

## Calendar No. 687

111TH CONGRESS  
2D SESSION**S. 3605****[Report No. 111-363]**

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

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## IN THE SENATE OF THE UNITED STATES

JULY 15, 2010

Mr. ROCKEFELLER (for himself, Mr. NELSON of Florida, Ms. KLOBUCHAR, Mr. KAUFMAN, Mr. KERRY, Ms. CANTWELL, Mr. PRYOR, and Mr. BEGICH) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

DECEMBER 10, 2010

Reported by Mr. ROCKEFELLER, with an amendment

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

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**A BILL**

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

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

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

2 (a) **SHORT TITLE.**—This Act may be cited as the  
 3 “America COMPETES Reauthorization Act of 2010” or  
 4 the “America Creating Opportunities to Meaningfully Pro-  
 5 mote Excellence in Technology, Education, and Science  
 6 Reauthorization Act of 2010”.

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

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

**TITLE I—OFFICE OF SCIENCE AND TECHNOLOGY POLICY**

Sec. 101. National innovation and competitiveness strategy.

Sec. 102. Coordination of Federal STEM education.

Sec. 103. Cyberinfrastructure improvement study.

Sec. 104. Interagency public access committee.

Sec. 105. Federal scientific collections.

Sec. 106. Prize competitions.

**TITLE II—NATIONAL AERONAUTICS AND SPACE  
ADMINISTRATION.**

Sec. 201. NASA’s contribution to innovation and competitiveness.

Sec. 202. NASA’s contribution to education.

Sec. 203. International Space Station’s contribution to national competitiveness  
enhancement.

Sec. 204. Definitions.

**TITLE III—OCEAN AND ATMOSPHERIC PROGRAMS**

Sec. 301. Oceanic and atmospheric research and development program.

Sec. 302. Ocean and atmospheric science education programs.

Sec. 303. Workforce study.

**TITLE IV—NATIONAL INSTITUTE OF STANDARDS AND  
TECHNOLOGY**

Sec. 401. Short title.

Sec. 402. Authorization of appropriations.

Sec. 403. Under Secretary of Commerce for Standards and Technology.

Sec. 404. Manufacturing extension partnership.

Sec. 405. Emergency communication and tracking technologies research initia-  
tive.

Sec. 406. Broadening participation.

Sec. 407. NIST Fellowships.

Sec. 408. Green manufacturing and construction.

Sec. 409. Cybersecurity competition and challenge.

Sec. 410. Definitions.

#### TITLE V—NATIONAL SCIENCE FOUNDATION

Sec. 501. Short title.

Sec. 502. Definitions.

Sec. 503. Authorization of appropriations.

Sec. 504. National Science Board administrative amendments.

Sec. 505. National Center for Science and Engineering statistics.

Sec. 506. National Science Foundation manufacturing research and education.

Sec. 507. National Science Board report on mid-scale instrumentation.

Sec. 508. Partnerships for innovation.

Sec. 509. Green chemistry basic research.

Sec. 510. Graduate student support.

Sec. 511. Robert Noyce teacher scholarship program.

Sec. 512. Undergraduate broadening participation program.

Sec. 513. Research experiences for high school students.

Sec. 514. Research experiences for undergraduates.

Sec. 515. STEM industry internship programs.

Sec. 516. Cyber-enabled learning for national challenges.

Sec. 517. Federal cybersecurity research and development.

Sec. 518. Federal cyber scholarship-for-service program.

#### TITLE VI—INNOVATION

Sec. 601. Office of innovation and entrepreneurship.

Sec. 602. Federal loan guarantees for innovative technologies in manufacturing.

Sec. 603. Regional innovation program.

Sec. 604. Science and research parks.

#### TITLE VII—GENERAL PROVISIONS

Sec. 701. Government Accountability Office review.

Sec. 702. Salary restrictions.

### 1 **SEC. 2. DEFINITIONS.**

2       In this Act:

3           (1) DIRECTOR.—

4                   (A) In title I, the term “Director” means  
5           the Director of the Office of Science and Tech-  
6           nology Policy.

7                   (B) In title V, the term “Director” means  
8           the Director of the National Institute of Science  
9           and Technology.

1           (2) STEM.—The term “STEM” means the  
2       academic and professional disciplines of science,  
3       technology, engineering, and mathematics.

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

6       **SEC. 101. NATIONAL INNOVATION AND COMPETITIVENESS**  
7       **STRATEGY.**

8       Not later than one year after the date of the enact-  
9       ment of this Act, the Director of the Office of Science and  
10      Technology Policy shall submit to Congress and the Presi-  
11      dent a national innovation and competitiveness strategy  
12      for strengthening the innovative and competitive capacity  
13      of the Federal Government, State and local governments,  
14      institutions of higher education, and the private sector  
15      that includes—

- 16           (1) proposed legislative changes and action;  
17           (2) proposed actions to be taken collectively by  
18      executive agencies, including White House offices;  
19           (3) proposed actions to be taken by individual  
20      executive agencies, including White House offices;  
21      and  
22           (4) a proposal for metrics-based monitoring and  
23      oversight of the progress of the Federal Government  
24      with respect to improving conditions for the innova-

1       tion occurring in and the competitiveness of the  
2       United States.

3       **SEC. 102. COORDINATION OF FEDERAL STEM EDUCATION.**

4       (a) **ESTABLISHMENT.**—The Director shall establish a  
5       committee under the National Science and Technology  
6       Council, including the Office of Management and Budget,  
7       with the responsibility to coordinate Federal programs and  
8       activities in support of STEM education, including at the  
9       National Science Foundation, the Department of Energy,  
10      the National Aeronautics and Space Administration, the  
11      National Oceanic and Atmospheric Administration, the  
12      Department of Education, and all other Federal agencies  
13      that have programs and activities in support of STEM  
14      education.

15      (b) **RESPONSIBILITIES.**—The committee established  
16      under subsection (a) shall—

17              (1) coordinate the STEM education activities  
18              and programs of the Federal agencies;

19              (2) coordinate STEM education activities and  
20              programs with the Office of Management and Budget;  
21              et;

22              (3) review STEM education activities and pro-  
23              grams to ensure they are not duplicative of similar  
24              efforts within the Federal government;

1           (4) develop, implement through the partici-  
2           pating agencies, and update once every 5 years a 5-  
3           year STEM education strategic plan, which shall—

4                   (A) specify and prioritize annual and long-  
5                   term objectives;

6                   (B) specify the common metrics that will  
7                   be used to assess progress toward achieving the  
8                   objectives;

9                   (C) describe the approaches that will be  
10                  taken by each participating agency to assess the  
11                  effectiveness of its STEM education programs  
12                  and activities; and

13                  (D) with respect to subparagraph (A), de-  
14                  scribe the role of each agency in supporting  
15                  programs and activities designed to achieve the  
16                  objectives; and

17           (5) establish, periodically update, and maintain  
18           an inventory of federally sponsored STEM education  
19           programs and activities, including documentation of  
20           assessments of the effectiveness of such programs  
21           and activities and rates of participation by women,  
22           underrepresented minorities, and persons in rural  
23           areas in such programs and activities.

24           (b) RESPONSIBILITIES OF OSTP.—The Director  
25           shall encourage and monitor the efforts of the partici-

1 participating agencies to ensure that the strategic plan under  
2 subsection (b)(2) is developed and executed effectively and  
3 that the objectives of the strategic plan are met.

4 (c) REPORT.—The Director shall transmit a report  
5 annually to Congress at the time of the President’s budget  
6 request describing the plan required under subsection  
7 (b)(2). The annual report shall include—

8 (1) a description of the STEM education pro-  
9 grams and activities for the previous and current fis-  
10 cal years; and the proposed programs and activities  
11 under the President’s budget request; of each par-  
12 ticipating Federal agency;

13 (2) the levels of funding for each participating  
14 Federal agency for the programs and activities de-  
15 scribed under paragraph (1) for the previous fiscal  
16 year and under the President’s budget request;

17 (3) an evaluation of the levels of duplication  
18 and fragmentation of the programs and activities de-  
19 scribed under paragraph (1);

20 (4) except for the initial annual report, a de-  
21 scription of the progress made in carrying out the  
22 implementation plan; including a description of the  
23 outcome of any program assessments completed in  
24 the previous year; and any changes made to that  
25 plan since the previous annual report; and

1           (5) a description of how the participating Fed-  
 2           eral agencies will disseminate information about fed-  
 3           erally supported resources for STEM education  
 4           practitioners, including teacher professional develop-  
 5           ment programs, to States and to STEM education  
 6           practitioners, including to teachers and administra-  
 7           tors in schools that meet the criteria described in  
 8           subsection (c)(1)(A) and (B) of section 3175 of the  
 9           Department of Energy Science Education Enhance-  
 10          ment Act (42 U.S.C. 7381j(c)(1)(A) and (B)).

11 **SEC. 103. CYBERINFRASTRUCTURE IMPROVEMENT STUDY.**

12          (a) IN GENERAL.—The President’s Innovation and  
 13          Technology Advisory Committee, in coordination with the  
 14          Office of Science and Technology Policy and the national  
 15          coordination office of the Networking and Information  
 16          Technology Research and Development Program, shall  
 17          conduct a comprehensive study of the status of programs  
 18          supporting innovation-enabling cyberinfrastructure of re-  
 19          gional, thematic, or technological importance in States  
 20          that historically have received relatively little Federal re-  
 21          search and development funding.

22          (b) CONTENTS.—The study shall include—

23                (1) include a review of the previous 5 years of  
 24                EPSCoR Research Infrastructure Improvement Pro-  
 25                gram applications and awards and shall evaluate—



1           (A) the demand for hardware, software,  
2           network capability and capacity, institutions,  
3           and expertise related to cyberinfrastructure at  
4           institutions in EPSCoR States; and

5           (B) the success of RII Track-2 awards in  
6           achieving the programmatic goals outlined by the  
7           National Science Foundation;

8           (2) an analysis of the effectiveness of the Na-  
9           tional Institutes of Health IDeANet initiative in  
10          broadening access to high-performance computa-  
11          tional resources; and

12          (3) recommendations for ensuring accessibility  
13          and vitality of cyberinfrastructure for scientific re-  
14          search and education.

15          (c) REPORT.—The Committee shall submit a report  
16          containing its findings, conclusions, and recommendations  
17          to the Senate Committee on Commerce, Science, and  
18          Transportation and the House of Representatives Com-  
19          mittee on Science and Technology within 180 days after  
20          the date of enactment of this Act.

21   **SEC. 104. INTERAGENCY PUBLIC ACCESS COMMITTEE.**

22          (a) ESTABLISHMENT.—The Director shall establish a  
23          working group under the National Science and Technology  
24          Council with the responsibility to coordinate Federal  
25          science agency research and policies related to the dissemi-

1 nation and long-term stewardship of the results of unclas-  
2 sified research, including digital data and peer-reviewed  
3 scholarly publications, supported wholly, or in part, by  
4 funding from the Federal science agencies.

5 (b) RESPONSIBILITIES.—The working group shall—

6 (1) identify the specific objectives and public in-  
7 terest being addressed by any policies coordinated  
8 under (a) that are not or cannot be made to meet  
9 the needs of the private sector;

10 (2) take into account inherent variability among  
11 Federal science agencies and scientific disciplines in  
12 the nature of research, types of data, and dissemina-  
13 tion models;

14 (3) coordinate the development or designation  
15 of standards for research data, the structure of full  
16 text and metadata, navigation tools, and other appli-  
17 cations to maximize interoperability across Federal  
18 science agencies, across science and engineering dis-  
19 ciplines, and between research data and scholarly  
20 publications, taking into account existing consensus  
21 standards, including international standards;

22 (4) coordinate Federal science agency programs  
23 and activities that support research and education  
24 on tools and systems required to ensure preservation

1 and stewardship of all forms of digital research data;  
2 including scholarly publications;

3 (5) work with international science and tech-  
4 nology counterparts to maximize interoperability be-  
5 tween United States based unclassified research  
6 databases and international databases and reposi-  
7 tories;

8 (6) solicit input and recommendations from,  
9 and collaborate with, non-Federal stakeholders, in-  
10 cluding the public, universities, nonprofit and for-  
11 profit publishers, libraries, federally funded and non-  
12 federally funded research scientists, and other orga-  
13 nizations and institutions with a stake in long term  
14 preservation and access to the results of federally  
15 funded research;

16 (7) establish priorities for coordinating the de-  
17 velopment of any Federal science agency policies re-  
18 lated to public access to the results of federally  
19 funded research to maximize the benefits of such  
20 policies with respect to their potential economic or  
21 other impact on, the science and engineering enter-  
22 prise and the stakeholders thereof;

23 (8) take into consideration the distinction be-  
24 tween scholarly publications and digital data;

1           (9) the role that scientific publishers play in the  
 2           peer review process in ensuring the integrity of the  
 3           record of scientific research, including the invest-  
 4           ments and added value that they make; and

5           (10) examine Federal agency practices and pro-  
 6           cedures for providing research reports to the agen-  
 7           cies charged with locating and preserving unclassi-  
 8           fied research.

