—*

16 *(1) institutions of higher education;*

17 *(2) State and local chambers of commerce; and*

18 *(3) workforce training organizations.*

19 *(d) STUDYING APPROACHES TO COLLECTING EM-*
 20 *PLOYER-PROVIDED WORKER TRAINING DATA.—The Sec-*
 21 *retary of Commerce and the Secretary of Labor shall—*

22 *(1) collaborate to identify approaches to col-*
 23 *lecting employer-provided worker training data;*

24 *(2) provide a report to the relevant congressional*
 25 *committees on—*

1 (A) the existing tools available to collect
2 such data; and

3 (B) the time and cost of collecting such
4 data; and

5 (3) provide recommendations to the relevant con-
6 gressional committees on additional tools that may be
7 needed to collect such data.

8 (e) *NEW APPRENTICESHIP PROGRAM STUDY.*—The
9 Secretary of Commerce and the Secretary of Labor shall col-
10 laborate to study approaches for reducing the cost of cre-
11 ating new apprenticeship programs and hosting appren-
12 tices for businesses, particularly small businesses, includ-
13 ing—

14 (1) training sharing agreements;

15 (2) group training models; and

16 (3) pooling resources and best practices.

17 (f) *ECONOMIC DEVELOPMENT ADMINISTRATION*
18 *GRANTS.*—The Stevenson-Wydler Technology Innovation
19 Act of 1980 (15 U.S.C. 3701 et seq.) is amended by adding
20 at the end the following:

21 **“SEC. 28. STEM APPRENTICESHIP PROGRAMS.**

22 “(a) *IN GENERAL.*—The Secretary of Commerce may
23 carry out a grant program to identify the need for skilled
24 science, technology, engineering, and mathematics (referred

1 to in this section as ‘STEM’) workers and to expand STEM
 2 apprenticeship programs.

3 “(b) *ELIGIBLE RECIPIENT DEFINED.*—In this section,
 4 the term ‘eligible recipient’ means—

5 “(1) a State;

6 “(2) an Indian tribe;

7 “(3) a city or other political subdivision of a
 8 State;

9 “(4) an entity that—

10 “(A) is a nonprofit organization, an insti-
 11 tution of higher education, a public-private part-
 12 nership, a science or research park, a Federal
 13 laboratory, or an economic development organi-
 14 zation or similar entity; and

15 “(B) has an application that is supported
 16 by a State, a political subdivision of a State, or
 17 a native organization; or

18 “(5) a consortium of any of the entities described
 19 in paragraphs (1) through (5).

20 “(c) *NEEDS ASSESSMENT GRANTS.*—The Secretary of
 21 Commerce may provide a grant to an eligible recipient to
 22 conduct a needs assessment to identify—

23 “(1) the unmet need of a region’s employer base
 24 for skilled STEM workers;

1 “(2) the potential of STEM apprenticeships to
2 address the unmet need described in paragraph (1);
3 and

4 “(3) any barriers to addressing the unmet need
5 described in paragraph (1).

6 “(d) *APPRENTICESHIP EXPANSION GRANTS.*—The Sec-
7 retary of Commerce may provide a grant to an eligible re-
8 cipient that has conducted a needs assessment as described
9 in subsection (c)(1) to develop infrastructure to expand
10 STEM apprenticeship programs.”.

11 **SEC. 314. NSF REPORT ON BROADENING PARTICIPATION.**

12 Not later than 1 year after the date of enactment of
13 this Act, the National Science Foundation shall—

14 (1) review data on the participation in Founda-
15 tion activities of institutions serving groups that are
16 underrepresented in STEM disciplines, including
17 poor, rural, and tribal populations; and

18 (2) submit to Congress a report on the findings
19 from such review and a recommendation or rec-
20 ommendations regarding how the Foundation could
21 improve outreach and inclusion of these groups in
22 Foundation activities.

1 **SEC. 315. NOAA OCEAN AND ATMOSPHERIC SCIENCE EDU-**
 2 **CATION PROGRAMS.**

3 (a) *IN GENERAL.*—Subsection (a) of section 4002 of
 4 the America COMPETES Act (33 U.S.C. 893a) is amended
 5 by inserting after “from underrepresented groups” the fol-
 6 lowing: “, including ethnic, racial, and economic minority
 7 groups,”.

8 (b) *EDUCATIONAL PROGRAM GOALS.*—Paragraph (4)
 9 of section 4002(b) of the America COMPETES Act (33
 10 U.S.C. 893a(b)) is amended—

11 (1) in subparagraph (B), by striking “and” at
 12 the end;

13 (2) by redesignating subparagraph (C) and sub-
 14 paragraph (D);

15 (3) by inserting after subparagraph (B) the fol-
 16 lowing:

17 “(C) are designed considering the unique
 18 needs of underrepresented racial and ethnic
 19 groups, translating such materials and other re-
 20 sources into appropriate multi-lingual cur-
 21 ricula;”; and

22 (4) by adding at the end the following:

23 “(E) are promoted widely, especially among
 24 underrepresented groups (including among ra-
 25 cial and ethnic minority communities); and”.

1 (c) *METRICS*.—Section 4002 of the America COM-
 2 *PETES Act* (33 U.S.C. 893a) is amended—

3 (1) by redesignating subsections (d) and (e) as
 4 subsections (e) and (f), respectively; and

5 (2) by adding after section (c) the following:

6 “(d) *METRICS*.—In executing the National Oceanic
 7 and Atmospheric Administration science education plan
 8 under subsection (c), the Administrator shall maintain a
 9 comprehensive system for evaluating the Administration’s
 10 educational programs and activities. In so doing, the Ad-
 11 ministrator shall ensure that such education programs have
 12 measurable objectives and milestones as well as clear, docu-
 13 mented metrics for evaluating programs. For each such edu-
 14 cation program or portfolio of similar programs, the Ad-
 15 ministrator shall—

16 “(1) encourage the collection of evidence as rel-
 17 evant to the measurable objectives and milestones; and

18 “(2) ensure that program or portfolio evaluations
 19 focus on educational outcomes and not just inputs,
 20 activities completed, or the number of participants.”.

21 ***TITLE IV—LEVERAGING THE*** 22 ***PRIVATE SECTOR***

23 ***SEC. 401. PRIZE COMPETITION AUTHORITY UPDATE.***

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

1 (1) in subsection (c)—

2 (A) in the subsection heading, by striking
3 “PRIZES” and by inserting “PRIZE COMPETI-
4 TIONS”;

5 (B) in the matter preceding paragraph (1),
6 by striking “prize may be one or more of the fol-
7 lowing” and inserting “prize competition may
8 be 1 or more of the following types of activities”;

9 (C) in paragraph (2), by inserting “com-
10 petition” after “prize”; and

11 (D) in paragraphs (3) and (4), by striking
12 “prizes” and inserting “prize competitions”;

13 (2) in subsection (f)—

14 (A) in the matter preceding paragraph (1),
15 by striking “in the Federal Register” and insert-
16 ing “on a publicly accessible Government
17 website, such as *www.challenge.gov*,”;

18 (B) in paragraphs (1), (2), and (3), by in-
19 serting “prize” before “competition”; and

20 (C) in paragraph (4), by striking “prize”
21 and inserting “cash prize purse or non-cash
22 prize award”;

23 (3) in subsection (g)—

1 (A) in the matter preceding paragraph (1),
 2 by striking “prize” and inserting “cash prize
 3 purse”; and

4 (B) in paragraph (1), by inserting “prize”
 5 before “competition”;

6 (4) in subsection (h), by inserting “prize” before
 7 “competition” each place it appears;

8 (5) in subsection (i)—

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

11 (B) in paragraph (2)(A), by inserting
 12 “prize” before “competition” each place it ap-
 13 pears;

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

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

18 “(3) *WAIVERS.*—

19 “(A) *IN GENERAL.*—An agency may waive
 20 the requirement under paragraph (2).

21 “(B) *LIST.*—The Director shall include a
 22 list of all of the waivers granted under this para-
 23 graph during the preceding fiscal year, including
 24 a detailed explanation of the reason for granting
 25 the waiver.”;

1 (6) in subsection (j)—

2 (A) in paragraph (1), by inserting “prize”
3 before “competition”;

4 (B) by amending paragraph (2) to read as
5 follows:

6 “(2) *LICENSES.*—As appropriate and to further
7 the goals of a prize competition, the Federal Govern-
8 ment may—

9 “(A) negotiate a license for the use of intel-
10 lectual property developed by a registered partic-
11 ipant in a prize competition; or

12 “(B) require a registered participant in a
13 prize competition to provide an open license to
14 the public for the use of the intellectual property
15 if that requirement is disclosed prior to registra-
16 tion.”; and

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

18 “(3) *ELECTRONIC CONSENT.*—The Federal Gov-
19 ernment may obtain consent to the intellectual prop-
20 erty and licensing terms of a prize competition from
21 participants during the online registration for the
22 prize competition.”;

23 (7) in subsection (k)—

1 (A) in paragraph (1), by striking “each
2 competition” and inserting “each prize competi-
3 tion” each place it appears;

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

6 (C) in paragraph (3), by inserting “prize”
7 before “competitions” each place it appears;

8 (8) in subsection (l), by striking “an agreement
9 with” and all that follows through the period at the
10 end and inserting “a grant, contract, cooperative
11 agreement, or other agreement with a private sector
12 for-profit or nonprofit entity or State or local govern-
13 ment agency to administer the prize competition, sub-
14 ject to the provisions of this section.”;

15 (9) in subsection (m)—

16 (A) by amending paragraph (1) to read as
17 follows:

18 “(1) *IN GENERAL.*—Support for a prize competi-
19 tion under this section, including financial support
20 for the design and administration of a prize competi-
21 tion or funds for a cash prize purse, may consist of
22 Federal appropriated funds and funds provided by
23 private sector for-profit and nonprofit entities. The
24 head of an agency may request and accept funds from
25 other Federal agencies, State, United States territory,

1 *local, or tribal government agencies, private sector*
 2 *for-profit entities, and nonprofit entities, to be avail-*
 3 *able to the extent provided by appropriations Acts, to*
 4 *support such prize competitions. The head of an agen-*
 5 *cy may not give any special consideration to any*
 6 *agency or entity in return for a donation.”;*

7 *(B) in paragraph (2), by striking “prize*
 8 *awards” and inserting “cash prize purses or*
 9 *non-cash prize awards”;*

10 *(C) in paragraph (3)—*

11 *(i) by amending subparagraph (A) to*
 12 *read as follows:*

13 *“(A) ANNOUNCEMENT.—No prize competi-*
 14 *tion may be announced under subsection (f)*
 15 *until all the funds needed to pay out the an-*
 16 *nounced amount of the cash prize purse have*
 17 *been appropriated or committed in writing by a*
 18 *private or State, United States territory, local,*
 19 *or tribal government source.”; and*

20 *(ii) in subparagraph (B)—*

21 *(I) in the matter preceding clause*
 22 *(i), by striking “a prize” and inserting*
 23 *“a cash prize purse or non-cash prize*
 24 *award”;*

1 (II) in clause (i), by inserting
2 “competition” after “prize”; and

3 (III) in clause (ii), by inserting
4 “or State, United States territory,
5 local, or tribal government” after “pri-
6 vate”;

7 (D) in paragraph (4)—

8 (i) in subparagraph (A)—

9 (I) by striking “a prize” and in-
10 serting “a cash prize purse or a non-
11 cash prize award”; and

12 (II) by striking “Science and
13 Technology” and inserting “Science,
14 Space, and Technology”; and

15 (ii) in subparagraph (B), by striking
16 “cash prizes” and inserting “cash prize
17 purses or non-cash prize awards”;

18 (10) in subsection (n)—

19 (A) in the heading, by striking “SERVICE”
20 and inserting “SERVICES”;

21 (B) by striking “the date of the enactment
22 of the America COMPETES Reauthorization Act
23 of 2010,” and inserting “the date of enactment
24 of the American Innovation and Competitiveness
25 Act,”; and

1 (C) by inserting “for both for-profit and
2 nonprofit entities and State, United States terri-
3 tory, local, and tribal government entities,” after
4 “contract vehicle”;

5 (11) in subsection (o)(1), by striking “or pro-
6 viding a prize” and inserting “a prize competition or
7 providing a cash prize purse or non-cash prize
8 award”; and

9 (12) in subsection (p)—

10 (A) in the heading, by striking “ANNUAL”
11 and inserting “BIENNIAL”;

12 (B) in paragraph (1)—

13 (i) by striking “each year” and insert-
14 ing “every other year”;

15 (ii) by striking “Science and Tech-
16 nology” and inserting “Science, Space, and
17 Technology”; and

18 (iii) by striking “fiscal year” and in-
19 serting “2 fiscal years”; and

20 (C) in paragraph (2)—

21 (i) by striking “The report for a fiscal
22 year” and inserting “A report”;

23 (ii) in subparagraph (C)—

24 (I) in the heading, by striking
25 “PRIZES” and inserting “PRIZE

1 *PURSES OR NON-CASH PRIZE AWARDS*”;

2 *and*

3 *(II) by striking “cash prizes” each*

4 *place it appears and inserting “cash*

5 *prize purses or non-cash prize*

6 *awards”; and*

7 *(iii) by adding at the end the fol-*

8 *lowing:*

9 *“(G) PLAN.—A description of crosscutting*

10 *topical areas and agency-specific mission needs*

11 *that may be the strongest opportunities for prize*

12 *competitions during the upcoming 2 fiscal*

13 *years.”.*

14 **SEC. 402. CROWDSOURCING AND CITIZEN SCIENCE.**

15 *(a) SENSE OF CONGRESS.—It is the sense of Congress*

16 *that—*

17 *(1) the authority granted to Federal agencies*

18 *under the America COMPETES Reauthorization Act*

19 *of 2010 (Public Law 111–358; 124 Stat. 3982) to*

20 *pursue the use of incentive prizes and challenges has*

21 *yielded numerous benefits;*

22 *(2) crowdsourcing and citizen science projects*

23 *have a number of additional unique benefits, includ-*

24 *ing accelerating scientific research, increasing cost ef-*

25 *fectiveness to maximize the return on taxpayer dol-*

lars, addressing societal needs, providing hands-on learning in STEM, and connecting members of the public directly to Federal agency missions and to each other; and

(3) granting Federal agencies the direct, explicit authority to use crowdsourcing and citizen science will encourage its appropriate use to advance agency missions and stimulate and facilitate broader public participation in the innovation process, yielding numerous benefits to the Federal Government and citizens who participate in such projects.

(b) DEFINITIONS.—In this section:

(1) CITIZEN SCIENCE.—The term “citizen science” means a form of open collaboration in which individuals or organizations participate voluntarily in the scientific process in various ways, including—

(A) enabling the formulation of research questions;

(B) creating and refining project design;

(C) conducting scientific experiments;

(D) collecting and analyzing data;

(E) interpreting the results of data;

(F) developing technologies and applications;

(G) making discoveries; and

1 (H) solving problems.

2 (2) CROWDSOURCING.—The term
3 “crowdsourcing” means a method to obtain needed
4 services, ideas, or content by soliciting voluntary con-
5 tributions from a group of individuals or organiza-
6 tions, especially from an online community.

7 (3) PARTICIPANT.—The term “participant”
8 means any individual or other entity that has volun-
9 teered in a crowdsourcing or citizen science project
10 under this section.

11 (c) CROWDSOURCING AND CITIZEN SCIENCE.—

12 (1) IN GENERAL.—The head of each Federal
13 agency, or the heads of multiple Federal agencies
14 working cooperatively, may utilize crowdsourcing and
15 citizen science to conduct activities designed to ad-
16 vance the mission of the respective Federal agency or
17 the joint mission of Federal agencies, as applicable.

18 (2) VOLUNTARY SERVICES.—Notwithstanding
19 section 1342 of title 31, United States Code, the head
20 of a Federal agency may accept, subject to regulations
21 issued by the Director of the Office of Personnel Man-
22 agement, services from participants under this section
23 if such services—

1 (A) are performed voluntarily as a part of
2 a crowdsourcing or citizen science project au-
3 thorized under paragraph (1);

4 (B) are not financially compensated for
5 their time; and

6 (C) will not be used to displace any em-
7 ployee of the Federal Government.

8 (3) *OUTREACH.*—The head of each Federal agen-
9 cy engaged in a crowdsourcing or citizen science
10 project under this section shall make public and pro-
11 mote such project to encourage broad participation.

12 (4) *CONSENT, REGISTRATION, AND TERMS OF*
13 *USE.*—

14 (A) *IN GENERAL.*—Each Federal agency is
15 authorized to determine the appropriate level of
16 consent, registration, or acknowledgment of the
17 terms of use that are required from participants
18 in crowdsourcing or citizen science projects
19 under this section on a per-project basis.

20 (B) *DISCLOSURES.*—In seeking consent,
21 conducting registration, or developing terms of
22 use for a project under this subsection, a Federal
23 agency shall disclose the privacy, intellectual
24 property, data ownership, compensation, service,

1 *program, and other terms of use to the partici-*
 2 *part in a clear and reasonable manner.*

3 (C) *MODE OF CONSENT.*—*A Federal agency*
 4 *or Federal agencies, as applicable, may obtain*
 5 *consent electronically or in written form from*
 6 *participants under this section.*

7 (5) *PROTECTIONS FOR HUMAN SUBJECTS.*—*Any*
 8 *crowdsourcing or citizen science project under this*
 9 *section that involves research involving human sub-*
 10 *jects shall be subject to part 46 of title 28, Code of*
 11 *Federal Regulations (or any successor regulation).*

12 (6) *DATA.*—

13 (A) *IN GENERAL.*—*A Federal agency shall,*
 14 *where appropriate and to the extent practicable,*
 15 *make data collected through a crowdsourcing or*
 16 *citizen science project under this section avail-*
 17 *able to the public, in a machine readable format,*
 18 *unless prohibited by law.*

19 (B) *NOTICE.*—*As part of the consent proc-*
 20 *ess, the Federal agency shall notify all partici-*
 21 *pants—*

22 (i) *of the expected uses of the data com-*
 23 *piled through the project;*

24 (ii) *if the Federal agency will retain*
 25 *ownership of such data;*

1 (iii) if and how the data and results
2 from the project would be made available
3 for public or third party use; and

4 (iv) if participants are authorized to
5 publish such data.

6 (7) *TECHNOLOGIES AND APPLICATIONS.*—Federal
7 agencies shall endeavor to make technologies, applica-
8 tions, code, and derivations of such intellectual prop-
9 erty developed through a crowdsourcing or citizen
10 science project under this section available to the pub-
11 lic.

12 (8) *LIABILITY.*—Each participant in a
13 crowdsourcing or citizen science project under this
14 section shall agree—

15 (A) to assume any and all risks associated
16 with such participation; and

17 (B) to waive all claims against the Federal
18 Government and its related entities, except for
19 claims based on willful misconduct, for any in-
20 jury, death, damage, or loss of property, revenue,
21 or profits (whether direct, indirect, or consequen-
22 tial) arising from participation in the project.