9           (c) PATENT OR COPYRIGHT LAW.—Nothing in this  
 10          section shall be construed to undermine any right under  
 11          the provisions of title 17 or 35, United States Code.

12          (d) APPLICATION WITH EXISTING LAW.—Nothing  
 13          defined in section (b) shall be construed to affect existing  
 14          law with respect to federal science agencies' policies re-  
 15          lated to public access.

16          (e) REPORT TO CONGRESS.—Not later than 1 year  
 17          after the date of enactment of this Act, the Director shall  
 18          transmit a report to Congress describing—

19                 (1) the specific objectives and public interest  
 20                 identified under (b)(1);

21                 (2) any priorities established under subsection  
 22                 (b)(7);

23                 (3) the impact the policies described under (a)  
 24                 have had on the science and engineering enterprise

1 and the stakeholders, including the financial impact  
 2 on research budgets;

3 (4) the status of any Federal science agency  
 4 policies related to public access to the results of fed-  
 5 erally funded research; and

6 (5) how any policies developed or being devel-  
 7 oped by Federal science agencies, as described in  
 8 subsection (a), incorporate input from the non-Fed-  
 9 eral stakeholders described in subsection (b)(6).

10 (f) **FEDERAL SCIENCE AGENCY DEFINED.**—For the  
 11 purposes of this section, the term “Federal science agen-  
 12 cy” means any Federal agency with an annual extramural  
 13 research expenditure of over \$100,000,000.

14 **SEC. 105. FEDERAL SCIENTIFIC COLLECTIONS.**

15 (a) **MANAGEMENT OF SCIENTIFIC COLLECTIONS.**—

16 The Office of Science and Technology Policy shall develop  
 17 policies for the management and use of Federal scientific  
 18 collections to improve the quality, organization, access, in-  
 19 cluding online access, and long-term preservation of such  
 20 collections for the benefit of the scientific enterprise. : In  
 21 developing those policies the Office of Science and Tech-  
 22 nology Policy shall consult, as appropriate, with—

23 (1) Federal agencies with such collections; and

24 (2) representatives of other organizations, insti-  
 25 tutions, and other entities not a part of the Federal

1 Government that have a stake in the preservation;  
 2 maintenance, and accessibility of such collections, in-  
 3 cluding State and local government agencies, institu-  
 4 tions of higher education, museums, and other enti-  
 5 ties engaged in the acquisition, holding, manage-  
 6 ment, or use of scientific collections.

7 (b) CLEARINGHOUSE.—The Office of Science and  
 8 Technology Policy, in consultation with relevant Federal  
 9 agencies, shall ensure the development of an online clear-  
 10 inghouse for information on the contents of and access  
 11 to Federal scientific collections.

12 (c) DISPOSAL OF COLLECTIONS.—The policies devel-  
 13 oped under subsection (a) shall—

14 (1) require that, before disposing of a scientific  
 15 collection, a Federal agency shall—

16 (A) conduct a review of the research value  
 17 of the collection; and

18 (B) consult with researchers who have  
 19 used the collection, and other potentially inter-  
 20 ested parties, concerning—

21 (i) the collection's value for research  
 22 purposes; and

23 (ii) possible additional educational  
 24 uses for the collection; and

1           (2) include procedures for Federal agencies to  
 2           transfer scientific collections they no longer need to  
 3           researchers at institutions or other entities qualified  
 4           to manage the collections.

5           (d) COST PROJECTIONS.—The Office of Science and  
 6           Technology Policy, in consultation with relevant Federal  
 7           agencies, shall develop a common set of methodologies to  
 8           be used by Federal agencies for the assessment and pro-  
 9           jection of costs associated with the management and pres-  
 10          ervation of their scientific collections.

11          (e) SCIENTIFIC COLLECTION DEFINED.—In this sec-  
 12          tion, the term “scientific collection” means a set of phys-  
 13          ical specimens, living or inanimate, created for the purpose  
 14          of supporting science and serving as a long-term research  
 15          asset, rather than for their market value as collectibles  
 16          or their historical, artistic, or cultural significance, and,  
 17          as appropriate and feasible, the associated specimen data  
 18          and materials.

19   **SEC. 106. PRIZE COMPETITIONS.**

20          The Stevenson-Wydler Technology Innovation Act of  
 21          1980 (15 U.S.C. 3701 et seq.) is amended by adding at  
 22          the end the following:

23   **“SEC. 24. PRIZE COMPETITIONS.**

24          “(a) DEFINITIONS.—In this section:

1           ~~“(1) AGENCY.—The term ‘agency’ means a~~  
 2           ~~Federal agency.~~

3           ~~“(2) DIRECTOR.—The term ‘Director’ means~~  
 4           ~~the Director of the Office of Science and Technology~~  
 5           ~~Policy.~~

6           ~~“(3) FEDERAL AGENCY.—The term ‘Federal~~  
 7           ~~agency’ has the meaning given under section 4, ex-~~  
 8           ~~cept that term shall not include any agency of the~~  
 9           ~~legislative branch of the Federal Government.~~

10          ~~“(4) HEAD OF AN AGENCY.—The term ‘head of~~  
 11          ~~an agency’ means the head of a Federal agency.~~

12          ~~“(b) IN GENERAL.—Each head of an agency, or the~~  
 13          ~~heads of multiple agencies in cooperation, may carry out~~  
 14          ~~a program to award prizes competitively to stimulate inno-~~  
 15          ~~vation that has the potential to advance the mission of~~  
 16          ~~the respective agency.~~

17          ~~“(c) PRIZES.—For purposes of this section, a prize~~  
 18          ~~may be one or more of the following:~~

19                 ~~“(1) A point solution prize that rewards and~~  
 20                 ~~spurs the development of solutions for a particular,~~  
 21                 ~~well-defined problem.~~

22                 ~~“(2) An exposition prize that helps identify and~~  
 23                 ~~promote a broad range of ideas and practices that~~  
 24                 ~~may not otherwise attract attention, facilitating fur-~~



1       ther development of the idea or practice by third  
2       parties.

3           ~~“(3) Participation prizes that create value dur-~~  
4       ~~ing and after the competition by encouraging con-~~  
5       ~~testants to change their behavior or develop new~~  
6       ~~skills that may have beneficial effects during and~~  
7       ~~after the competition.~~

8           ~~“(4) Such other types of prizes as each head of~~  
9       ~~an agency considers appropriate to stimulate innova-~~  
10      ~~tion that has the potential to advance the mission of~~  
11      ~~the respective agency.~~

12      ~~“(d) TOPICS.—In selecting topics for prize competi-~~  
13      ~~tions, the head of an agency shall consult widely both with-~~  
14      ~~in and outside the Federal Government, and may empanel~~  
15      ~~advisory committees.~~

16      ~~“(e) ADVERTISING.—The head of an agency shall~~  
17      ~~widely advertise each prize competition to encourage broad~~  
18      ~~participation.~~

19      ~~“(f) REQUIREMENTS AND REGISTRATION.—For each~~  
20      ~~prize competition, the head of an agency shall publish a~~  
21      ~~notice in the Federal Register announcing—~~

22           ~~“(1) the subject of the competition;~~

23           ~~“(2) the rules for being eligible to participate in~~  
24      ~~the competition;~~

1           ~~“(3) the process for participants to register for~~  
 2           ~~the competition;~~

3           ~~“(4) the amount of the prize; and~~

4           ~~“(5) the basis on which a winner will be se-~~  
 5           ~~lected.~~

6           ~~“(g) ELIGIBILITY.—To be eligible to win a prize~~  
 7           ~~under this section, an individual or entity—~~

8           ~~“(1) shall have registered to participate in the~~  
 9           ~~competition under any rules promulgated by the~~  
 10          ~~head of an agency under subsection (f);~~

11          ~~“(2) shall have complied with all the require-~~  
 12          ~~ments under this section;~~

13          ~~“(3) in the case of a private entity, shall be in-~~  
 14          ~~corporated in and maintain a primary place of busi-~~  
 15          ~~ness in the United States, and in the case of an in-~~  
 16          ~~dividual, whether participating singly or in a group,~~  
 17          ~~shall be a citizen or permanent resident of the~~  
 18          ~~United States; and~~

19          ~~“(4) may not be a Federal entity or Federal~~  
 20          ~~employee acting within the scope of their employ-~~  
 21          ~~ment.~~

22          ~~“(h) CONSULTATION WITH FEDERAL EMPLOYEES.—~~  
 23          ~~An individual or entity shall not be deemed ineligible~~  
 24          ~~under subsection (g) because the individual or entity used~~  
 25          ~~Federal facilities or consulted with Federal employees dur-~~

1 ing a competition if the facilities and employees are made  
 2 available to all individuals and entities participating in the  
 3 competition on an equitable basis.

4 “(i) LIABILITY.—

5 “(1) IN GENERAL.—

6 “(A) DEFINITION.—In this paragraph, the  
 7 term ‘related entity’ means a contractor or sub-  
 8 contractor at any tier, and a supplier, user, cus-  
 9 tomer, cooperating party, grantee, investigator,  
 10 or detailee.

11 “(B) LIABILITY.—Registered participants  
 12 shall be required to agree to assume any and all  
 13 risks and waive claims against the Federal Gov-  
 14 ernment and its related entities, except in the  
 15 case of willful misconduct, for any injury,  
 16 death, damage, or loss of property, revenue, or  
 17 profits, whether direct, indirect, or consequen-  
 18 tial, arising from their participation in a com-  
 19 petition, whether the injury, death, damage, or  
 20 loss arises through negligence or otherwise.

21 “(2) INSURANCE.—Participants shall be re-  
 22 quired to obtain liability insurance or demonstrate  
 23 financial responsibility, in amounts determined by  
 24 the head of an agency, for claims by—

1           “(A) a third party for death, bodily injury,  
 2           or property damage, or loss resulting from an  
 3           activity carried out in connection with participa-  
 4           tion in a competition, with the Federal Govern-  
 5           ment named as an additional insured under the  
 6           registered participant’s insurance policy and  
 7           registered participants agreeing to indemnify  
 8           the Federal Government against third party  
 9           claims for damages arising from or related to  
 10          competition activities; and

11          “(B) the Federal Government for damage  
 12          or loss to Government property resulting from  
 13          such an activity.

14          “(3) EXCEPTION.—The head of an agency may  
 15          not require a participant to waive claims against the  
 16          administering entity arising out of the unauthorized  
 17          use or disclosure by the agency of the intellectual  
 18          property, trade secrets, or confidential business in-  
 19          formation of the participant.

20          “(j) INTELLECTUAL PROPERTY.—

21          “(1) PROHIBITION ON THE GOVERNMENT AC-  
 22          QUIRING INTELLECTUAL PROPERTY RIGHTS.—The  
 23          Federal Government may not gain an interest in in-  
 24          tellectual property developed by a participant in a

1 competition without the written consent of the par-  
 2 ticipant.

3 ~~“(2) LICENSES.—~~The Federal Government may  
 4 negotiate a license for the use of intellectual prop-  
 5 erty developed by a participant for a competition.

6 ~~“(k) JUDGES.—~~

7 ~~“(1) IN GENERAL.—~~For each competition, the  
 8 head of an agency, either directly or through an  
 9 agreement under subsection (l), shall appoint one or  
 10 more qualified judges to select the winner or winners  
 11 of the prize competition on the basis described under  
 12 subsection (f). Judges for each competition may in-  
 13 clude individuals from outside the agency, including  
 14 from the private sector.

15 ~~“(2) RESTRICTIONS.—~~A judge may not—

16 ~~“(A) have personal or financial interests~~  
 17 ~~in, or be an employee, officer, director, or agent~~  
 18 ~~of any entity that is a registered participant in~~  
 19 ~~a competition; or~~

20 ~~“(B) have a familial or financial relation-~~  
 21 ~~ship with an individual who is a registered par-~~  
 22 ~~ticipant.~~

23 ~~“(3) GUIDELINES.—~~The heads of agencies who  
 24 carry out competitions under this section shall de-  
 25 velop guidelines to ensure that the judges appointed

1       for such competitions are fairly balanced and oper-  
 2       ate in a transparent manner.