23 (9) *SCIENTIFIC INTEGRITY.*—Federal agencies co-
24 ordinating crowdsourcing or citizen science projects
25 under this section shall make all practicable efforts to

1 *ensure that participants adhere to all relevant sci-*
 2 *entific integrity or other applicable ethics policies.*

3 (10) *MULTI-SECTOR PARTNERSHIPS.*—*The head*
 4 *of each Federal agency engaged in crowdsourcing or*
 5 *citizen science under this section, or the heads of mul-*
 6 *tiple Federal agencies working cooperatively, may*
 7 *enter into a contract or other agreement to share ad-*
 8 *ministrative duties for such activities with—*

9 (A) *a for profit or nonprofit private sector*
 10 *entity, including a private institution of higher*
 11 *education;*

12 (B) *a State, tribal, local, or foreign govern-*
 13 *ment agency, including a public institution of*
 14 *higher education; or*

15 (C) *a public-private partnership.*

16 (11) *FUNDING.*—*In carrying out crowdsourcing*
 17 *and citizen science projects under this section, the*
 18 *head of a Federal agency, or the heads of multiple*
 19 *Federal agencies working cooperatively—*

20 (A) *may use funds appropriated by Con-*
 21 *gress;*

22 (B) *may publicize projects and solicit and*
 23 *accept funds or in-kind support for such activi-*
 24 *ties from—*

25 (i) *other Federal agencies;*

1 (ii) for profit or nonprofit private sec-
2 tor entities, including private institutions of
3 higher education; or

4 (iii) State, tribal, local, or foreign gov-
5 ernment agencies, including public institu-
6 tions of higher education; and

7 (C) may not give any special consideration
8 to any entity described in subparagraph (ii) in
9 return for such funds or in-kind support.

10 (12) FACILITATION.—

11 (A) GENERAL SERVICES ADMINISTRATION
12 ASSISTANCE.—*The Administrator of the General*
13 *Services Administration, in coordination with*
14 *the Director of the Office of Personnel Manage-*
15 *ment, shall, at no cost to Federal agencies, iden-*
16 *tify and develop relevant products, training, and*
17 *services to facilitate the use of crowdsourcing and*
18 *citizen science projects under this section, includ-*
19 *ing by specifying the appropriate contract vehi-*
20 *cles and technology and organizational platforms*
21 *to enhance the ability of Federal agencies to*
22 *carry out the activities under this section.*

23 (B) ADDITIONAL GUIDANCE.—*The head of*
24 *each Federal agency engaged in crowdsourcing*

1 *or citizen science under this section is encour-*
2 *aged—*

3 *(i) to consult any guidance provided*
4 *by the Director of the Office of Science and*
5 *Technology Policy, including the Federal*
6 *Crowdsourcing and Citizen Science Toolkit;*

7 *(ii) to designate a coordinator for that*
8 *Federal agency's crowdsourcing and citizen*
9 *science projects; and*

10 *(iii) to share best practices with other*
11 *Federal agencies, including participation of*
12 *staff in the Federal Community of Practice*
13 *for Crowdsourcing and Citizen Science.*

14 *(d) REPORT.—*

15 *(1) IN GENERAL.—Not later than 2 years after*
16 *the date of the enactment of this Act, the Director of*
17 *the Office of Science and Technology Policy shall in-*
18 *clude, as a component of a report required under sec-*
19 *tion 24(p) of the Stevenson-Wydler Technology Inno-*
20 *vation Act of 1980 (15 U.S.C. 3719(p)), a report on*
21 *the activities carried out under this section.*

22 *(2) INFORMATION INCLUDED.—The report re-*
23 *quired under paragraph (1) shall include—*

24 *(A) a summary of each crowdsourcing and*
25 *citizen science project conducted by a Federal*

1 *agency during the most recently completed 2 fis-*
2 *cal years, including a description of the proposed*
3 *goals of each crowdsourcing and citizen science*
4 *project;*

5 *(B) the participation rates, submission lev-*
6 *els, number of consents, or any other statistic*
7 *that might be considered relevant in each*
8 *crowdsourcing and citizen science project;*

9 *(C) a description of—*

10 *(i) the resources (including personnel*
11 *and funding) that were used in the execu-*
12 *tion of each crowdsourcing and citizen*
13 *science project;*

14 *(ii) the activities for which such re-*
15 *sources were used; and*

16 *(iii) how the obligations and expendi-*
17 *tures relating to the project's execution were*
18 *allocated among the accounts of the Federal*
19 *agency;*

20 *(D) a summary of the use of crowdsourcing*
21 *and citizen science by all Federal agencies, in-*
22 *cluding interagency and multi-sector partner-*
23 *ships; and*

1 (E) any other information that the Director
 2 of the Office of Science and Technology Policy
 3 considers relevant.

4 (e) *SAVINGS PROVISION.*—Nothing in this section may
 5 be construed—

6 (1) to affect the authority to conduct
 7 crowdsourcing and citizen science authorized by any
 8 other provision of law; or

9 (2) to displace Federal Government resources al-
 10 located to the Federal agencies that use crowdsourcing
 11 or citizen science authorized under this section to
 12 carry out a project.

13 **SEC. 403. NIST OTHER TRANSACTION AUTHORITY UPDATE.**

14 Section 2(b)(4) of the National Institute of Standards
 15 and Technology Act (15 U.S.C. 272(b)(4)) is amended to
 16 read as follows:

17 “(4) to enter into and perform such contracts,
 18 including cooperative research and development ar-
 19 rangements, grants, cooperative agreements, real
 20 property leases, or other transactions, as may be nec-
 21 essary in furtherance of the purposes of this Act and
 22 on such terms as the Director considers appropriate;”.

1 **SEC. 404. NIST VISITING COMMITTEE ON ADVANCED TECH-**
 2 **NOLOGY UPDATE.**

3 *Section 10(a) of the National Institute of Standards*
 4 *and Technology Act (15 U.S.C. 278(a)) is amended—*

5 *(1) in the second sentence, by striking “15 mem-*
 6 *bers appointed by the Director, at least 10 of whom”*
 7 *and “not fewer than 9 members appointed by the Di-*
 8 *rector, a majority of whom”; and*

9 *(2) in the third sentence, by striking “National*
 10 *Bureau of Standards” and inserting “National Insti-*
 11 *tute of Standards and Technology”.*

12 **TITLE V—MANUFACTURING**

13 **SEC. 501. HOLLINGS MANUFACTURING EXTENSION PART-**
 14 **nership IMPROVEMENTS.**

15 *(a) IN GENERAL.—Section 25 of the National Institute*
 16 *of Standards and Technology Act (15 U.S.C. 278k) is*
 17 *amended to read as follows:*

18 **“SEC. 25. HOLLINGS MANUFACTURING EXTENSION PART-**
 19 **nership.**

20 *“(a) DEFINITIONS.—In this section:*

21 *“(1) APPROPRIATE COMMITTEES OF CON-*
 22 *GRESS.—The term ‘appropriate committees of Con-*
 23 *gress’ means—*

24 *“(A) the Committee on Commerce, Science,*
 25 *and Transportation of the Senate; and*

1 “(B) the Committee on Science, Space, and
2 Technology of the House of Representatives.

3 “(2) AREA CAREER AND TECHNICAL EDUCATION
4 SCHOOL.—The term ‘area career and technical edu-
5 cation school’ has the meaning given the term in sec-
6 tion 3 of the Vocational Education Act of 1963 (20
7 U.S.C. 2302).

8 “(3) CENTER.—The term ‘Center’ means a man-
9 ufacturing extension center that—

10 “(A) is created under subsection (b); and

11 “(B) is affiliated with an eligible entity
12 that applies for and is awarded financial sup-
13 port under subsection (e).

14 “(4) COMMUNITY COLLEGE.—The term ‘commu-
15 nity college’ means an institution of higher education
16 (as defined under section 101(a) of the Higher Edu-
17 cation Act of 1965 (20 U.S.C. 1001(a))) at which the
18 highest degree that is predominately awarded to stu-
19 dents is an associate’s degree.

20 “(5) ELIGIBLE ENTITY.—The term ‘eligible enti-
21 ty’ means a United States-based nonprofit institu-
22 tion, or consortium thereof, an institution of higher
23 education, or a State, United States territory, local,
24 or tribal government.

1 “(6) *HOLLINGS MANUFACTURING EXTENSION*
 2 *PARTNERSHIP OR PROGRAM.*—*The term ‘Hollings*
 3 *Manufacturing Extension Partnership’ or ‘Program’*
 4 *means the program established under subsection (b).*

5 “(7) *MEP ADVISORY BOARD.*—*The term ‘MEP*
 6 *Advisory Board’ means the Manufacturing Extension*
 7 *Partnership Advisory Board established under sub-*
 8 *section (n).*

9 “(b) *ESTABLISHMENT AND PURPOSE.*—*The Secretary,*
 10 *acting through the Director and, if appropriate, through*
 11 *other Federal officials, shall establish a program to provide*
 12 *assistance for the creation and support of manufacturing*
 13 *extension centers for the transfer of manufacturing tech-*
 14 *nology and best business practices.*

15 “(c) *OBJECTIVE.*—*The objective of the Program shall*
 16 *be to enhance competitiveness, productivity, and techno-*
 17 *logical performance in United States manufacturing*
 18 *through—*

19 “(1) *the transfer of manufacturing technology*
 20 *and techniques developed at the Institute to Centers*
 21 *and, through them, to manufacturing companies*
 22 *throughout the United States;*

23 “(2) *the participation of individuals from indus-*
 24 *try, institutions of higher education, State govern-*
 25 *ments, other Federal agencies, and, when appropriate,*

1 *the Institute in cooperative technology transfer activi-*
2 *ties;*

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

6 “(4) *the active dissemination of scientific, engi-*
7 *neering, technical, and management information*
8 *about manufacturing to industrial firms, including*
9 *small and medium-sized manufacturing companies;*

10 “(5) *the utilization, when appropriate, of the ex-*
11 *pertise and capability that exists in Federal agencies,*
12 *other than the Institute, and federally-sponsored lab-*
13 *oratories;*

14 “(6) *the provision to community colleges and*
15 *area career and technical education schools of infor-*
16 *mation about the job skills needed in manufacturing*
17 *companies, including small and medium-sized manu-*
18 *facturing businesses in the regions they serve;*

19 “(7) *the promotion and expansion of certifi-*
20 *cation systems, including efforts to assist small- and*
21 *medium-sized manufacturing businesses in creating*
22 *new apprenticeships or utilizing existing apprentice-*
23 *ships, such as facilitating training and providing ac-*
24 *cess to information and experts, to address workforce*
25 *needs and skills gaps; and*

1 “(8) *the growth in employment and wages at*
2 *United States-based small and medium-sized compa-*
3 *nies.*