3           ~~“(4) EXEMPTION FROM FACA.—~~The Federal  
 4       Advisory Committee Act (5 U.S.C. App.) shall not  
 5       apply to any committee, board, commission, panel,  
 6       task force, or similar entity, created solely for the  
 7       purpose of judging prize competitions under this sec-  
 8       tion.

9           ~~“(1) ADMINISTERING THE COMPETITION.—~~The head  
 10      of an agency may enter into an agreement with a private,  
 11      nonprofit entity to administer a prize competition, subject  
 12      to the provisions of this section.

13          ~~“(m) FUNDING.—~~

14           ~~“(1) IN GENERAL.—~~Support for a prize com-  
 15      petition under this section, including financial sup-  
 16      port for the design and administration of a prize or  
 17      funds for a monetary prize purse, may consist of  
 18      Federal appropriated funds and funds provided by  
 19      the private sector for such cash prizes. The head of  
 20      an agency may accept funds from other Federal  
 21      agencies to support such competitions. The head of  
 22      an agency may not give any special consideration to  
 23      any private sector entity in return for a donation.

24           ~~“(2) AVAILABILITY OF FUNDS.—~~Notwith-  
 25      standing any other provision of law, funds appro-

1        priated for prize awards under this section shall re-  
 2        main available until expended, and may be trans-  
 3        ferred, reprogrammed, or expended for other pur-  
 4        poses only after the expiration of 10 fiscal years  
 5        after the fiscal year for which the funds were origi-  
 6        nally appropriated. No provision in this section per-  
 7        mits obligation or payment of funds in violation of  
 8        section 1341 of title 31, United States Code.

9            ~~“(3) AMOUNT OF PRIZE.—~~

10            ~~“(A) ANNOUNCEMENT.—No prize may be~~  
 11            ~~announced under subsection (f) until all the~~  
 12            ~~funds needed to pay out the announced amount~~  
 13            ~~of the prize have been appropriated or com-~~  
 14            ~~mitted in writing by a private source.~~

15            ~~“(B) INCREASE IN AMOUNT.—The head of~~  
 16            ~~an agency may increase the amount of a prize~~  
 17            ~~after an initial announcement is made under~~  
 18            ~~subsection (f) only if—~~

19            ~~“(i) notice of the increase is provided~~  
 20            ~~in the same manner as the initial notice of~~  
 21            ~~the prize; and~~

22            ~~“(ii) the funds needed to pay out the~~  
 23            ~~announced amount of the increase have~~  
 24            ~~been appropriated or committed in writing~~  
 25            ~~by a private source.~~

1           ~~“(4) LIMITATION ON AMOUNT.—~~

2                   ~~“(A) NOTICE TO CONGRESS.—No prize~~  
 3                   ~~competition under this section may offer a prize~~  
 4                   ~~in an amount greater than \$50,000,000 unless~~  
 5                   ~~30 days have elapsed after written notice has~~  
 6                   ~~been transmitted to the Committee on Com-~~  
 7                   ~~merce, Science, and Transportation of the Sen-~~  
 8                   ~~ate and the Committee on Science and Tech-~~  
 9                   ~~nology of the House of Representatives.~~

10           ~~“(B) APPROVAL OF HEAD OF AGENCY.—~~

11           ~~No prize competition under this section may re-~~  
 12           ~~sult in the award of more than \$1,000,000 in~~  
 13           ~~cash prizes without the approval of the head of~~  
 14           ~~an agency.~~

15           ~~“(n) GENERAL SERVICE ADMINISTRATION ASSIST-~~

16           ~~ANCE.—Not later than 180 days after the date of the en-~~  
 17           ~~actment of the America COMPETES Reauthorization Act~~  
 18           ~~of 2010, the General Services Administration shall provide~~  
 19           ~~government wide services to share best practices and assist~~  
 20           ~~agencies in developing guidelines for issuing prize competi-~~  
 21           ~~tions. The General Services Administration shall develop~~  
 22           ~~a contract vehicle to provide agencies access to relevant~~  
 23           ~~products and services, including technical assistance in~~  
 24           ~~structuring and conducting prize competitions to take~~  
 25           ~~maximum benefit of the marketplace as they identify and~~



1 pursue prize competitions to further the policy objectives  
2 of the Federal Government.

3 ~~“(o) COMPLIANCE WITH EXISTING LAW.—~~

4 ~~“(1) IN GENERAL.—The Federal Government~~  
5 ~~shall not, by virtue of offering or providing a prize~~  
6 ~~under this section, be responsible for compliance by~~  
7 ~~registered participants in a prize competition with~~  
8 ~~Federal law, including licensing, export control, and~~  
9 ~~nonproliferation laws, and related regulations.~~

10 ~~“(2) OTHER PRIZE AUTHORITY.—Nothing in~~  
11 ~~this section affects the prize authority authorized by~~  
12 ~~any other provision of law.~~

13 ~~“(3) REPEAL OF SPACE ACT LIMITATION.—Sec-~~  
14 ~~tion 314(a) of the National Aeronautics and Space~~  
15 ~~Act of 1958 (42 U.S.C. 2459f-1 is amended by~~  
16 ~~striking “The Administration may carry out a pro-~~  
17 ~~gram to award prizes only in conformity with this~~  
18 ~~section.”.~~

19 ~~“(p) ANNUAL REPORT.—~~

20 ~~“(1) IN GENERAL.—Not later than March 1 of~~  
21 ~~each year, the Director shall submit to the Com-~~  
22 ~~mittee on Commerce, Science, and Transportation of~~  
23 ~~the Senate and the Committee on Science and Tech-~~  
24 ~~nology of the House of Representatives a report on~~

1 the activities carried out during the preceding fiscal  
2 year under the authority in subsection (b).

3 ~~“(2) INFORMATION INCLUDED.—~~The report for  
4 a fiscal year under this subsection shall include, for  
5 each prize competition under subsection (b), the fol-  
6 lowing:

7 ~~“(A) PROPOSED GOALS.—~~A description of  
8 the proposed goals of each prize competition.

9 ~~“(B) PREFERABLE METHOD.—~~An analysis  
10 of why the utilization of the authority in sub-  
11 section (b) was the preferable method of achiev-  
12 ing the goals described in subparagraph (A) as  
13 opposed to other authorities available to the  
14 agency, such as contracts, grants, and coopera-  
15 tive agreements.

16 ~~“(C) AMOUNT OF CASH PRIZES.—~~The total  
17 amount of cash prizes awarded for each prize  
18 competition, including a description of amount  
19 of private funds contributed to the program, the  
20 sources of such funds, and the manner in which  
21 the amounts of cash prizes awarded and  
22 claimed were allocated among the accounts of  
23 the agency for recording as obligations and ex-  
24 penditures.

“(D) SOLICITATIONS AND EVALUATION OF SUBMISSIONS.—The methods used for the solicitation and evaluation of submissions under each prize competition, together with an assessment of the effectiveness of such methods and lessons learned for future prize competitions.

“(E) RESOURCES.—A description of the resources, including personnel and funding, used in the execution of each prize competition together with a detailed description of the activities for which such resources were used and an accounting of how funding for execution was allocated among the accounts of the agency for recording as obligations and expenditures.

“(F) RESULTS.—A description of how each prize competition advanced the mission of the agency concerned.”

## **TITLE II—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.**

### **SEC. 201. NASA’S CONTRIBUTION TO INNOVATION AND COMPETITIVENESS.**

It is the sense of Congress that a renewed emphasis on technology development would enhance current mission capabilities and enable future missions, while encouraging

1 NASA, private industry, and academia to spur innovation.  
 2 NASA's Innovative Partnership Program is a valuable  
 3 mechanism to accelerate technology maturation and en-  
 4 courage the transfer of technology into the private sector.

5 **SEC. 202. NASA'S CONTRIBUTION TO EDUCATION.**

6 (a) SENSE OF CONGRESS.—It is the sense of Con-  
 7 gress that NASA is uniquely positioned to interest stu-  
 8 dents in science, technology, engineering, and mathe-  
 9 matics, not only by the example it sets, but through its  
 10 education programs.

11 (b) EDUCATIONAL PROGRAM GOALS.—NASA shall  
 12 develop educational programs—

13 (1) to carry out and support research based  
 14 programs and activities designed to increase student  
 15 interest and participation in STEM fields;

16 (2) to improve public literacy in those fields;

17 (3) that employ proven strategies and methods  
 18 for improving student learning and teaching in  
 19 STEM fields;

20 (4) to provide curriculum support materials and  
 21 other resources that—

22 (A) are designed to be integrated with  
 23 comprehensive STEM field education;

24 (B) are aligned with national science edu-  
 25 cation standards; and

1           (C) promote the adoption and implementa-  
 2           tion of high-quality education practices that  
 3           build toward college and career-readiness; and  
 4           (5) to create and support opportunities for en-  
 5           hanced and ongoing professional development for  
 6           teachers using best practices that improve the  
 7           STEM field content and knowledge of the teachers.

8 **SEC. 203. INTERNATIONAL SPACE STATION'S CONTRIBU-**  
 9 **TION TO NATIONAL COMPETITIVENESS EN-**  
 10 **HANCEMENT.**

11       (a) SENSE OF CONGRESS.—It is the sense of the Con-  
 12       gress that the International Space Station represents a  
 13       valuable and unique national asset which can be utilized  
 14       to increase educational opportunities and scientific and  
 15       technological innovation which will enhance the Nation's  
 16       economic security and competitiveness in the global tech-  
 17       nology fields of endeavor. If the period for active utiliza-  
 18       tion of the International Space Station is extended to at  
 19       least the year 2020, the potential for such opportunities  
 20       and innovation would be increased. Efforts should be  
 21       made to fully realize that potential.

22       (b) EVALUATION AND ASSESSMENT OF NASA'S  
 23       INTERAGENCY CONTRIBUTION.—Pursuant to the author-  
 24       ity provided in title II of the America COMPETES Act  
 25       (Public Law 110-69), the Administrator shall evaluate

1 and, where possible, expand efforts to maximize NASA's  
2 contribution to interagency efforts to enhance science,  
3 technology, engineering, and mathematics education capa-  
4 bilities, and to enhance the Nation's technological excel-  
5 lence and global competitiveness. The Administrator shall  
6 identify these enhancements in the annual reports re-  
7 quired by section 2001(e) of that Act (42 U.S.C.  
8 16611a(e)).

9 (c) REPORT TO THE CONGRESS.—Within 120 days  
10 after the date of enactment of this Act, the Administrator  
11 shall provide to the House of Representatives Committee  
12 on Science and Technology and the Senate Committee on  
13 Commerce, Science, and Transportation a report on the  
14 assessment made pursuant to subsection (a). The report  
15 shall include—

16 (1) a description of current and potential activi-  
17 ties associated with utilization of the International  
18 Space Station which are supportive of the goals of  
19 educational excellence and innovation and competi-  
20 tive enhancement established or reaffirmed by this  
21 Act, including a summary of the goals supported,  
22 the number of individuals or organizations partici-  
23 pating in or benefiting from such activities, and a  
24 summary of how such activities might be expanded  
25 or improved upon;

1           ~~(2)~~ a description of government and private  
 2           partnerships which are, or may be, established to ef-  
 3           fectively utilize the capabilities represented by the  
 4           International Space Station to enhance United  
 5           States competitiveness, innovation and science, tech-  
 6           nology, engineering, and mathematics education; and

7           ~~(3)~~ a summary of proposed actions or activities  
 8           to be undertaken to ensure the maximum utilization  
 9           of the International Space Station to contribute to  
 10          fulfillment of the goals and objectives of this Act,  
 11          and the identification of any additional authority,  
 12          assets, or funding that would be required to support  
 13          such activities.

14 **SEC. 204. DEFINITIONS.**

15       In this title:

16           ~~(1)~~ ADMINISTRATOR.—The term “Adminis-  
 17           trator” means the Administrator of NASA.

18           ~~(2)~~ NASA.—The term “NASA” means the Na-  
 19           tional Aeronautics and Space Administration.

20                   **TITLE III—OCEAN AND**  
 21                   **ATMOSPHERIC PROGRAMS**

22 **SEC. 301. OCEANIC AND ATMOSPHERIC RESEARCH AND DE-**  
 23 **VELOPMENT PROGRAM.**

24       Section 4001 of the America COMPETES Act ~~(33~~  
 25       U.S.C. 893) is amended—

1           (1) by inserting “(a) IN GENERAL.—” before  
2           “‘The Administrator’”; and

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

4           “(b) OCEAN AND ATMOSPHERIC RESEARCH AND DE-  
5 VELOPMENT PROGRAM.—The Administrator shall imple-  
6 ment programs and activities—

7           “(1) to identify emerging and innovative re-  
8 search and development priorities to enhance U.S.  
9 competitiveness; support development of new eco-  
10 nomic opportunities based on NOAA research; obser-  
11 vations; monitoring modeling; and predictions that  
12 sustain ecosystem services;

13           “(2) to promote United States leadership in  
14 ocean and atmospheric science and competitiveness  
15 in the applied uses of such knowledge, including for  
16 the development and expansion of economic opportu-  
17 nities; and

18           “(3) to advance ocean, coastal, Great Lakes,  
19 and atmospheric research and development, includ-  
20 ing potentially transformational research, in collabo-  
21 ration with other relevant Federal agencies, aca-  
22 demic institutions, the private sector, and non-  
23 governmental programs, consistent with the Admin-  
24 istration’s mission to understand, observe, and



1        model the Earth’s atmosphere and biosphere, includ-  
 2        ing the oceans, in an integrated manner.

3        “(e) REPORT.—No later than 12 months after the  
 4        date of enactment of the America COMPETES Reauthor-  
 5        ization Act of 2010, the Administrator, in consultation  
 6        with the National Science Foundation or other such agen-  
 7        cies with mature transformational research portfolios,  
 8        shall develop and submit a report to describe NOAA’s  
 9        strategy for enhancing transformational research in its re-  
 10       search and development portfolio to increase United  
 11       States competitiveness in oceanic and atmospheric science  
 12       and technology. The report shall—

13                “(1) define ‘transformational research’;

14                “(2) identify emerging and innovative areas of  
 15        research and development where transformational  
 16        research has the potential to make significant and  
 17        revolutionary —advancements in both understanding  
 18        and U.S. science leadership;

19                “(3) describe how transformational research  
 20        priorities are identified and appropriately —balanced  
 21        in the context of NOAA’s broader research portfolio;

22                “(4) describe NOAA’s plan for developing a  
 23        competitive peer review and priority-setting —process;  
 24        funding mechanisms; performance and evaluation

1 measures, and transition-to-operation guidelines for  
 2 transformational research; and

3 “(5) describe partnerships with other agencies  
 4 involved in transformational research.

5 “(d) PARTNERSHIPS AND AGREEMENTS.—

6 “(1) IN GENERAL.—The Administrator may  
 7 execute such contracts, leases, grants, cooperative  
 8 agreements, or other agreements and transactions  
 9 with any agency or instrumentality of the United  
 10 States, any State, local, tribal, territorial or foreign  
 11 government, or with any person, corporation, firm,  
 12 partnership, educational institution, nonprofit orga-  
 13 nization, or international organization as may be  
 14 necessary to carry out this title.

15 “(2) SPECIFIC AUTHORITY.—Notwithstanding  
 16 any other provision of law, the Administrator may—

17 “(A) execute long term leases of up to 20  
 18 years for the use of unimproved land to site  
 19 small shelter facilities, antennae, and equipment  
 20 including weather, tide, tidal currents, river,  
 21 and air sampling or measuring equipment;

22 “(B) grant long term licenses of up to 20  
 23 years at no cost to site facilities and equipment  
 24 including weather, tide, tidal currents, river,  
 25 and air sampling or measuring equipment;

1           “(C) acquire (by purchase, lease, or other-  
2           wise), lease, sell, and dispose of or convey serv-  
3           ices, money, securities, or property (whether  
4           real, personal, intellectual, or of any other kind)  
5           or an interest therein;

6           “(D) construct, improve, repair, operate,  
7           maintain, outgrant, and dispose of real or per-  
8           sonal property, including buildings, facilities,  
9           and land; and

10          “(E) waive capital lease scoring require-  
11          ments for any lease of space on commercial an-  
12          tennas to support weather radio equipment, air  
13          sampling, or measuring equipment.

14          “(3) CERTAIN LEASED EQUIPMENT.—Notwith-  
15          standing any other provision of law, rule, or regula-  
16          tion, leases of antenna or equipment on towers or  
17          other structures shall be considered operating leases  
18          for the purpose of capital lease scoring.

19          “(4) AUTHORITY TO RECEIVE FUNDS.—The  
20          Administrator may accept, retain, and use funds re-  
21          ceived from any party pursuant to an agreement en-  
22          tered into under this subsection for activities fur-  
23          thering the purposes of this title.”.

1 **SEC. 302. OCEAN AND ATMOSPHERIC SCIENCE EDUCATION**  
 2 **PROGRAMS.**

3 Section 4002 of the America COMPETES Act (33  
 4 U.S.C. 893a) is amended—

5 (1) by striking “the agency.” in subsection (a)  
 6 and inserting “agency, with consideration given to  
 7 the goal of promoting the participation of individuals  
 8 from underrepresented groups in STEM fields and  
 9 in promoting the acquisition and retention of highly  
 10 qualified and motivated young scientists to com-  
 11 plement and supplement workforce needs.”;

12 (2) by redesignating subsections (b) and (c) as  
 13 subsections (c) and (d), respectively;

14 (3) by inserting after subsection (a) the fol-  
 15 lowing:

16 “(b) EDUCATIONAL PROGRAM GOALS.—The edu-  
 17 cation programs developed by NOAA shall, to the extent  
 18 applicable—

19 “(1) carry out and support research based pro-  
 20 grams and activities designed to increase student in-  
 21 terest and participation in STEM;

22 “(2) improve public literacy in STEM;

23 “(3) employ proven strategies and methods for  
 24 improving student learning and teaching in STEM;

25 “(4) provide curriculum support materials and  
 26 other resources that—

1           “(A) are designed to be integrated with  
2           comprehensive STEM education;

3           “(B) are aligned with national science edu-  
4           cation standards; and

5           “(C) produce the adoption and implemen-  
6           tation of high-quality education practices that  
7           build toward college and career-readiness; and

8           “(5) create and support opportunities for en-  
9           hanced and ongoing professional development for  
10          teachers using best practices that improves the  
11          STEM content and knowledge of the teachers.”;

12          (4) by striking “develop” in subsection (c), as  
13          redesignated, and inserting “maintain”; and

14          (5) by adding at the end thereof the following:

15          “(e) STEM FIELDS DEFINED.—In this section, the  
16          term ‘STEM fields’ means the academic and professional  
17          disciplines of science, technology, engineering, and mathe-  
18          matics.”.

19      **SEC. 303. WORKFORCE STUDY.**

20          (a) IN GENERAL.—The Secretary of Commerce, in  
21          cooperation with the Secretary of Education, shall request  
22          the National Academy of Sciences to conduct a study on  
23          the scientific workforce in the areas of oceanic and atmos-  
24          pheric research and development. The study shall inves-  
25          tigate—

1           (1) whether there is a shortage in the number  
2           of individuals with advanced degrees in oceanic and  
3           atmospheric sciences who have the ability to conduct  
4           high quality scientific research in physical and chem-  
5           ical oceanography, meteorology, and atmospheric  
6           modeling; and related fields; for government, non-  
7           profit, and private sector entities;

8           (2) what Federal programs are available to help  
9           facilitate the education of students hoping to pursue  
10          these degrees;

11          (3) barriers to transitioning highly qualified  
12          oceanic and atmospheric scientists into Federal civil  
13          service scientist career tracks;

14          (4) what institutions of higher education, the  
15          private sector, and the Congress could do to increase  
16          the number of individuals with such post baccalaureate  
17          degrees;

18          (5) the impact of an aging Federal scientist  
19          workforce on the ability of Federal agencies to con-  
20          duct high quality scientific research; and

21          (6) what actions the Federal government can  
22          take to assist the transition of highly qualified sci-  
23          entists into Federal career scientist positions and en-  
24          sure that the experiences of retiring Federal sci-

1       entists are adequately documented and transferred  
2       prior to retirement from Federal service.

3       (b) COORDINATION.—The Secretary and the Sec-  
4       retary of Education shall consult with the heads of other  
5       Federal agencies and departments with oceanic and at-  
6       mospheric expertise or authority in preparing the speci-  
7       fications for the study.

8       (c) REPORT.—No later than 18 months after the date  
9       of enactment of this Act, the Secretary and the Secretary  
10      of Education shall transmit a joint report to each com-  
11      mittee of Congress with jurisdiction over the programs de-  
12      scribed in 4002(b) of the America COMPETES Act (33  
13      U.S.C. 893a(b)), as amended by section 302 of this Act,  
14      detailing the findings and recommendations of the study  
15      and setting forth a prioritized plan to implement the rec-  
16      ommendations.

17      (d) PROGRAM AND PLAN.—The Administrator shall  
18      evaluate the National Academy of Sciences study and de-  
19      velop a workforce program and plan to institutionalize the  
20      Administration's Federal science career pathways and ad-  
21      dress aging workforce issues. The program and plan shall  
22      be developed in consultation with the Administration's co-  
23      operative institutes and other academic partners to iden-  
24      tify and implement programs and mechanisms to ensure  
25      that—

1           (1) sufficient highly qualified scientists are able  
 2           to transition into Federal career scientist positions  
 3           in the Administration's laboratories and programs;  
 4           and

5           (2) the technical and management experiences  
 6           of senior employees are documented and transferred  
 7           before leaving Federal service.

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

11 **SEC. 401. SHORT TITLE.**

12           This title may be cited as the “National Institute of  
 13 Standards and Technology Authorization Act of 2010”.

14 **SEC. 402. AUTHORIZATION OF APPROPRIATIONS.**

15           ~~(a) FISCAL YEAR 2011.—~~

16           ~~(1) IN GENERAL.—~~There are authorized to be  
 17 appropriated to the Secretary of Commerce  
 18 \$1,000,500,000 for the National Institute of Stand-  
 19 ards and Technology for fiscal year 2011.

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

22           ~~(A)~~ \$625,500,000 shall be authorized for  
 23 scientific and technical research and services  
 24 laboratory activities;



1           (B) \$125,000,000 shall be authorized for  
2           the construction and maintenance of facilities;  
3           and

4           (C) \$250,000,000 shall be authorized for  
5           industrial technology services activities, of  
6           which—

7                   (i) \$95,000,000 shall be authorized  
8                   for the Technology Innovation Program  
9                   under section 28 of the National Institute  
10                  of Standards and Technology Act (15  
11                  U.S.C. 278n);

12                  (ii) \$145,000,000 shall be authorized  
13                  for the Manufacturing Extension Partner-  
14                  ship program under sections 25 and 26 of  
15                  such Act (15 U.S.C. 278k and 278l); of  
16                  which not more than \$5,000,000 shall be  
17                  for the competitive grant program under  
18                  section 25(f) of such Act; and

19                  (iii) \$10,000,000 shall be authorized  
20                  for the Malcolm Baldrige National Quality  
21                  Award program under section 17 of the  
22                  Stevenson-Wydler Technology Innovation  
23                  Act of 1980 (15 U.S.C. 3711a).

24       (b) FISCAL YEAR 2012.—

1           (1) ~~IN GENERAL.~~—There are authorized to be  
 2           appropriated to the Secretary of Commerce  
 3           \$1,024,100,000 for the National Institute of Stand-  
 4           ards and Technology for fiscal year 2012.

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

7                   (A) \$669,100,000 shall be authorized for  
 8                   scientific and technical research and services  
 9                   laboratory activities;

10                   (B) \$85,000,000 shall be authorized for  
 11                   the construction and maintenance of facilities;  
 12                   and

13                   (C) \$270,300,000 shall be authorized for  
 14                   industrial technology services activities, of  
 15                   which—

16                           (i) \$105,000,000 shall be authorized  
 17                           for the Technology Innovation Program  
 18                           under section 28 of the National Institute  
 19                           of Standards and Technology Act (15  
 20                           U.S.C. 278n);

21                           (ii) \$155,000,000 shall be authorized  
 22                           for the Manufacturing Extension Partner-  
 23                           ship program under sections 25 and 26 of  
 24                           such Act (15 U.S.C. 278k and 278l); of  
 25                           which not more than \$5,000,000 shall be

1 for the competitive grant program under  
 2 section 25(f) of such Act; and

3 (iii) \$10,300,000 shall be authorized  
 4 for the Malcolm Baldrige National Quality  
 5 Award program under section 17 of the  
 6 Stevenson-Wydler Technology Innovation  
 7 Act of 1980 (15 U.S.C. 3711a).

8 (e) FISCAL YEAR 2013.—

9 (1) IN GENERAL.—There are authorized to be  
 10 appropriated to the Secretary of Commerce  
 11 \$1,128,409,000 for the National Institute of Stand-  
 12 ards and Technology for fiscal year 2013.