4 “(d) *ACTIVITIES.—The activities of a Center shall in-*
5 *clude—*

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

10 “(2) *the active transfer and dissemination of re-*
11 *search findings and Center expertise to a wide range*
12 *of companies and enterprises, particularly small and*
13 *medium-sized manufacturers; and*

14 “(3) *the facilitation of collaborations and part-*
15 *nerships between small and medium-sized manufac-*
16 *turing companies , community colleges, and area ca-*
17 *reer and technical education schools, to help those en-*
18 *tities better understand the specific needs of manufac-*
19 *turers and to help manufacturers better understand*
20 *the skill sets that students learn in the programs of-*
21 *fered by such colleges and schools.*

22 “(e) *FINANCIAL ASSISTANCE.—*

23 “(1) *AUTHORIZATION.—Except as provided in*
24 *paragraph (2), the Secretary may provide financial*
25 *assistance for the creation and support of a Center*

1 *through a cooperative agreement with an eligible enti-*
 2 *ty.*

3 “(2) *COST SHARING.*—*The Secretary may not*
 4 *provide more than 50 percent of the capital and an-*
 5 *nuual operating and maintenance funds required to es-*
 6 *tablish and support a Center.*

7 “(3) *RULE OF CONSTRUCTION.*—*For purposes of*
 8 *paragraph (2), any amount received by an eligible*
 9 *entity for a Center under a provision of law other*
 10 *than paragraph (1) shall not be considered an*
 11 *amount provided under paragraph (1).*

12 “(f) *APPLICATIONS.*—

13 “(1) *IN GENERAL.*—*An eligible entity shall sub-*
 14 *mit an application to the Secretary at such time, in*
 15 *such manner, and containing such information as the*
 16 *Secretary may require.*

17 “(2) *PROGRAM DESCRIPTION.*—*The Secretary*
 18 *shall establish and update, as necessary—*

19 “(A) *a description of the Program;*

20 “(B) *the application procedures;*

21 “(C) *performance metrics;*

22 “(D) *criteria for determining qualified ap-*
 23 *plicants; and*

1 “(E) criteria for choosing recipients of fi-
2 nancial assistance from among the qualified ap-
3 plicants.

4 “(F) procedures for determining allowable
5 cost share contributions; and

6 “(G) such other program policy objectives
7 and operational procedures as the Secretary con-
8 siders necessary.

9 “(3) COST SHARING.—

10 “(A) IN GENERAL.—To be considered for fi-
11 nancial assistance under this section, an appli-
12 cant shall provide adequate assurances that the
13 applicant and if applicable, the applicant’s
14 partnering organizations, will obtain funding for
15 not less than 50 percent of the capital and an-
16 nual operating and maintenance funds required
17 to establish and support the Center from sources
18 other than the financial assistance provided
19 under subsection (e).

20 “(B) AGREEMENTS WITH OTHER ENTI-
21 TIES.—In meeting the cost-sharing requirement
22 under subparagraph (A), an eligible entity may
23 enter into an agreement with 1 or more other en-
24 tities, such as a private industry, an institution
25 of higher education, or a State, United States

territory, local, or tribal government for the contribution by that other entity of funding if the Secretary determines the agreement—

“(i) is programmatically reasonable;

“(ii) will help accomplish programmatic objectives; and

“(iii) is allocable under Program procedures under subsection (f)(2).

“(4) *LEGAL RIGHTS.*—Each applicant shall include in the application a proposal for the allocation of the legal rights associated with any intellectual property which may result from the activities of the Center.

“(5) *MERIT REVIEW OF APPLICATIONS.*—

“(A) *IN GENERAL.*—The Secretary shall subject each application to merit review.

“(B) *CONSIDERATIONS.*—In making a decision whether to approve an application and provide financial assistance under subsection (e), the Secretary shall consider, at a minimum—

“(i) the merits of the application, particularly those portions of the application regarding technology transfer, training and education, and adaptation of manufac-

1 *turing technologies to the needs of par-*
 2 *ticular industrial sectors;*

3 *“(ii) the quality of service to be pro-*
 4 *vided;*

5 *“(iii) the geographical diversity and*
 6 *extent of the service area; and*

7 *“(iv) the type and percentage of fund-*
 8 *ing from other sources under paragraph (3).*

9 *“(g) EVALUATIONS.—*

10 *“(1) THIRD AND EIGHTH YEAR EVALUATIONS BY*
 11 *PANEL.—*

12 *“(A) IN GENERAL.—The Secretary shall en-*
 13 *sure that each Center is evaluated during its*
 14 *third and eighth years of operation by an eval-*
 15 *uation panel appointed by the Secretary.*

16 *“(B) COMPOSITION.—The Secretary shall*
 17 *ensure that each evaluation panel appointed*
 18 *under subparagraph (A) is composed of—*

19 *“(i) private experts, none of whom are*
 20 *connected with the Center evaluated by the*
 21 *panel; and*

22 *“(ii) Federal officials.*

23 *“(C) CHAIRPERSON.—For each evaluation*
 24 *panel appointed under subparagraph (B), the*

1 *Secretary shall appoint a chairperson who is an*
 2 *official of the Institute.*

3 “(2) *FIFTH YEAR EVALUATIONS BY SEC-*
 4 *RETARY.—In the fifth year of operation of a Center,*
 5 *the Secretary shall conduct a review of the Center.*

6 “(3) *PERFORMANCE MEASUREMENT.—In evalu-*
 7 *ating a Center an evaluation panel or the Secretary,*
 8 *as applicable, shall measure the performance of the*
 9 *Center against—*

10 “(A) *the objective specified in subsection (c);*

11 “(B) *the performance metrics under sub-*
 12 *section (f)(2)(C); and*

13 “(C) *such other criterion as considered ap-*
 14 *propriate by the Secretary.*

15 “(4) *POSITIVE EVALUATIONS.—If an evaluation*
 16 *of a Center is positive, the Secretary may continue to*
 17 *provide financial assistance for the Center—*

18 “(A) *in the case of an evaluation occurring*
 19 *in the third year of a Center, through the fifth*
 20 *year of the Center;*

21 “(B) *in the case of an evaluation occurring*
 22 *in the fifth year of a Center, through the eighth*
 23 *year of the Center; and*

1 “(C) *in the case of an evaluation occurring*
 2 *in the eighth year of a Center, through the tenth*
 3 *year of the Center.*

4 “(5) *OTHER THAN POSITIVE EVALUATIONS.—*

5 “(A) *PROBATION.—If an evaluation of a*
 6 *Center is other than positive, the Secretary shall*
 7 *put the Center on probation during the period*
 8 *beginning on the date that the Center receives*
 9 *notice under subparagraph (B)(i) and ending on*
 10 *the date that the reevaluation is complete under*
 11 *subparagraph (B)(iii).*

12 “(B) *NOTICE AND REEVALUATION.—If a*
 13 *Center receives an evaluation that is other than*
 14 *positive, the evaluation panel or Secretary, as*
 15 *applicable, shall—*

16 “(i) *notify the Center of the reason, in-*
 17 *cluding any deficiencies in the performance*
 18 *of the Center identified during the evalua-*
 19 *tion;*

20 “(ii) *assist the Center in remedying the*
 21 *deficiencies by providing the Center, not less*
 22 *frequently than once every 3 months, an*
 23 *analysis of the Center, if considered appro-*
 24 *priate by the panel or Secretary, as appli-*
 25 *cable; and*

1 “(iii) reevaluate the Center not later
2 than 1 year after the date of the notice
3 under clause (i).

4 “(C) CONTINUED SUPPORT DURING PERIOD
5 OF PROBATION.—The Secretary may continue to
6 provide financial assistance under subsection (e)
7 for a Center during the probation period.

8 “(6) FAILURE TO REMEDY.—

9 “(A) IN GENERAL.—If a Center fails to
10 remedy a deficiency or to show significant im-
11 provement in performance before the end of the
12 probation period under paragraph (5), the Sec-
13 retary shall conduct a competition to select an
14 operator for the Center under subsection (h).

15 “(B) TREATMENT OF CENTERS SUBJECT TO
16 NEW COMPETITION.—Upon the selection of an
17 operator for a Center under subsection (h), the
18 Center shall be considered a new Center and the
19 calculation of the years of operation of that Cen-
20 ter for purposes of paragraphs (1) through (5) of
21 this subsection and subsection (h)(1) shall start
22 anew.

23 “(h) REAPPLICATION COMPETITION FOR FINANCIAL
24 ASSISTANCE AFTER 10 YEARS.—

1 “(1) *IN GENERAL.*—If an eligible entity has op-
 2 erated a Center under this section for a period of 10
 3 consecutive years, the Secretary shall conduct a com-
 4 petition to select an eligible entity to operate the Cen-
 5 ter in accordance with the process plan under sub-
 6 section (i).

7 “(2) *INCUMBENT ELIGIBLE ENTITIES.*—An eligi-
 8 ble entity that has received financial assistance under
 9 this section for a period of 10 consecutive years and
 10 that the Secretary determines is in good standing
 11 shall be eligible to compete in the competition under
 12 paragraph (1).

13 “(3) *TREATMENT OF CENTERS SUBJECT TO RE-*
 14 *APPLICATION COMPETITION.*—Upon the selection of an
 15 operator for a Center under paragraph (1), the Center
 16 shall be considered a new Center and the calculation
 17 of the years of operation of that Center for purposes
 18 of paragraphs (1) through (5) of subsection (g) shall
 19 start anew.

20 “(i) *PROCESS PLAN.*—Not later than 180 days after
 21 the date of the enactment of the American Innovation and
 22 Competitiveness Act, the Secretary shall implement and
 23 submit to Congress a plan for how the Institute will conduct
 24 an evaluation, competition, and reapplication competition
 25 under this section.