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

15 (A) \$715,800,000 shall be authorized for  
 16 scientific and technical research and services  
 17 laboratory activities;

18 (B) \$122,000,000 shall be authorized for  
 19 the construction and maintenance of facilities;  
 20 and

21 (C) \$290,609,000 shall be authorized for  
 22 industrial technology services activities, of  
 23 which—

24 (i) \$115,000,000 shall be authorized  
 25 for the Technology Innovation Program

under section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n);

(ii) \$165,000,000 shall be authorized for the Manufacturing Extension Partnership program under sections 25 and 26 of such Act (15 U.S.C. 278k and 278l), of which not more than \$5,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(iii) \$10,609,000 shall be authorized for the Malcolm Baldrige National Quality Award program under section 17 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3711a).

**SEC. 403. UNDER SECRETARY OF COMMERCE FOR STANDARDS AND TECHNOLOGY.**

(a) ESTABLISHMENT.—Section 4 of the National Institute of Standards and Technology Act is amended to read as follows:

**“SEC. 4. UNDER SECRETARY OF COMMERCE FOR STANDARDS AND TECHNOLOGY.**

“(a) ESTABLISHMENT.—There shall be in the Department of Commerce an Under Secretary of Commerce

1 for Standards and Technology (in this section referred to  
2 as the ‘Under Secretary’).

3 “(b) APPOINTMENT.—The Under Secretary shall be  
4 appointed by the President by and with the advice and  
5 consent of the Senate.

6 “(c) COMPENSATION.—The Under Secretary shall be  
7 compensated at the rate in effect for level III of the Exec-  
8 utive Schedule under section 5314 of title 5, United States  
9 Code.

10 “(d) DUTIES.—The Under Secretary shall serve as  
11 the Director of the Institute and shall perform such duties  
12 as required of the Director by the Secretary under this  
13 Act or by law.

14 “(e) APPLICABILITY.—The individual serving as the  
15 Director of the Institute on the date of enactment of the  
16 National Institute of Standards and Technology Author-  
17 ization Act of 2010 shall also serve as the Under Secretary  
18 until such time as a successor is appointed under sub-  
19 section (b).”.

20 (b) CONFORMING AMENDMENTS.—

21 (1) TITLE 5, UNITED STATES CODE.—

22 (A) LEVEL III.—Section 5314 of title 5,  
23 United States Code, is amended by inserting  
24 before the item “Associate Attorney General”  
25 the following:

1           “Under Secretary of Commerce for Standards  
2           and Technology, who also serves as Director of the  
3           National Institute of Standards and Technology.”.

4           (B) ~~LEVEL IV.~~—Section 5315 of title 5,  
5           United States Code, is amended by striking  
6           “Director, National Institute of Standards and  
7           Technology, Department of Commerce.”.

8           (2) ~~NATIONAL INSTITUTE OF STANDARDS AND~~  
9           ~~TECHNOLOGY ACT.~~—Section 5 of the National Insti-  
10          tute of Standards and Technology Act (15 U.S.C.  
11          274) is amended by striking the first, fifth, and  
12          sixth sentences.

13 **SEC. 404. MANUFACTURING EXTENSION PARTNERSHIP.**

14          (a) ~~COMMUNITY COLLEGE SUPPORT.~~—Section 25(a)  
15          of the National Institute of Standards and Technology Act  
16          (15 U.S.C. 278k(a)) is amended—

17               (1) by striking “and” after the semicolon in  
18               paragraph (4);

19               (2) by striking “Institute.” in paragraph (5)  
20               and inserting “Institute; and”; and

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

22               “~~(6) providing to community colleges informa-~~  
23               ~~tion about the job skills needed in small- and me-~~  
24               ~~dium-sized manufacturing businesses in the regions~~  
25               ~~they serve.”.~~

1       (b) INNOVATIVE SERVICES INITIATIVE.—Section 25  
 2 of such Act (15 U.S.C. 278k) is amended by adding at  
 3 the end the following:

4       “(g) INNOVATIVE SERVICES INITIATIVE.—

5               “(1) ESTABLISHMENT.—The Director may es-  
 6 tablish, within the Centers program under this sec-  
 7 tion, an innovative services initiative to assist small-  
 8 and medium-sized manufacturers in—

9                       “(A) reducing their energy usage and envi-  
 10 ronmental waste to improve profitability; and

11                      “(B) accelerating the domestic commer-  
 12 cialization of new product technologies, includ-  
 13 ing components for renewable energy systems.

14               “(2) MARKET DEMAND.—The Director may not  
 15 undertake any activity to accelerate the domestic  
 16 commercialization of a new product technology  
 17 under this subsection unless an analysis of market  
 18 demand for the new product technology has been  
 19 conducted.”.

20       (c) REPORTS.—Section 25 of such Act (15 U.S.C.  
 21 278k), as amended by subsection (b), is further amended  
 22 by adding at the end the following:

23       “(h) REPORTS.—

24               “(1) IN GENERAL.—In submitting the 3-year  
 25 programmatic planning document and annual up-

1        dates under section 23, the Director shall include an  
 2        assessment of the Director's governance of the pro-  
 3        gram established under this section.

4            “(2) CRITERIA.—In conducting the assessment,  
 5        the Director shall use the criteria established pursu-  
 6        ant to the Malcolm Baldrige National Quality Award  
 7        under section 17(d)(1)(C) of the Stevenson-Wydler  
 8        Technology Innovation Act of 1980 (15 U.S.C.  
 9        3711a(d)(1)(C)).”.

10        (d) HOLLINGS MANUFACTURING EXTENSION PART-  
 11        NERSHIP PROGRAM COST-SHARING.—Section 25(e) of  
 12        such Act (15 U.S.C. 278k(e)) is amended by adding at  
 13        the end the following:

14            “(7) Notwithstanding paragraphs (1), (3), and  
 15        (5), for fiscal year 2011 through fiscal year 2013,  
 16        the Secretary may not provide to a Center more  
 17        than 50 percent of the costs incurred by that Center  
 18        and may not require that a Center's cost share ex-  
 19        ceed 50 percent.

20            “(8) Not later than 2 years after the date of  
 21        enactment of the National Institute of Standards  
 22        and Technology Authorization Act of 2010, the Sec-  
 23        retary shall submit to Congress a report on the cost  
 24        share requirements under the program. The report  
 25        shall—



1           “(A) discuss various cost share structures;  
 2           including the cost share structure in place prior  
 3           to such date of enactment and the cost share  
 4           structure in place under paragraph (7); and the  
 5           effect of such cost share structures on indi-  
 6           vidual Centers and the overall program; and

7           “(B) include a recommendation for how  
 8           best to structure the cost share requirement  
 9           after fiscal year 2013 to provide for the long-  
 10          term sustainability of the program.”.

11          (e) ADVISORY BOARD.—Section 25(e)(4) of such Act  
 12          (15 U.S.C. 278k(e)(4)) is amended to read as follows:

13                 “(4) FEDERAL ADVISORY COMMITTEE ACT AP-  
 14          PLICABILITY.—

15                 “(A) IN GENERAL.—In discharging its du-  
 16                 ties under this subsection, the MEP Advisory  
 17                 Board shall function solely in an advisory ca-  
 18                 pacity, in accordance with the Federal Advisory  
 19                 Committee Act.

20                 “(B) EXCEPTION.—Section 14 of the Fed-  
 21                 eral Advisory Committee Act shall not apply to  
 22                 the MEP Advisory Board.”.

23          (f) DESIGNATION OF PROGRAM.—

24                 “(1) IN GENERAL.—Section 25 of the National  
 25                 Institute of Standards and Technology Act (15

1 U.S.C. 278k), as amended by subsection (e), is fur-  
 2 ther amended by adding at the end the following:

3 “(i) DESIGNATION.—

4 “(1) HOLLINGS MANUFACTURING EXTENSION  
 5 PARTNERSHIP.—The program under this section  
 6 shall be known as the ‘Hollings Manufacturing Ex-  
 7 tension Partnership’.

8 “(2) HOLLINGS MANUFACTURING EXTENSION  
 9 CENTERS.—The Regional Centers for the Transfer  
 10 of Manufacturing Technology created and supported  
 11 under subsection (a) shall be known as the ‘Hollings  
 12 Manufacturing Extension Centers’ (in this Act re-  
 13 ferred to as the ‘Centers’).”.

14 (2) CONFORMING AMENDMENT TO CONSOLI-  
 15 DATED APPROPRIATIONS ACT, 2005.—Division B of  
 16 title II of the Consolidated Appropriations Act, 2005  
 17 (Public Law 108–447; 118 Stat. 2879; 15 U.S.C.  
 18 278k note) is amended under the heading “INDUS-  
 19 TRIAL TECHNOLOGY SERVICES” by striking “2007:  
 20 *Provided further, That*” and all that follows through  
 21 “Extension Centers.” and inserting “2007.”.

22 (3) TECHNICAL AMENDMENTS.—

23 (A) Section 25(a) of the National Institute  
 24 of Standards and Technology Act (15 U.S.C.  
 25 278k(a)) is amended in the matter preceding

paragraph (1) by striking “Regional Centers for the Transfer of Manufacturing Technology” and inserting “regional centers for the transfer of manufacturing technology”.

(B) Section 25 of such Act (15 U.S.C. 278k), as amended by subsection (f), is further amended by adding at the end the following:

“(j) COMMUNITY COLLEGE DEFINED.—In this section, the term ‘community college’ means an institution of higher education (as defined under section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a))) at which the highest degree that is predominately awarded to students is an associate’s degree.”.

(h) EVALUATION OF OBSTACLES UNIQUE TO SMALL MANUFACTURERS.—Section 25 of such Act (15 U.S.C. 278k), as amended by subsection (g), is further amended by adding at the end the following:

“(k) EVALUATION OF OBSTACLES UNIQUE TO SMALL MANUFACTURERS.—The Director shall—

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

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

1           “(3) facilitate improved communication between  
 2           the Centers to assist such manufacturers in imple-  
 3           menting appropriate, targeted solutions to such ob-  
 4           stacles.”.

5           (i) NIST ACT AMENDMENT.—Section 25(f)(3) of the  
 6 National Institute of Standards and Technology Act (15  
 7 U.S.C. 278k(f)(3)) is amended by striking “Director of  
 8 the Centers program,” and inserting “Director of the Hol-  
 9 lings MEP program,”.

10 **SEC. 405. EMERGENCY COMMUNICATION AND TRACKING**  
 11 **TECHNOLOGIES RESEARCH INITIATIVE.**

12           (a) ESTABLISHMENT.—The Director shall establish a  
 13 research initiative to support the development of emer-  
 14 gency communication and tracking technologies for use in  
 15 locating trapped individuals in confined spaces, such as  
 16 underground mines, and other shielded environments,  
 17 such as high-rise buildings or collapsed structures, where  
 18 conventional radio communication is limited.

19           (b) ACTIVITIES.—In order to carry out this section,  
 20 the Director shall work with the private sector and appro-  
 21 priate Federal agencies to—

22           (1) perform a needs assessment to identify and  
 23           evaluate the measurement, technical standards, and  
 24           conformity assessment needs required to improve the

1 operation and reliability of such emergency commu-  
 2 nication and tracking technologies;

3 ~~(2)~~ support the development of technical stand-  
 4 ards and conformance architecture to improve the  
 5 operation and reliability of such emergency commu-  
 6 nication and tracking technologies; and

7 ~~(3)~~ incorporate and build upon existing reports  
 8 and studies on improving emergency communica-  
 9 tions.

10 ~~(c)~~ REPORT.—Not later than 18 months after the  
 11 date of enactment of this Act, the Director shall submit  
 12 to Congress and make publicly available a report describ-  
 13 ing the assessment performed under subsection (b)(1) and  
 14 making recommendations about research priorities to ad-  
 15 dress gaps in the measurement, technical standards, and  
 16 conformity assessment needs identified by the assessment.

17 **SEC. 406. BROADENING PARTICIPATION.**

18 ~~(a)~~ RESEARCH FELLOWSHIPS.—Section 18 of the  
 19 National Institute of Standards and Technology Act (15  
 20 U.S.C. 278g–1) is amended by adding at the end the fol-  
 21 lowing:

22 “~~(c)~~ UNDERREPRESENTED MINORITIES.—In evalu-  
 23 ating applications for fellowships under this section, the  
 24 Director shall give consideration to the goal of promoting

1 the participation of underrepresented minorities in re-  
 2 search areas supported by the Institute.”.

3 (b) ~~POSTDOCTORAL FELLOWSHIP PROGRAM.~~—See-  
 4 tion 19 of such Act (15 U.S.C. 278g-2) is amended by  
 5 adding at the end the following: “In evaluating applica-  
 6 tions for fellowships under this section, the Director shall  
 7 give consideration to the goal of promoting the participa-  
 8 tion of underrepresented minorities in research areas sup-  
 9 ported by the Institute.”.

10 (c) ~~TEACHER DEVELOPMENT.~~—Section 19A(c) of  
 11 such Act (15 U.S.C. 278g-2a(c)) is amended by adding  
 12 at the end the following: “The Director shall give special  
 13 consideration to an application from a teacher from a  
 14 high-need school, as defined in section 200 of the Higher  
 15 Education Act of 1965 (20 U.S.C. 1021).”.

16 **SEC. 407. NIST FELLOWSHIPS.**

17 (a) ~~POST-DOCTORAL FELLOWSHIP PROGRAM.~~—See-  
 18 tion 19 of the National Institute of Standards and Tech-  
 19 nology Act (15 U.S.C. 278g) is amended by striking “in  
 20 conjunction with the National Academy of Sciences,”.

21 (b) ~~RESEARCH FELLOWSHIPS.~~—Section 18(a) of that  
 22 Act (15 U.S.C. 278g(a)) is amended by striking “up to  
 23 1.5 percent of the”.

24 (c) ~~COMMERCE, SCIENCE, AND TECHNOLOGY FEL-~~  
 25 ~~LOWSHIP PROGRAM.~~—Section 5163(d) of the Omnibus

1 Trade and Competition Act of 1988 (15 U.S.C. 1533) is  
2 repealed.

3 **SEC. 408. GREEN MANUFACTURING AND CONSTRUCTION.**

4 The Director shall carry out a green manufacturing  
5 and construction initiative—

6 (1) to develop accurate sustainability metrics  
7 and practices for use in manufacturing;

8 (2) to advance the development of standards  
9 and the creation of an information infrastructure to  
10 communicate sustainability information about sup-  
11 pliers; and

12 (3) to improve energy performance, service life,  
13 and indoor air quality of new and retrofitted build-  
14 ings through validated measurement data.

15 **SEC. 409. CYBERSECURITY COMPETITION AND CHALLENGE.**

16 (a) IN GENERAL.—The Director of the National In-  
17 stitute of Standards and Technology, directly or through  
18 appropriate Federal entities, shall establish cybersecurity  
19 competitions and challenges with cash prizes in order to—

20 (1) attract, identify, evaluate, and recruit tal-  
21 ented individuals for the Federal information tech-  
22 nology workforce; and

23 (2) stimulate innovation in basic and applied  
24 cybersecurity research, technology development, and  
25 prototype demonstration that have the potential for

1 application to the Federal information technology  
 2 activities of the Federal Government.

3 ~~(b) TYPES OF COMPETITIONS AND CHALLENGES.—~~

4 The Director shall establish different competitions and  
 5 challenges targeting the following groups:

6 (1) High school students.

7 (2) Undergraduate students.

8 (3) Graduate students.

9 (4) Academic and research institutions.

10 ~~(c) TOPICS.—In selecting topics for prize competi-~~  
 11 ~~tions, the Director shall consult widely both within and~~  
 12 ~~outside the Federal Government, and may empanel advi-~~  
 13 ~~sory committees.~~

14 ~~(d) USE OF FEDERAL INSIGNIA.—A registered par-~~  
 15 ~~ticipant in a competition under this section may use any~~  
 16 ~~Federal agency's name, initials, or insignia only after prior~~  
 17 ~~review and written approval by the Director.~~

18 ~~(e) AUTHORIZATION OF APPROPRIATIONS.—There~~  
 19 ~~are authorized to be appropriated to the National Institute~~  
 20 ~~of Standards and Technology to carry out this section~~  
 21 ~~\$15,000,000 for each of fiscal years 2011 through 2013.~~

22 **SEC. 410. DEFINITIONS.**

23 In this title:



1           (1) DIRECTOR.—The term “Director” means  
2           the Director of the National Institute of Standards  
3           and Technology.

4           (2) FEDERAL AGENCY.—The term “Federal  
5           agency” has the meaning given such term in section  
6           4 of the Stevenson-Wydler Technology Innovation  
7           Act of 1980 (15 U.S.C. 3703).

## 8           **TITLE V—NATIONAL SCIENCE** 9           **FOUNDATION**

### 10       **SEC. 501. SHORT TITLE.**

11           This title may be cited as the “National Science  
12       Foundation Authorization Act of 2010”.

### 13       **SEC. 502. DEFINITIONS.**

14           In this title:

15           (1) FOUNDATION.—The term “Foundation”  
16           means the National Science Foundation established  
17           under section 2 of the National Science Foundation  
18           Act of 1950 (42 U.S.C. 1861).

19           (2) INSTITUTION OF HIGHER EDUCATION.—The  
20           term “institution of higher education” has the  
21           meaning given such term in section 101(a) of the  
22           Higher Education Act of 1965 (20 U.S.C. 1001(a)).

23           (3) STATE.—The term “State” means one of  
24           the several States, the District of Columbia, the  
25           Commonwealth of Puerto Rico, the Virgin Islands,

Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or any other territory or possession of the United States.

(4) UNITED STATES.—The term “United States” means the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any other territory or possession of the United States.

**SEC. 503. AUTHORIZATION OF APPROPRIATIONS.**

(a) FISCAL YEAR 2011.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation \$8,254,000,000 for fiscal year 2011.

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

(A) \$6,614,000,000 shall be made available to carry research and related activities;

(B) \$1,038,000,000 shall be made available for education and human resources;

(C) \$219,100,000 shall be made available for major research equipment and facilities construction;

(D) \$362,400,000 shall be made available for agency operations and award management;

1           ~~(E)~~ \$5,105,000 shall be made available for  
 2           the Office of the National Science Board; and

3           ~~(F)~~ \$15,640,000 shall be made available  
 4           for the Office of Inspector General.

5       ~~(b)~~ FISCAL YEAR 2012.—

6           ~~(1)~~ IN GENERAL.—There are authorized to be  
 7           appropriated to the Foundation \$9,073,000,000 for  
 8           fiscal year 2012.

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

11           ~~(A)~~ \$7,270,000,000 shall be made avail-  
 12          able to carry research and related activities;

13           ~~(B)~~ \$1,141,000,000 shall be made avail-  
 14          able for education and human resources;

15           ~~(C)~~ \$240,800,000 shall be made available  
 16          for major research equipment and facilities con-  
 17          struction;

18           ~~(D)~~ \$398,400,000 shall be made available  
 19          for agency operations and award management;

20           ~~(E)~~ \$5,612,000 shall be made available for  
 21          the Office of the National Science Board; and

22           ~~(F)~~ \$17,190,000 shall be made available  
 23          for the Office of Inspector General.

24       ~~(c)~~ FISCAL YEAR 2013.—

1           ~~(1) IN GENERAL.—~~There are authorized to be  
 2           appropriated to the Foundation \$9,943,000,000 for  
 3           fiscal year 2013.

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

6                   ~~(A)~~ \$7,967,000,000 shall be made avail-  
 7                   able to carry research and related activities;

8                   ~~(B)~~ \$1,251,000,000 shall be made avail-  
 9                   able for education and human resources;

10                  ~~(C)~~ \$263,900,000 shall be made available  
 11                  for major research equipment and facilities con-  
 12                  struction;

13                  ~~(D)~~ \$436,600,000 shall be made available  
 14                  for agency operations and award management;

15                  ~~(E)~~ \$6,150,000 shall be made available for  
 16                  the Office of the National Science Board; and

17                  ~~(F)~~ \$18,840,000 shall be made available  
 18                  for the Office of Inspector General.

19 **SEC. 504. NATIONAL SCIENCE BOARD ADMINISTRATIVE**  
 20 **AMENDMENTS.**

21           ~~(a) STAFFING AT THE NATIONAL SCIENCE BOARD.—~~  
 22           Section 4(g) of the National Science Foundation Act of  
 23           1950 (42 U.S.C. 1863(g)) is amended by striking “not  
 24           more than 5”.

1       (b) NATIONAL SCIENCE BOARD REPORTS.—Section  
 2 4(j)(2) of the National Science Foundation Act of 1950  
 3 (~~42 U.S.C. 1863(j)(2)~~) is amended by inserting “within  
 4 the authority of the Foundation (or otherwise as requested  
 5 by the Congress or the President)” after “individual policy  
 6 matters”.

7       (c) BOARD ADHERENCE TO SUNSHINE ACT.—Sec-  
 8 tion 15(a)(2) of the National Science Foundation Author-  
 9 ization Act of 2002 (~~42 U.S.C. 1862n-5(a)(2)~~) is amend-  
 10 ed—

11           (1) by striking “The Board” and inserting “To  
 12 ensure transparency of the Board’s entire decision-  
 13 making process, including deliberations on Board  
 14 business occurring within its various subdivisions,  
 15 the Board”; and

16           (2) by adding at the end the following: “The  
 17 preceding requirement will apply to meetings of the  
 18 full Board, whenever a quorum is present; and to  
 19 meetings of its subdivisions, whenever a quorum of  
 20 the subdivision is present.”.

21 **SEC. 505. NATIONAL CENTER FOR SCIENCE AND ENGINEER-**  
 22 **ING STATISTICS.**

23       (a) ESTABLISHMENT.—There is established within  
 24 the Foundation a National Center for Science and Engi-  
 25 neering Statistics that shall serve as a central Federal

1 clearinghouse for the collection, interpretation, analysis,  
 2 and dissemination of objective data on science, engineer-  
 3 ing, technology, and research and development.

4 (b) DUTIES.—In carrying out subsection (a) of this  
 5 section, the Director, acting through the Center shall—

6 (1) collect, acquire, analyze, report, and dis-  
 7 seminate statistical data related to the science and  
 8 engineering enterprise in the United States and  
 9 other nations that is relevant and useful to practi-  
 10 tioners, researchers, policymakers, and the public,  
 11 including statistical data on—

12 (A) research and development trends;

13 (B) the science and engineering workforce;

14 (C) United States competitiveness in  
 15 science, engineering, technology, and research  
 16 and development; and

17 (D) the condition and progress of United  
 18 States STEM education;

19 (2) support research using the data it collects,  
 20 and on methodologies in areas related to the work  
 21 of the Center; and

22 (3) support the education and training of re-  
 23 searchers in the use of large-scale, nationally rep-  
 24 resentative data sets.

1       (c) **STATISTICAL REPORTS.**—The Director or the Na-  
 2 tional Science Board, acting through the Center, shall  
 3 issue regular, and as necessary, special statistical reports  
 4 on topics related to the national and international science  
 5 and engineering enterprise such as the biennial report re-  
 6 quired by section 4(j)(1) of the National Science Founda-  
 7 tion Act of 1950 (42 U.S.C. 1863(j)(1)) on indicators of  
 8 the state of science and engineering in the United States.

9       **SEC. 506. NATIONAL SCIENCE FOUNDATION MANUFAC-**  
 10                                   **TURING RESEARCH AND EDUCATION.**

11       (a) **MANUFACTURING RESEARCH.**—The Director  
 12 shall carry out a program to award merit-reviewed, com-  
 13 petitive grants to institutions of higher education to sup-  
 14 port fundamental research leading to transformative ad-  
 15 vances in manufacturing technologies, processes, and en-  
 16 terprises that will support United States manufacturing  
 17 through improved performance, productivity, sustain-  
 18 ability, and competitiveness. Research areas may in-  
 19 clude—

20                   (1) nanomanufacturing;

21                   (2) manufacturing and construction machines  
 22 and equipment, including robotics, automation, and  
 23 other intelligent systems;

24                   (3) manufacturing enterprise systems;

25                   (4) advanced sensing and control techniques;

1           ~~(5) materials processing; and~~

2           ~~(6) information technologies for manufacturing;~~  
 3       including predictive and real-time models and sim-  
 4       ulations; and virtual manufacturing.

5       ~~(b) MANUFACTURING EDUCATION.—In order to help~~  
 6       ensure a well-trained manufacturing workforce, the Direc-  
 7       tor shall award grants to strengthen and expand scientific  
 8       and technical education and training in advanced manu-  
 9       facturing, including through the Foundation's Advanced  
 10      Technological Education program.