1 “(j) *OPERATIONAL REQUIREMENTS.*—

2 “(1) *PROTECTION OF CONFIDENTIAL INFORMATION OF CENTER CLIENTS.*—*The following information, if obtained by the Federal Government in connection with an activity of a Center or the Program, shall be exempt from public disclosure under section*

3 *552 of title 5, United States Code:*

4 “(A) *Information on the business operation*

5 *of any participant in the Program or of a client*

6 *of a Center.*

7 “(B) *Trade secrets of any client of a Center.*

8 “(k) *OVERSIGHT BOARDS.*—

9 “(1) *IN GENERAL.*—*As a condition on receipt of*

10 *financial assistance for a Center under subsection (e),*

11 *an eligible entity shall establish a board to oversee the*

12 *operations of the Center.*

13 “(2) *STANDARDS.*—

14 “(A) *IN GENERAL.*—*The Director shall es-*

15 *tablish appropriate standards for each board de-*

16 *scribed under paragraph (1).*

17 “(B) *CONSIDERATIONS.*—*In establishing the*

18 *standards, the Director shall take into account*

19 *the type and organizational structure of an eligi-*

20 *ble entity.*

1 “(C) *REQUIREMENTS.*—*The standards shall*
2 *address, at a minimum—*

3 “*(i) membership;*

4 “*(ii) composition;*

5 “*(iii) term limits;*

6 “*(iv) conflicts of interest; and*

7 “*(v) whether to limit board members*
8 *serving on multiple boards under this sec-*
9 *tion.*

10 “(3) *MEMBERSHIP.*—

11 “*(A) IN GENERAL.*—*Each board established*
12 *under paragraph (1) shall be composed of mem-*
13 *bers as follows:*

14 “*(i) The membership of each board*
15 *shall be representative of stakeholders in the*
16 *region in which the Center is located.*

17 “*(ii) A majority of the members of the*
18 *board shall be selected from among individ-*
19 *uals who own or are employed by small or*
20 *medium-sized manufacturers.*

21 “(B) *LIMITATION.*—*A member of a board*
22 *established under paragraph (1) may not serve*
23 *on more than 1 board established under that*
24 *paragraph.*

25 “(4) *BYLAWS.*—

1 “(A) *IN GENERAL.*—*Each board established*
 2 *under paragraph (1) shall adopt and submit to*
 3 *the Director bylaws to govern the operation of*
 4 *the board.*

5 “(B) *CONFLICTS OF INTEREST.*—*Bylaws*
 6 *adopted under subparagraph (A) shall include*
 7 *policies to minimize conflicts of interest, includ-*
 8 *ing such policies relating to disclosure of rela-*
 9 *tionships and recusal as may be necessary to*
 10 *minimize conflicts of interest.*

11 “(l) *ACCEPTANCE OF FUNDS.*—*In addition to such*
 12 *sums as may be appropriated to the Secretary and Director*
 13 *to operate the Program, the Secretary and Director may*
 14 *also accept funds from other Federal departments and agen-*
 15 *cies and from the private sector under section 2(c)(7) of this*
 16 *Act (15 U.S.C. 272(c)(7)), to be available to the extent pro-*
 17 *vided by appropriations Acts, for the purpose of strength-*
 18 *ening United States manufacturing.*

19 “(m) *MEP ADVISORY BOARD.*—

20 “(1) *ESTABLISHMENT.*—*There is established*
 21 *within the Institute a Manufacturing Extension Part-*
 22 *nership Advisory Board.*

23 “(2) *MEMBERSHIP.*—

24 “(A) *COMPOSITION.*—

1 “(i) *IN GENERAL.*—*The MEP Advisory*
 2 *Board shall consist of not fewer than 10*
 3 *members appointed by the Director and*
 4 *broadly representative of stakeholders.*

5 “(ii) *REQUIREMENTS.*—*Of the mem-*
 6 *bers appointed under clause (i)—*

7 “*(I) at least 2 members shall be*
 8 *employed by or on an advisory board*
 9 *for a Center; and*

10 “*(II) at least 5 other members*
 11 *shall be from United States small busi-*
 12 *nesses in the manufacturing sector.*

13 “(iii) *LIMITATION.*—*No member of the*
 14 *MEP Advisory Board shall be an employee*
 15 *of the Federal Government.*

16 “(B) *TERM.*—*Except as provided in sub-*
 17 *paragraph (C), the term of office of each member*
 18 *of the MEP Advisory Board shall be 3 years.*

19 “(C) *VACANCIES.*—*Any member appointed*
 20 *to fill a vacancy occurring prior to the expira-*
 21 *tion of the term for which his predecessor was*
 22 *appointed shall be appointed for the remainder*
 23 *of such term.*

24 “(D) *SERVING CONSECUTIVE TERMS.*—*Any*
 25 *person who has completed 2 consecutive full*

1 *terms of service on the MEP Advisory Board*
 2 *shall thereafter be ineligible for appointment*
 3 *during the 1-year period following the expiration*
 4 *of the second such term.*

5 “(3) *MEETINGS.—The MEP Advisory Board*
 6 *shall—*

7 “(A) *meet not less than biannually; and*

8 “(B) *provide to the Director—*

9 “(i) *advice on the activities, plans, and*
 10 *policies of the Program;*

11 “(ii) *assessments of the soundness of*
 12 *the plans and strategies of the Program;*
 13 *and*

14 “(iii) *assessments of current perform-*
 15 *ance against the plans of the Program.*

16 “(4) *FACA APPLICABILITY.—*

17 “(A) *IN GENERAL.—In discharging its du-*
 18 *ties under this subsection, the MEP Advisory*
 19 *Board shall function solely in an advisory ca-*
 20 *capacity, in accordance with the Federal Advisory*
 21 *Committee Act (5 U.S.C. App.).*

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

25 “(5) *ANNUAL REPORT.—*

1 “(A) *IN GENERAL.*—At a minimum, the
2 *MEP Advisory Board* shall transmit an annual
3 report to the Secretary for transmittal to Con-
4 gress not later than 30 days after the submission
5 to Congress of the President’s annual budget re-
6 quest in each year.

7 “(B) *CONTENTS.*—The report shall address
8 the status of the Program and describe the rel-
9 evant sections of the programmatic planning
10 document and updates thereto transmitted to
11 Congress by the Director under subsections (c)
12 and (d) of section 23 (15 U.S.C. 278i).

13 “(n) *SMALL MANUFACTURERS.*—

14 “(1) *EVALUATION OF OBSTACLES.*—As part of
15 the Program, the Director shall—

16 “(A) identify obstacles that prevent small
17 manufacturers from effectively competing in the
18 global market;

19 “(B) implement a comprehensive plan to
20 train the Centers to address the obstacles identi-
21 fied in paragraph (2); and

22 “(C) facilitate improved communication be-
23 tween the Centers to assist such manufacturers
24 in implementing appropriate, targeted solutions
25 to the obstacles identified in paragraph (2).

1 “(2) *DEVELOPMENT OF OPEN ACCESS RE-*
 2 *SOURCES.*—As part of the Program, the Secretary
 3 shall develop open access resources that address best
 4 practices related to inventory sourcing, supply chain
 5 management, manufacturing techniques, available
 6 Federal resources, and other topics to further the com-
 7 petitiveness and profitability of small manufactur-
 8 ers.”.

9 (b) *COMPETITIVE AWARDS PROGRAM.*—The National
 10 Institute of Standards and Technology Act (15 U.S.C. 271
 11 et seq.) is amended by inserting after section 25 the fol-
 12 lowing:

13 **“SEC. 25A. COMPETITIVE AWARDS PROGRAM.**

14 “(a) *ESTABLISHMENT.*—The Director shall establish
 15 within the Hollings Manufacturing Extension Partnership
 16 under section 25 (15 U.S.C. 278k) and section 26 (15
 17 U.S.C. 278l) a program of competitive awards among par-
 18 ticipants described in subsection (b) of this section for the
 19 purposes described in subsection (c).

20 “(b) *PARTICIPANTS.*—Participants receiving awards
 21 under this section shall be Centers, or a consortium of Cen-
 22 ters.

23 “(c) *PURPOSE, THEMES, AND REIMBURSEMENT.*—

24 “(1) *PURPOSE.*—The purpose of the program es-
 25 tablished under subsection (a) is to add capabilities

1 to the Hollings Manufacturing Extension Partner-
 2 ship, including the development of projects to solve
 3 new or emerging manufacturing problems as deter-
 4 mined by the Director, in consultation with the Di-
 5 rector of the Hollings Manufacturing Extension Part-
 6 nership, the MEP Advisory Board, other Federal
 7 agencies, and small and medium-sized manufacturers.

8 “(2) *THEMES.*—The Director may identify 1 or
 9 more themes for a competition carried out under this
 10 section, which may vary from year to year, as the Di-
 11 rector considers appropriate after assessing the needs
 12 of manufacturers and the success of previous competi-
 13 tions.

14 “(3) *REIMBURSEMENT.*—Centers may be reim-
 15 bursed for costs incurred by the Centers under this
 16 section.

17 “(d) *APPLICATIONS.*—Applications for awards under
 18 this section shall be submitted in such manner, at such
 19 time, and containing such information as the Director shall
 20 require in consultation with the MEP Advisory Board.

21 “(e) *SELECTION.*—

22 “(1) *PEER REVIEW AND COMPETITIVELY AWARD-*
 23 *ED.*—The Director shall ensure that awards under
 24 this section are peer reviewed and competitively
 25 awarded.