11   **SEC. 507. NATIONAL SCIENCE BOARD REPORT ON MID-**  
 12           **SCALE INSTRUMENTATION.**

13       ~~(a) MID-SCALE RESEARCH INSTRUMENTATION~~  
 14   NEEDS.—The National Science Board shall evaluate the  
 15   needs; across all disciplines supported by the Foundation;  
 16   for mid-scale research instrumentation that falls between  
 17   the instruments funded by the Major Research Instrumen-  
 18   tation program and the very large projects funded by the  
 19   Major Research Equipment and Facilities Construction  
 20   program.

21       ~~(b) REPORT ON MID-SCALE RESEARCH INSTRUMEN-~~  
 22   TATION PROGRAM.—Not later than 1 year after the date  
 23   of enactment of this Act, the National Science Board shall  
 24   submit to Congress a report on mid-scale research instru-



1 mentation at the Foundation. At a minimum, this report  
2 shall include—

3           (1) the findings from the Board's evaluation of  
4 instrumentation needs required under subsection (a);  
5 including a description of differences across dis-  
6 ciplines and Foundation research directorates;

7           (2) a recommendation or recommendations re-  
8 garding how the Foundation should set priorities for  
9 mid-scale instrumentation across disciplines and  
10 Foundation research directorates;

11           (3) a recommendation or recommendations re-  
12 garding the appropriateness of expanding existing  
13 programs, including the Major Research Instrumen-  
14 tation program or the Major Research Equipment  
15 and Facilities Construction program, to support  
16 more instrumentation at the mid-scale;

17           (4) a recommendation or recommendations re-  
18 garding the need for and appropriateness of a new,  
19 Foundation-wide program or initiative in support of  
20 mid-scale instrumentation, including any rec-  
21 ommendations regarding the administration of and  
22 budget for such a program or initiative and the ap-  
23 propriate scope of instruments to be funded under  
24 such a program or initiative; and

1           ~~(5) any recommendation or recommendations~~  
 2           ~~regarding other options for supporting mid-scale re-~~  
 3           ~~search instrumentation at the Foundation.~~

4 **SEC. 508. PARTNERSHIPS FOR INNOVATION.**

5           ~~(a) IN GENERAL.—~~The Director shall carry out a  
 6 program to award merit-reviewed, competitive grants to  
 7 institutions of higher education to establish and to expand  
 8 partnerships that promote innovation and increase the  
 9 economic and social impact of research by developing tools  
 10 and resources to connect new scientific discoveries to prac-  
 11 tical uses.

12           ~~(b) PARTNERSHIPS.—~~

13           ~~(1) IN GENERAL.—~~To be eligible for funding  
 14 under this section, an institution of higher education  
 15 must propose establishment of a partnership that—

16                   ~~(A) includes at least one private sector en-~~  
 17                   ~~tity; and~~

18                   ~~(B) may include other institutions of high-~~  
 19                   ~~er education, public sector institutions, private~~  
 20                   ~~sector entities, and social enterprise nonprofit~~  
 21                   ~~organizations.~~

22           ~~(2) PRIORITY.—~~In selecting grant recipients  
 23 under this section, the Director shall give priority to  
 24 partnerships that include one or more institutions of  
 25 higher education that are among the 100 institu-

tions receiving, over the 3-year period immediately preceding the awarding of grants, the highest amount of research funding from the Foundation and at least one of the following:

(A) A minority serving institution.

(B) A primarily undergraduate institution.

(C) A 2-year institution of higher education.

(c) PROGRAM.—Proposals funded under this section shall seek—

(1) to increase the economic or social impact of the most promising research at the institution or institutions of higher education that are members of the partnership through knowledge transfer or commercialization;

(2) to increase the engagement of faculty and students across multiple disciplines and departments, including faculty and students in schools of business and other appropriate non-STEM fields and disciplines in knowledge transfer activities;

(3) to enhance education and mentoring of students and faculty in innovation and entrepreneurship through networks, courses, and development of best practices and curricula;

1           (4) to strengthen the culture of the institution  
 2           or institutions of higher education to undertake and  
 3           participate in activities related to innovation and  
 4           leading to economic or social impact;

5           (5) to broaden the participation of all types of  
 6           institutions of higher education in activities to meet  
 7           STEM workforce needs and promote innovation and  
 8           knowledge transfer; and

9           (6) to build lasting partnerships with local and  
 10          regional businesses, local and State governments,  
 11          and other relevant entities.

12        (d) ~~ADDITIONAL CRITERIA.~~—In selecting grant re-  
 13        cipients under this section, the Director shall also consider  
 14        the extent to which the applicants are able to demonstrate  
 15        evidence of institutional support for, and commitment  
 16        to—

17           (1) achieving the goals of the program as de-  
 18           scribed in subsection (c);

19           (2) expansion to an institution-wide program if  
 20           the initial proposal is not for an institution-wide pro-  
 21           gram; and

22           (3) sustaining any new innovation tools and re-  
 23           sources generated from funding under this program.

1       (e) ~~LIMITATION.~~—No funds provided under this sec-  
2       tion may be used to construct or renovate a building or  
3       structure.

4       **SEC. 509. GREEN CHEMISTRY BASIC RESEARCH.**

5       The Director shall establish a Green Chemistry Basic  
6       Research program to award competitive, merit-based  
7       grants to support research into green and sustainable  
8       chemistry which will lead to clean, safe, and economical  
9       alternatives to traditional chemical products and practices.  
10      The research program shall provide sustained support for  
11      green chemistry research, education, and technology  
12      transfer through—

13               (1) merit-reviewed competitive grants to indi-  
14      vidual investigators and teams of investigators, in-  
15      cluding, to the extent practicable, young investiga-  
16      tors, for research;

17               (2) grants to fund collaborative research part-  
18      nerships among universities, industry, and nonprofit  
19      organizations;

20               (3) symposia, forums, and conferences to in-  
21      crease outreach, collaboration, and dissemination of  
22      green chemistry advances and practices; and

23               (4) education, training, and retraining of under-  
24      graduate and graduate students and professional  
25      chemists and chemical engineers, including through

1 partnerships with industry, in green chemistry  
2 science and engineering.

3 **SEC. 510. GRADUATE STUDENT SUPPORT.**

4 (a) **FINDING.**—The Congress finds that—

5 (1) the Integrative Graduate Education and Re-  
6 search Traineeship program is an important pro-  
7 gram for training the next generation of scientists  
8 and engineers in team-based interdisciplinary re-  
9 search and problem solving, and for providing them  
10 with the many additional skills, such as communica-  
11 tion skills, needed to thrive in diverse STEM ca-  
12 reers; and

13 (2) the Integrative Graduate Education and Re-  
14 search Traineeship program is no less valuable to  
15 the preparation and support of graduate students  
16 than the Foundation's Graduate Research Fellow-  
17 ship program.

18 (b) **EQUAL TREATMENT OF IGERT AND GRF.**—Be-  
19 ginning in fiscal year 2011, the Director shall increase or,  
20 if necessary, decrease funding for the Foundation's Inte-  
21 grative Graduate Education and Research Traineeship  
22 program (or any program by which it is replaced) at least  
23 at the same rate as it increases or decreases funding for  
24 the Graduate Research Fellowship program.

1       (c) **SUPPORT FOR GRADUATE STUDENT RESEARCH**  
 2 **FROM THE RESEARCH ACCOUNT.**—For each of the fiscal  
 3 years 2011 through 2013, at least 50 percent of the total  
 4 Foundation funds allocated to the Integrative Graduate  
 5 Education and Research Traineeship program and the  
 6 Graduate Research Fellowship program shall come from  
 7 funds appropriated for Research and Related Activities.

8       (d) **COST OF EDUCATION ALLOWANCE FOR GRF**  
 9 **PROGRAM.**—Section 10 of the National Science Founda-  
 10 tion Act of 1950 (42 U.S.C. 1869) is amended—

11           (1) by inserting “(a) **IN GENERAL.**—” before  
 12 “The Foundation is authorized”; and

13           (2) by adding at the end the following:

14       “(b) **AMOUNT.**—The Director shall establish for each  
 15 year the amount to be awarded for scholarships and fel-  
 16 lowships under this section for that year. Each such schol-  
 17 arship and fellowship shall include a cost of education al-  
 18 lowance of \$12,000, subject to any restrictions on the use  
 19 of cost of education allowance as determined by the Direc-  
 20 tor.”.

21 **SEC. 511. ROBERT NOYCE TEACHER SCHOLARSHIP PRO-**  
 22 **GRAM.**

23       (a) **MATCHING REQUIREMENT.**—Section 10A(h)(1)  
 24 of the National Science Foundation Authorization Act of

1 2002 (42 U.S.C. 1862n-1a(h)(1)) is amended to read as  
 2 follows:

3       “(1) IN GENERAL.—An eligible entity receiving  
 4 a grant under this section shall provide, from non-  
 5 Federal sources, to carry out the activities supported  
 6 by the grant—

7               “(A) in the case of grants in an amount of  
 8 less than \$1,500,000, an amount equal to at  
 9 least 30 percent of the amount of the grant, at  
 10 least one half of which shall be in cash; and

11               “(B) in the case of grants in an amount of  
 12 \$1,500,000 or more, an amount equal to at  
 13 least 50 percent of the amount of the grant, at  
 14 least one half of which shall be in cash.”.

15       (b) RETIRING STEM PROFESSIONALS.—Section 10A  
 16 of the National Science Foundation Authorization Act of  
 17 2002 (42 U.S.C. 1862n-1a) is amended in subsection  
 18 (a)(2)(A) by inserting “including retiring professionals in  
 19 those fields,” after “mathematics professionals,”.

20 **SEC. 512 UNDERGRADUATE BROADENING PARTICIPATION**  
 21 **PROGRAM.**

22       The Foundation shall continue to support the His-  
 23 torically Black Colleges and Universities Undergraduate  
 24 Program, the Louis Stokes Alliances for Minority Partici-



1 pation program, and the Tribal Colleges and Universities  
2 Program as separate programs.

3 **SEC. 513. RESEARCH EXPERIENCES FOR HIGH SCHOOL**  
4 **STUDENTS.**

5 The Director shall permit specialized STEM high  
6 schools conducting research to participate in major data  
7 collection initiatives from universities, corporations, or  
8 government labs under a research grant from the Founda-  
9 tion, as part of the research proposal.

10 **SEC. 514. RESEARCH EXPERIENCES FOR UNDERGRADU-**  
11 **ATES.**

12 (a) **RESEARCH SITES.**—The Director shall award  
13 grants, on a merit-reviewed, competitive basis, to institu-  
14 tions of higher education, nonprofit organizations, or con-  
15 sortia of such institutions and organizations, for sites des-  
16 ignated by the Director to provide research experiences for  
17 6 or more undergraduate STEM students for sites des-  
18 ignated at primarily undergraduate institutions of higher  
19 education and 10 or more undergraduate STEM students  
20 for all other sites, with consideration given to the goal of  
21 promoting the participation of individuals identified in sec-  
22 tion 33 or 34 of the Science and Engineering Equal Op-  
23 portunities Act (42 U.S.C. 1885a or 1885b). The Director  
24 shall ensure that—

1           (1) at least half of the students participating in  
2           a program funded by a grant under this subsection  
3           at each site shall be recruited from institutions of  
4           higher education where research opportunities in  
5           STEM are limited, including 2-year institutions;

6           (2) the awards provide undergraduate research  
7           experiences in a wide range of STEM disciplines;

8           (3) the awards support a variety of projects, in-  
9           cluding independent investigator-led projects, inter-  
10          disciplinary projects, and multi-institutional projects  
11          (including virtual projects);

12          (4) students participating in each program  
13          funded have mentors, including during the academic  
14          year to the extent practicable, to help connect the  
15          students' research experiences to the overall aca-  
16          demic course of study and to help students achieve  
17          success in courses of study leading to a bacca-  
18          laureate degree in a STEM field;

19          (5) mentors and students are supported with  
20          appropriate salary or stipends; and

21          (6) student participants are tracked, for em-  
22          ployment and continued matriculation in STEM  
23          fields, through receipt of the undergraduate degree  
24          and for at least 3 years thereafter.

1       (b) INCLUSION OF UNDERGRADUATES IN STANDARD  
 2 RESEARCH GRANTS.—The Director shall require that  
 3 every recipient of a research grant from the Foundation  
 4 proposing to include 1 or more students enrolled in certifi-  
 5 cate, associate, or baccalaureate degree programs in ear-  
 6 nying out the research under the grant shall request sup-  
 7 port, including stipend support, for such undergraduate  
 8 students as part of the research proposal itself rather than  
 9 as a supplement to the research proposal, unless such un-  
 10 dergraduate participation was not foreseeable at the time  
 11 of the original proposal.