1 “(2) *GEOGRAPHIC DIVERSITY.*—*The Director*
2 *shall endeavor to have broad geographic diversity*
3 *among selected proposals.*

4 “(3) *CRITERIA.*—*The Director shall select appli-*
5 *cations to receive awards that the Director determines*
6 *will achieve 1 or more of the following:*

7 “(A) *Improve the competitiveness of indus-*
8 *tries in the region in which the Center or Centers*
9 *are located.*

10 “(B) *Create jobs or train newly hired em-*
11 *ployees.*

12 “(C) *Promote the transfer and commer-*
13 *cialization of research and technology from insti-*
14 *tutions of higher education, national laboratories*
15 *or other Federally-funded research programs,*
16 *and nonprofit research institutes.*

17 “(D) *Recruit a diverse manufacturing*
18 *workforce, including through outreach to women*
19 *and minorities.*

20 “(E) *Such other result as the Director deter-*
21 *mines will advance the objective set forth in sec-*
22 *tion 25(c) (15 U.S.C. 278k) or in section 26 (15*
23 *U.S.C. 278l).*

1 “(f) *PROGRAM CONTRIBUTION.*—*Recipients of awards*
2 *under this section shall not be required to provide a match-*
3 *ing contribution.*

4 “(g) *GLOBAL MARKETPLACE PROJECTS.*—*In making*
5 *an award under this section, the Director, in consultation*
6 *with the MEP Advisory Board and the Secretary, may take*
7 *into consideration whether an application has significant*
8 *potential for enhancing the competitiveness of small and*
9 *medium-sized United States manufacturers in the global*
10 *marketplace.*

11 “(h) *DURATION.*—*The duration of an award under*
12 *this section shall be for not more than 3 years.*

13 “(i) *DEFINITIONS.*—*The terms used in this section*
14 *have the meanings given the terms in section 25 (15 U.S.C.*
15 *278k).’.*

16 “(c) *GAO REPORT.*—*Not later than 2 years after the*
17 *date of enactment of this Act, the Comptroller General of*
18 *the United States, in consultation with the MEP Advisory*
19 *Board (as defined in section 25 of the National Institute*
20 *of Standards and Technology Act (15 U.S.C. 278k), shall*
21 *submit to the Committee on Commerce, Science, and Trans-*
22 *portation of the Senate and the Committee on Science,*
23 *Space, and Technology of the House of Representatives a*
24 *report analyzing—*

1 (1) *the effectiveness of the changes in the cost*
 2 *share to Centers under section 25 of the National In-*
 3 *stitute of Standards and Technology Act (15 U.S.C.*
 4 *278k);*

5 (2) *the engagement in services and the character-*
 6 *istics of services provided by 2 types of Centers, in-*
 7 *cluding volume and type of service; and*

8 (3) *whether the cost-sharing ratio has any effect*
 9 *on the services provided by either type of Center.*

10 (d) *CONFORMING AMENDMENTS.—*

11 (1) *DEFINITIONS.—Section 2199(3) of title 10,*
 12 *United States Code, is amended—*

13 (A) *by striking “regional center” and in-*
 14 *serting “manufacturing extension center”;*

15 (B) *by inserting “and best business prac-*
 16 *tices” before “referred”; and*

17 (C) *by striking “25(a)” and inserting*
 18 *“25(b)”.*

19 (2) *ENTERPRISE INTEGRATION INITIATIVE.—Sec-*
 20 *tion 3(a) of the Enterprise Integration Act of 2002*
 21 *(15 U.S.C. 278g-5(a)) is amended by inserting “Hol-*
 22 *lings” before “Manufacturing Extension Partner-*
 23 *ship”.*

24 (3) *ASSISTANCE TO STATE TECHNOLOGY PRO-*
 25 *GRAMS.—Section 26(a) of the National Institute of*

1 *Standards and Technology Act (15 U.S.C. 278l(a)) is*
 2 *amended by striking “Centers program created” and*
 3 *inserting “Hollings Manufacturing Extension Part-*
 4 *nership”.*

5 (e) SAVINGS PROVISIONS.—*Notwithstanding the*
 6 *amendments made by subsections (a) and (b) of this section,*
 7 *the Secretary of Commerce may carry out section 25 of the*
 8 *National Institute of Standards and Technology Act (15*
 9 *U.S.C. 278k) as that section was in effect on the day before*
 10 *the date of enactment of this Act, with respect to existing*
 11 *grants, agreements, cooperative agreements, or contracts,*
 12 *and with respect to applications for such items that are*
 13 *received by the Secretary prior to the date of enactment of*
 14 *this Act.*

15 **SEC. 502. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**
 16 **TECHNOLOGIES IN MANUFACTURING.**

17 *Section 26(o) of the Stevenson-Wydler Technology In-*
 18 *novation Act of 1980 (15 U.S.C. 3721(o)) is amended—*

19 (1) *by inserting “(1) IN GENERAL.—” before “To*
 20 *the maximum” and indenting appropriately; and*

21 (2) *by adding at the end the following:*

22 “(2) ACCESS TO CAPITAL.—*The Secretary, in co-*
 23 *ordination with the Small Business Administration*
 24 *and the National Institute of Standards and Tech-*
 25 *nology, shall identify any gaps in the access of small-*

1 *or medium-sized manufacturers to capital for the use*
 2 *or production of innovative technologies that the pro-*
 3 *gram could fill, and develop marketing materials and*
 4 *conduct outreach to target those gaps.”.*

5 **SEC. 503. MANUFACTURING COMMUNITIES.**

6 (a) *SHORT TITLE.*—*This section may be cited as the*
 7 *“Made in America Manufacturing Communities Act of*
 8 *2016”.*

9 (b) *DEFINITIONS.*—*In this section:*

10 (1) *MANUFACTURING COMMUNITY SUPPORT PRO-*
 11 *GRAM.*—*The term “Manufacturing Community Sup-*
 12 *port Program” means the program established under*
 13 *subsection (c).*

14 (2) *PARTICIPATING AGENCY.*—*The term “partici-*
 15 *pating agency” means a Federal agency that elects to*
 16 *participate in the Manufacturing Community Sup-*
 17 *port Program.*

18 (3) *PARTICIPATING PROGRAM.*—*The term “par-*
 19 *ticipating program” means a program identified by*
 20 *a participating agency under subsection (d)(1)(C).*

21 (4) *SECRETARY.*—*The term “Secretary” means*
 22 *the Secretary of Commerce.*

23 (c) *PROGRAM TO DESIGNATE AND SUPPORT MANUFAC-*
 24 *TURING COMMUNITIES.*—*The Secretary shall establish a*

1 *program to improve the competitiveness of United States*
 2 *manufacturing by—*

3 (1) *designating consortiums as manufacturing*
 4 *communities under subsection (e); and*

5 (2) *supporting manufacturing communities, as*
 6 *so designated, under subsection (d).*

7 (d) *SUPPORT FOR DESIGNATED MANUFACTURING*
 8 *COMMUNITIES.—*

9 (1) *PREFERENTIAL CONSIDERATION.—*

10 (A) *IN GENERAL.—Except as provided in*
 11 *subparagraph (D), if a member of a consortium*
 12 *designated as a manufacturing community*
 13 *under subsection (e) seeks financial or technical*
 14 *assistance under a participating program of a*
 15 *participating agency, the head of such agency*
 16 *may give preferential consideration to such*
 17 *member with respect to the awarding of such fi-*
 18 *nancial or technical assistance if—*

19 (i) *such head considers the award of*
 20 *the financial or technical assistance con-*
 21 *sistent with the economic development strat-*
 22 *egy of the consortium; and*

23 (ii) *the member otherwise meets all ap-*
 24 *plicable requirements for the financial or*
 25 *technical assistance.*

1 (B) *PARTICIPATING AGENCIES.*—*The Sec-*
2 *retary shall invite other Federal agencies to be-*
3 *come participating agencies of the Manufac-*
4 *turing Community Support Program.*

5 (C) *PARTICIPATING PROGRAMS.*—*The head*
6 *of each participating agency shall identify all*
7 *programs administered by such participating*
8 *agency that are applicable to the Manufacturing*
9 *Community Support Program.*

10 (D) *MULTIPLE MEMBERS OF THE SAME*
11 *CONSORTIUM SEEKING THE SAME FINANCIAL OR*
12 *TECHNICAL ASSISTANCE.*—

13 (i) *IN GENERAL.*—*If a participating*
14 *agency receives applications for the same fi-*
15 *nancial or technical assistance from more*
16 *than 1 member of the same consortium des-*
17 *ignated as a manufacturing community*
18 *under subsection (e), the head of such agen-*
19 *cy may determine how preference will be*
20 *given under subparagraph (A), including by*
21 *requiring the consortium to select which of*
22 *the members should be given preference.*

23 (ii) *COORDINATION.*—*If the head of a*
24 *participating agency determines that more*
25 *than 1 member of a consortium should be*

1 *given preference under subparagraph (A)*
 2 *for financial or technical assistance, he or*
 3 *she may require such members to dem-*
 4 *onstrate coordination with each other in de-*
 5 *veloping their applications for the financial*
 6 *or technical assistance.*

7 *(E) REPORT.—Not later than 90 days after*
 8 *the date of the enactment of this Act, the head of*
 9 *each participating agency shall submit a report*
 10 *to the Secretary that specifies how the head will*
 11 *give preferential consideration under subpara-*
 12 *graph (A).*

13 *(2) TECHNICAL ASSISTANCE.—The Secretary*
 14 *may make a Federal point of contact available to*
 15 *each consortium designated as a manufacturing com-*
 16 *munity under subsection (e) to help the members of*
 17 *the consortium access Federal funds and technical as-*
 18 *sistance.*

19 *(3) FINANCIAL AND TECHNICAL ASSISTANCE.—*

20 *(A) IN GENERAL.—Under the Manufac-*
 21 *turing Community Support Program, the head*
 22 *of a participating agency may award financial*
 23 *or technical assistance to a member of a consor-*
 24 *tium designated as a manufacturing community*
 25 *under subsection (e) as he or she considers ap-*

1 *propriate for purposes of such program and con-*
 2 *sistent with the economic development strategy of*
 3 *the consortium.*

4 *(B) USE OF FUNDS.—*

5 *(i) IN GENERAL.—A recipient of finan-*
 6 *cial or technical assistance under subpara-*
 7 *graph (A) may use such financial or tech-*
 8 *nical assistance to support an investment in*
 9 *an ecosystem that will improve the competi-*
 10 *tiveness of United States manufacturing.*

11 *(ii) INVESTMENTS SUPPORTED.—In-*
 12 *vestments supported under this subpara-*
 13 *graph may include—*

14 *(I) infrastructure;*

15 *(II) access to capital;*

16 *(III) promotion of exports and*
 17 *foreign direct investment;*

18 *(IV) equipment or facility up-*
 19 *grades;*

20 *(V) workforce training or retrain-*
 21 *ing;*

22 *(VI) energy or process efficiency;*

23 *(VII) business incubators;*

24 *(VIII) site preparation;*

25 *(IX) advanced research;*

1 (X) supply chain development;

2 and

3 (XI) small business assistance.

4 (4) COORDINATION.—

5 (A) COORDINATION BY SECRETARY OF COM-
6 MERCE.—The Secretary shall coordinate with the
7 heads of the participating agencies to identify
8 programs under paragraph (1)(C)(i).

9 (B) INTER-AGENCY COORDINATION.—The
10 heads of the participating agencies shall coordi-
11 nate with each other—

12 (i) to leverage complementary activi-
13 ties, including from non-Federal sources,
14 such as philanthropies; and

15 (ii) to avoid duplication of efforts.

16 (e) DESIGNATION OF MANUFACTURING COMMU-
17 NITIES.—

18 (1) IN GENERAL.—Except as provided in para-
19 graph (7), for purposes of the Manufacturing Commu-
20 nity Support Program, the Secretary shall designate
21 eligible consortiums (as described in paragraph (2))
22 as manufacturing communities through a competitive
23 process.

24 (2) ELIGIBLE CONSORTIUMS.—

1 (A) *IN GENERAL.*—*An eligible consortium is*
 2 *a consortium that—*

3 (i) *represents a region defined by the*
 4 *consortium in accordance with subpara-*
 5 *graph (B);*

6 (ii) *includes at least 1—*

7 (I) *institution of higher edu-*
 8 *cation;*

9 (II) *a private sector entity; and*

10 (III) *a government entity;*

11 (iii) *may include 1 or more—*

12 (I) *private sector partners;*

13 (II) *institutions of higher edu-*
 14 *cation;*

15 (III) *government entities;*

16 (IV) *economic development and*
 17 *other community and labor groups;*

18 (V) *financial institutions; or*

19 (VI) *utilities;*

20 (iv) *has, as a lead applicant—*

21 (I) *a district organization (as de-*
 22 *finied in section 300.3 of title 13, Code*
 23 *of Federal Regulations, or successor*
 24 *regulation);*

1 (II) *an Indian tribe (as defined*
2 *in section 4 of the Indian Self-Deter-*
3 *mination and Education Assistance*
4 *Act (25 U.S.C. 450b)) or a consortium*
5 *of Indian tribes;*

6 (III) *a State or a political sub-*
7 *division of a State, including a special*
8 *purpose unit of a State or local govern-*
9 *ment engaged in economic or infra-*
10 *structure development activities, or a*
11 *consortium of political subdivisions;*

12 (IV) *an institution of higher edu-*
13 *cation or a consortium of institutions*
14 *of higher education; or*

15 (V) *a public or private nonprofit*
16 *organization or association that has an*
17 *application that is supported by a*
18 *State, a political subdivision of a*
19 *State, or a native community.*

20 (B) *REGIONS.*—*Subject to approval by the*
21 *Secretary, a consortium may define the region*
22 *that it represents if the region—*

23 (i) *is large enough to contain critical*
24 *elements of the key technologies or supply*
25 *chain prioritized by the consortium; and*

1 (ii) is small enough to enable close col-
 2 laboration among members of the consor-
 3 tium.

4 (3) *DURATION.*—Each designation under para-
 5 graph (1) shall be for a period of 2 years.

6 (4) *RENEWAL.*—

7 (A) *IN GENERAL.*—Upon receipt of an ap-
 8 plication submitted under subparagraph (B), the
 9 Secretary may renew a designation made under
 10 paragraph (1) for up to 2 additional 2-year pe-
 11 riods. Any designation as a manufacturing com-
 12 munity or renewal of such designation that is in
 13 effect before the date of the enactment of this Act
 14 shall count toward the limit set forth in this sub-
 15 paragraph.

16 (B) *APPLICATION FOR RENEWAL.*—An eligi-
 17 ble consortium seeking a renewal under subpara-
 18 graph (A) shall submit an application to the
 19 Secretary at such time, in such manner, and
 20 containing such information as the Secretary
 21 may require.

22 (C) *MODIFICATIONS AUTHORIZED.*—The
 23 Secretary may renew a designation under sub-
 24 paragraph (A) for an eligible consortium that—

1 (i) *has changed its composition, either*
 2 *by adding or removing members; or*

3 (ii) *as part of its application under*
 4 *subparagraph (B), submits a revision to the*
 5 *plan submitted under paragraph (5)(B)(iv)*
 6 *or the strategy submitted under paragraph*
 7 *(5)(B)(v).*

8 (D) *EVALUATION FOR RENEWAL.—In deter-*
 9 *mining whether to renew a designation of an eli-*
 10 *gible consortium under paragraph (1), the Sec-*
 11 *retary shall assess the eligible consortium based*
 12 *upon—*

13 (i) *the performance of the consortium*
 14 *against the terms of the consortium’s most*
 15 *recent designation under paragraph (1) and*
 16 *any post-designation awards the consortium*
 17 *may have received;*

18 (ii) *the progress the consortium has*
 19 *made with respect to project-specific metrics*
 20 *the consortium proposed in the consortium’s*
 21 *application for the most recent designation*
 22 *under paragraph (1), particularly with re-*
 23 *spect to those metrics that were designed to*
 24 *help communities track their own progress;*

1 (iii) *whether any changes to the com-*
 2 *position of the eligible consortium or revi-*
 3 *sions to the plan or strategy described in*
 4 *subparagraph (C)(ii) would improve the*
 5 *competitiveness of United States manufac-*
 6 *turing; and*

7 (iv) *such other criteria as the Secretary*
 8 *considers appropriate.*

9 (5) *APPLICATION FOR DESIGNATION.—*

10 (A) *IN GENERAL.—An eligible consortium*
 11 *seeking a designation under paragraph (1) shall*
 12 *submit an application to the Secretary at such*
 13 *time and in such manner as the Secretary may*
 14 *require.*

15 (B) *CONTENTS.—Each application sub-*
 16 *mitted to the Secretary under subparagraph (A)*
 17 *include—*

18 (i) *a description of the regional bound-*
 19 *aries of the consortium;*

20 (ii) *a description of the manufacturing*
 21 *concentration of the consortium, including*
 22 *an assessment of how the manufacturing*
 23 *concentration of the consortium competi-*
 24 *tively ranks nationally according to meas-*
 25 *ures relating to employment, sales, location*

quotients for an industry's level of concentration, or such other measures as the Secretary considers appropriate;

(iii) an integrated assessment of the local industrial ecosystem of the region of the consortium, which may include assessment of workforce and training, supplier network, research and innovation, infrastructure or site development, trade and international investment, operational improvements, and capital access components needed for manufacturing activities in such region;

(iv) an evidence-based plan for developing components of such ecosystem (selected by the consortium) by making—

(I) specific investments to address gaps in such ecosystem; and

(II) the manufacturing of the region of the consortium uniquely competitive;

(v) a description of the investments the consortium proposes and the implementation strategy the consortium intends to use to address gaps in such ecosystem;

1 (vi) a description of the outcome-based
 2 metrics, benchmarks, and milestones that
 3 the consortium will track and the evalua-
 4 tion methods the consortium will use while
 5 designated as a manufacturing community
 6 to gauge performance of the strategy of the
 7 consortium to improve the manufacturing
 8 in the region of the consortium; and

9 (vii) such other matters as the Sec-
 10 retary considers appropriate.

11 (6) *EVALUATION OF APPLICATIONS.*—The Sec-
 12 retary shall evaluate each application received under
 13 paragraph (5) to determine—

14 (A) whether the applicant demonstrates a
 15 significant level of regional cooperation in their
 16 proposal; and

17 (B) how the manufacturing concentration of
 18 the applicant competitively ranks nationally ac-
 19 cording to measures described in paragraph
 20 (5)(B)(ii).

21 (7) *CERTAIN COMMUNITIES PREVIOUSLY RECOG-*
 22 *NIZED.*—Each consortium that was designated as a
 23 manufacturing community by the Secretary in car-
 24 rying out the Investing in Manufacturing Commu-
 25 nities Partnership initiative of the Department of

1 Commerce before the date of the enactment of this Act
 2 shall be deemed a manufacturing community des-
 3 ignated under this subsection if such consortium is
 4 still designated as a manufacturing community by
 5 the Secretary as part of such initiative.

6 (f) *RECEIPT OF TRANSFERRED FUNDS.*—The Sec-
 7 retary may accept amounts transferred to the Secretary
 8 from the head of another participating agency to carry out
 9 this section.

10 **TITLE VI—INNOVATION, COM-**
 11 **MERCIALIZATION, AND TECH-**
 12 **NOLOGY TRANSFER**

13 **SEC. 601. INNOVATION CORPS.**

14 (a) *FINDINGS.*—Congress makes the following findings:

15 (1) *The National Science Foundation Innovation*
 16 *Corps (referred to in this section as the “I-Corps”)*
 17 *was established to foster a national innovation eco-*
 18 *system by encouraging institutions, scientists, engi-*
 19 *neers, and entrepreneurs to identify and explore the*
 20 *innovation and commercial potential of National*
 21 *Science Foundation-funded research well beyond the*
 22 *laboratory.*

23 (2) *Through I-Corps, the Foundation invests in*
 24 *entrepreneurship and commercialization education,*
 25 *training, and mentoring that can ultimately lead to*

1 *the practical deployment of technologies, products,*
 2 *processes, and services that improve the Nation's com-*
 3 *petitiveness, promote economic growth, and benefit so-*
 4 *ciet.*

5 *(3) By building networks of entrepreneurs, edu-*
 6 *cators, mentors, institutions, and collaborations, and*
 7 *supporting specialized education and training, I-*
 8 *Corps is at the leading edge of a strong, lasting foun-*
 9 *dation for an American innovation ecosystem.*

10 *(4) By translating federally funded research to a*
 11 *commercial stage more quickly and efficiently, pro-*
 12 *grams like the I-Corps create new jobs and companies,*
 13 *help solve societal problems, and provide taxpayers*
 14 *with a greater return on their investment in research.*

15 *(5) The I-Corps program model has a strong*
 16 *record of success that should be replicated at all Fed-*
 17 *eral science agencies.*

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

20 *(1) commercialization of federally-funded re-*
 21 *search can improve the Nation's competitiveness, grow*
 22 *the economy, and benefit society;*

23 *(2) I-Corps is a useful tool in promoting the*
 24 *commercialization of federally-funded research by*

1 *training researchers funded by the Foundation in en-*
 2 *trepreneurship and commercialization;*

3 (3) *I-Corps should continue to build a network*
 4 *of entrepreneurs, educators, mentors, and institutions*
 5 *and support specialized education and training; and*

6 (4) *researchers other than those funded by the*
 7 *Foundation may also benefit from the education and*
 8 *training described in paragraph (3).*

9 (c) *I-CORPS PROGRAM.*—

10 (1) *IN GENERAL.*—*In order to promote a strong,*
 11 *lasting foundation for the national innovation eco-*
 12 *system and increase the positive economic and social*
 13 *impact of federally-funded research, the Director of*
 14 *the Foundation shall set forth eligibility requirements*
 15 *and carry out a program to award grants for entre-*
 16 *preneurship and commercialization education, train-*
 17 *ing, and mentoring.*

18 (2) *EXPANSION OF I-CORPS.*—

19 (A) *IN GENERAL.*—*The Director*—

20 (i) *shall encourage the development*
 21 *and expansion of I-Corps and other train-*
 22 *ing programs that focus on professional de-*
 23 *velopment, including education in entrepre-*
 24 *neurship and commercialization; and*

1 (ii) may establish an agreement with
2 another Federal science agency—

3 (I) to make researchers, students,
4 and institutions funded by that agency
5 eligible to participate in the I-Corps
6 program; or

7 (II) to assist that agency with the
8 design and implementation of its own
9 program that is similar to the I-Corps
10 program.

11 (B) *PARTNERSHIP FUNDING.*—In negoti-
12 ating an agreement with another Federal science
13 agency under subparagraph (A)(ii), the Director
14 shall require that Federal science agency to pro-
15 vide funding for—

16 (i) the training for researchers, stu-
17 dents, and institutions selected for the I-
18 Corps program; and

19 (ii) the locations that Federal science
20 agency designates as regional and national
21 infrastructure for science and engineering
22 entrepreneurship.

23 (3) *FOLLOW-ON COMMERCIALIZATION GRANTS.*—

24 (A) *IN GENERAL.*—Subject to subparagraph
25 (B), the Director, in consultation with the Direc-

tor of the Small Business Innovation Research Program, shall make funds available for competitive grants, including to I-Corps participants, to help support—

(i) prototype or proof-of-concept development; and

(ii) such activities as the Director considers necessary to build local, regional, and national infrastructure for science and engineering entrepreneurship.

(B) *LIMITATION.*—Grants under subparagraph (A) shall be limited to participants with innovations that because of the early stage of development are not eligible to participate in a Small Business Innovation Research Program or a Small Business Technology Transfer Program.

(4) *STATE AND LOCAL PARTNERSHIPS.*—The Director may engage in partnerships with State and local governments, economic development organizations, and nonprofit organizations to provide access to the I-Corps program to support entrepreneurship and commercialization education and training for researchers, students, and institutions under this subsection.

1 (5) *REPORTS.*—*The Director shall submit to the*
 2 *appropriate committees of Congress a biennial report*
 3 *on I-Corps program efficacy, including metrics on the*
 4 *effectiveness of the program. Each Federal science*
 5 *agency participating in the I-Corps program or that*
 6 *implements a similar program under paragraph*
 7 *(2)(A) shall contribute to the report.*

8 (6) *DEFINITIONS.*—*In this subsection, the terms*
 9 *“Small Business Innovation Research Program” and*
 10 *“Small Business Technology Transfer Program” have*
 11 *the meanings given those terms in section 9 of the*
 12 *Small Business Act (15 U.S.C. 638).*

13 **SEC. 602. TRANSLATIONAL RESEARCH GRANTS.**

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

16 (1) *commercialization of federally-funded re-*
 17 *search may benefit society and the economy; and*

18 (2) *not-for-profit organizations support the com-*
 19 *mercialization of federally-funded research by pro-*
 20 *viding useful business and technical expertise to re-*
 21 *searchers.*

22 (b) *COMMERCIALIZATION GRANTS PROGRAM.*—*The Di-*
 23 *rector of the Foundation shall continue to award grants on*
 24 *a competitive, merit-reviewed basis to eligible entities to*

1 *promote the commercialization of federally-funded research*
2 *results.*

3 (c) *USE OF FUNDS.—Activities supported by grants*
4 *under this section may include—*

5 (1) *identifying Foundation-sponsored research*
6 *and technologies that have the potential for acceler-*
7 *ated commercialization;*

8 (2) *supporting prior or current Foundation-*
9 *sponsored investigators in undertaking proof-of-con-*
10 *cept work, including development of prototypes of*
11 *technologies that are derived from Foundation-spon-*
12 *sored research and have potential market value;*

13 (3) *promoting sustainable partnerships between*
14 *Foundation-funded institutions, industry, and other*
15 *organizations within academia and the private sector*
16 *with the purpose of accelerating the transfer of tech-*
17 *nology;*

18 (4) *developing multi-disciplinary innovation eco-*
19 *systems which involve and are responsive to specific*
20 *needs of academia and industry;*

21 (5) *funding the establishment of proof-of-concept*
22 *and prototype development in partnership with aca-*
23 *demia to advance technologies; and*

24 (6) *providing professional development, men-*
25 *toring, and advice in entrepreneurship, project man-*

1 *agement, and technology and business development to*
 2 *innovators.*

3 *(d) ELIGIBILITY.—*

4 *(1) IN GENERAL.—The following organizations*
 5 *may be eligible for grants under this section:*

6 *(A) Institutions of higher education.*

7 *(B) Public or nonprofit technology transfer*
 8 *organizations.*

9 *(C) A nonprofit organization that partners*
 10 *with an institution of higher education.*

11 *(D) A consortia of 2 or more of the organi-*
 12 *zations described under subparagraphs (A)*
 13 *through (C).*

14 *(2) LEAD ORGANIZATIONS.—Any eligible organi-*
 15 *zation under paragraph (1) may apply as a lead or-*
 16 *ganization.*

17 *(e) APPLICATIONS.—An eligible entity seeking a grant*
 18 *under this section shall submit an application to the Direc-*
 19 *tor at such time, in such manner, and containing such in-*
 20 *formation as the Director may require.*

21 **SEC. 603. OPTICS AND PHOTONICS TECHNOLOGY INNOVA-**
 22 **TIONS.**

23 *(a) FINDINGS.—Congress makes the following findings:*

24 *(1) The 1998 National Research Council Report,*
 25 *“Harnessing Light” presented a comprehensive over-*

1 *view on the importance of optics and photonics to*
2 *various sectors of the United States economy.*

3 *(2) In 2012, in response to increased coordina-*
4 *tion and investment by other nations, the National*
5 *Research Council released a follow up study recom-*
6 *mending a national photonics initiative to increase*
7 *collaboration and coordination among United States*
8 *industry, Federal and State government, and aca-*
9 *demia to identify and further advance areas of*
10 *photonics critical to regaining United States competi-*
11 *tiveness and maintaining national security.*

12 *(3) Publicly-traded companies focused on optics*
13 *and photonics in the United States enable more than*
14 *\$3 trillion in revenue annually.*

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

17 *(1) optics and photonics research and tech-*
18 *nologies promote United States global competitiveness*
19 *in industry sectors, including telecommunications*
20 *and information technology, energy, healthcare and*
21 *medicine, manufacturing, and defense;*

22 *(2) Federal science agencies, industry, and aca-*
23 *demia should seek partnerships with each other to de-*
24 *velop basic research in optics and photonics into more*
25 *mature technologies and capabilities; and*

1 (3) *each Federal science agency, as appropriate,*
2 *should—*

3 (A) *survey and identify optics and*
4 *photonics-related programs within that Federal*
5 *science agency and share results with other Fed-*
6 *eral science agencies for the purpose of gener-*
7 *ating multiple applications and uses;*

8 (B) *partner with the private sector and aca-*
9 *demia to leverage knowledge and resources to*
10 *maximize opportunities for innovation in optics*
11 *and photonics;*

12 (C) *explore research and development op-*
13 *portunities, including Federal and private sec-*
14 *tor-sponsored internships, to ensure a highly*
15 *trained optics and photonics workforce in the*
16 *United States;*

17 (D) *encourage partnerships between aca-*
18 *demia and industry to promote improvement in*
19 *the education of optics and photonics technicians*
20 *at the secondary school level, undergraduate*
21 *level, and 2-year college level, including through*
22 *the Foundation's Advanced Technological Edu-*
23 *cation program; and*

24 (E) *assess existing programs and explore al-*
25 *ternatives to modernize photonics laboratory*

1 *equipment in undergraduate institutions in the*
2 *United States to facilitate critical hands-on*
3 *learning.*

4 **SEC. 604. AUTHORIZATION OF APPROPRIATIONS FOR THE**
5 **REGIONAL INNOVATION PROGRAM.**

6 *Section 27(g)(2) of the Stevenson-Wydler Technology*
7 *Innovation Act of 1980 (15 U.S.C. 3722(g)(2)) is amended*
8 *to read as follows:*

9 “(2) *AUTHORIZATION LEVELS.—From amounts*
10 *appropriated for economic development assistance*
11 *programs, the Secretary may use \$30,000,000 for each*
12 *of the fiscal years 2017 and 2018 for grants under*
13 *this section.*”.

Calendar No. 695

114TH CONGRESS
2D Session

S. 3084

[Report No. 114-389]

A BILL

To invest in innovation through research and development, and to improve the competitiveness of the United States.

DECEMBER 1, 2016

Reported with an amendment