12 **SEC. 515. STEM INDUSTRY INTERNSHIP PROGRAMS.**

13       (a) IN GENERAL.—The Director may award grants,  
 14 on a competitive, merit-reviewed basis, to institutions of  
 15 higher education, or consortia thereof, to establish or ex-  
 16 pand partnerships with local or regional private sector en-  
 17 tities, for the purpose of providing undergraduate students  
 18 with integrated internship experiences that connect private  
 19 sector internship experiences with the students' STEM  
 20 coursework. The partnerships may also include industry  
 21 or professional associations.

22       (b) INTERNSHIP PROGRAM.—The grants awarded  
 23 under section (a) may include internship programs in the  
 24 manufacturing sector.

1       ~~(c) USE OF GRANT FUNDS.—~~Grants under this sec-  
 2       tion may be used—

3               ~~(1) to develop and implement hands-on learning~~  
 4       ~~opportunities;~~

5               ~~(2) to develop curricula and instructional mate-~~  
 6       ~~rials related to industry, including the manufac-~~  
 7       ~~turing sector;~~

8               ~~(3) to perform outreach to secondary schools;~~

9               ~~(4) to develop mentorship programs for stu-~~  
 10       ~~dents with partner organizations; and~~

11               ~~(5) to conduct activities to support awareness of~~  
 12       ~~career opportunities and skill requirements.~~

13       ~~(d) PRIORITY.—~~In awarding grants under this sec-  
 14       tion, the Director shall give priority to institutions of high-  
 15       er education or consortia thereof that demonstrate signifi-  
 16       cant outreach to and coordination with local or regional  
 17       private sector entities and Regional Centers for the Trans-  
 18       fer of Manufacturing Technology established by section  
 19       25(a) of the National Institute of Standards and Tech-  
 20       nology Act (15 U.S.C. 278k(a)) in developing academic  
 21       courses designed to provide students with the skills or cer-  
 22       tifications necessary for employment in local or regional  
 23       companies.

24       ~~(e) OUTREACH TO RURAL COMMUNITIES.—~~The  
 25       Foundation shall conduct outreach to institutions of high-

1 er education and private sector entities in rural areas to  
 2 encourage those entities to participate in partnerships  
 3 under this section.

4 (d) ~~COST-SHARE.~~—The Director shall require a 50  
 5 percent non-Federal cost-share from partnerships estab-  
 6 lished or expanded under this section.

7 (e) ~~RESTRICTION.~~—No Federal funds provided under  
 8 this section may be used—

9 (1) for the purpose of providing stipends or  
 10 compensation to students for private sector intern-  
 11 ships; or

12 (2) as payment or reimbursement to private  
 13 sector entities, except for institutions of higher edu-  
 14 cation.

15 (f) ~~REPORT.~~—Not less than 3 years after the date  
 16 of enactment of this Act, the Director shall submit a re-  
 17 port to Congress on the number and total value of awards  
 18 made under this section; the number of students affected  
 19 by those awards; any evidence of the effect of those awards  
 20 on workforce preparation and jobs placement for partici-  
 21 pating students; and an economic and ethnic breakdown  
 22 of the participating students.

1 **SEC. 516. CYBER-ENABLED LEARNING FOR NATIONAL**  
 2 **CHALLENGES.**

3 The Director shall, in consultation with appropriate  
 4 Federal agencies, identify ways to use cyber-enabled learn-  
 5 ing to create an innovative STEM workforce and to help  
 6 retrain and retain our existing STEM workforce to ad-  
 7 dress national challenges, including national security and  
 8 competitiveness.

9 **SEC. 517. FEDERAL CYBERSECURITY RESEARCH AND DE-**  
 10 **VELOPMENT.**

11 (a) **FUNDAMENTAL CYBERSECURITY RESEARCH.**—

12 The Director of the National Science Foundation shall  
 13 give priority to computer and information science and en-  
 14 gineering research to ensure substantial support is pro-  
 15 vided to meet the following challenges in cybersecurity:

16 (1) How to design and build complex software-  
 17 intensive systems that are secure and reliable when  
 18 first deployed.

19 (2) How to test and verify that software,  
 20 whether developed locally or obtained from a third  
 21 party, is free of significant known security flaws.

22 (3) How to test and verify that software ob-  
 23 tained from a third party correctly implements stat-  
 24 ed functionality, and only that functionality.

25 (4) How to guarantee the privacy of an individ-  
 26 ual's identity, information, or lawful transactions

1       when stored in distributed systems or transmitted  
2       over networks.

3           (5) How to build new protocols to enable the  
4       Internet to have robust security as one of its key ca-  
5       pabilities.

6           (6) How to determine the origin of a message  
7       transmitted over the Internet.

8           (7) How to support privacy in conjunction with  
9       improved security.

10          (8) How to address the growing problem of in-  
11       sider threat.

12       (b) ~~SECURE CODING RESEARCH.~~—The Director shall  
13       support research that evaluates selected secure coding  
14       education and improvement programs. The Director shall  
15       also support research on new methods of integrating se-  
16       cure coding improvement into the core curriculum of com-  
17       puter science programs and of other programs where grad-  
18       uates have a substantial probability of developing software  
19       after graduation.

20       (c) ~~ASSESSMENT OF SECURE CODING EDUCATION IN~~  
21       ~~COLLEGES AND UNIVERSITIES.~~—Within one year after  
22       the date of enactment of this Act, the Director shall sub-  
23       mit to the Senate Committee on Commerce, Science, and  
24       Transportation and the House of Representatives Com-  
25       mittee on Science and Technology a report on the state

1 of secure coding education in America's colleges and uni-  
2 versities for each school that received National Science  
3 Foundation funding in excess of \$1,000,000 during fiscal  
4 year 2008. The report shall include—

5 (1) the number of students who earned under-  
6 graduate degrees in computer science or in each  
7 other program where graduates have a substantial  
8 probability of being engaged in software design or  
9 development after graduation;

10 (2) the percentage of those students who com-  
11 pleted substantive secure coding education or im-  
12 provement programs during their undergraduate ex-  
13 perience; and

14 (3) descriptions of the length and content of the  
15 education and improvement programs; and a meas-  
16 ure of the effectiveness of those programs in ena-  
17 bling the students to master secure coding and de-  
18 sign.

19 (d) CYBERSECURITY MODELING AND TESTBEDS.—  
20 The Director shall establish a program to award grants  
21 to institutions of higher education to establish cybersecu-  
22 rity testbeds capable of realistic modeling of real-time  
23 cyber attacks and defenses. The purpose of this program  
24 is to support the rapid development of new cybersecurity  
25 defenses, techniques, and processes by improving under-



1 standing and assessing the latest technologies in a real-  
 2 world environment. The testbeds shall be sufficiently large  
 3 in order to model the scale and complexity of real world  
 4 networks and environments.

5 (e) NSF COMPUTER AND NETWORK SECURITY RE-  
 6 SEARCH GRANT AREAS.—Section 4(a)(1) of the Cyberse-  
 7 curity Research and Development Act (15 U.S.C.  
 8 7403(a)(1)) is amended—

9 (1) by striking “and” after the semicolon in  
 10 subparagraph (H);

11 (2) by striking “property.” in subparagraph (I)  
 12 and inserting “property;”; and

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

14 “(J) secure fundamental protocols that are at  
 15 the heart of inter-network communications and data  
 16 exchange;

17 “(K) secure software engineering and software  
 18 assurance, including—

19 “(i) programming languages and systems  
 20 that include fundamental security features;

21 “(ii) portable or reusable code that re-  
 22 mains secure when deployed in various environ-  
 23 ments;

1           “(iii) verification and validation tech-  
2 nologies to ensure that requirements and speci-  
3 fications have been implemented; and

4           “(iv) models for comparison and metrics to  
5 assure that required standards have been met;

6           “(L) holistic system security that—

7           “(i) addresses the building of secure sys-  
8 tems from trusted and untrusted components;

9           “(ii) proactively reduces vulnerabilities;

10          “(iii) addresses insider threats; and

11          “(iv) supports privacy in conjunction with  
12 improved security;

13          “(M) monitoring and detection; and

14          “(N) mitigation and rapid recovery methods.”.

15       (f) NSF COMPUTER AND NETWORK SECURITY  
16 GRANTS.—Section 4(a)(3) of the Cybersecurity Research  
17 and Development Act (15 U.S.C. 7403(a)(3)) is amend-  
18 ed—

19           (1) by striking “and” in subparagraph (D);

20           (2) by striking “2007” in subparagraph (E)  
21 and inserting “2007;”; and

22           (3) by adding at the end of the following:

23           “(F) \$150,000,000 for fiscal year 2010;

24           “(G) \$155,000,000 for fiscal year 2011;

25           “(H) \$160,000,000 for fiscal year 2012;

1                   “(I) \$165,000,000 for fiscal year 2013;

2                   and

3                   “(J) \$170,000,000 for fiscal year 2014.”.

4       (g) COMPUTER AND NETWORK SECURITY CEN-  
5 TERS.—Section 4(b)(7) of such Act (15 U.S.C.  
6 7403(b)(7)) is amended—

7                   (1) by striking “and” in subparagraph (D);

8                   (2) by striking “2007” in subparagraph (E)  
9       and inserting “2007;”; and

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

11                         “(F) \$50,000,000 for fiscal year 2010;

12                         “(G) \$52,000,000 for fiscal year 2011;

13                         “(H) \$54,000,000 for fiscal year 2012;

14                         “(I) \$56,000,000 for fiscal year 2013; and

15                         “(J) \$58,000,000 for fiscal year 2014.”.

16       (h) COMPUTER AND NETWORK SECURITY CAPACITY  
17 BUILDING GRANTS.—Section 5(a)(6) of such Act (15  
18 U.S.C. 7404(a)(6)) is amended—

19                   (1) by striking “and” in subparagraph (D);

20                   (2) by striking “2007” in subparagraph (E)  
21       and inserting “2007;”; and

22                  (3) by adding at the end of the following:

23                         “(F) \$40,000,000 for fiscal year 2010;

24                         “(G) \$42,000,000 for fiscal year 2011;

25                         “(H) \$44,000,000 for fiscal year 2012;

1                   “(I) \$46,000,000 for fiscal year 2013; and

2                   “(J) \$48,000,000 for fiscal year 2014.”.

3           (i) ~~SCIENTIFIC AND ADVANCED TECHNOLOGY ACT~~

4 ~~GRANTS.—Section 5(b)(2) of such Act (15 U.S.C.~~

5 ~~7404(b)(2)) is amended—~~

6                   (1) by striking “and” in subparagraph (D);

7                   (2) by striking “2007” in subparagraph (E)

8                   and inserting “2007;”, and

9                   (3) by adding at the end of the following:

10                   “(F) \$5,000,000 for fiscal year 2010;

11                   “(G) \$6,000,000 for fiscal year 2011;

12                   “(H) \$7,000,000 for fiscal year 2012;

13                   “(I) \$8,000,000 for fiscal year 2013; and

14                   “(J) \$9,000,000 for fiscal year 2014.”.

15           (j) ~~GRADUATE TRAINEESHIPS IN COMPUTER AND~~

16 ~~NETWORK SECURITY RESEARCH.—Section 5(e)(7) of~~

17 ~~such Act (15 U.S.C. 7404(e)(7)) is amended—~~

18                   (1) by striking “and” in subparagraph (D);

19                   (2) by striking “2007” in subparagraph (E)

20                   and inserting “2007;”, and

21                   (3) by adding at the end of the following:

22                   “(F) \$20,000,000 for fiscal year 2010;

23                   “(G) \$22,000,000 for fiscal year 2011;

24                   “(H) \$24,000,000 for fiscal year 2012;

25                   “(I) \$26,000,000 for fiscal year 2013; and

1                   “(J) \$28,000,000 for fiscal year 2014.”.

2           (k) CYBERSECURITY FACULTY DEVELOPMENT  
3 TRAINEESHIP PROGRAM.—Section 5(e)(9) of such Act (15  
4 U.S.C. 7404(e)(9)) is amended by striking “2007.” and  
5 inserting “2007 and for each of fiscal years 2010 through  
6 2014.”.

7           (h) NETWORKING AND INFORMATION TECHNOLOGY  
8 RESEARCH AND DEVELOPMENT PROGRAM.—Section  
9 204(a)(1) of the High-Performance Computing Act of  
10 1991 (15 U.S.C. 5524(a)(1)) is amended—

11               (1) by striking “and” after the semicolon in  
12               subparagraph (B); and

13               (2) by inserting after subparagraph (C) the fol-  
14               lowing:

15                   “(D) develop and propose standards and  
16                   guidelines; and develop measurement techniques  
17                   and test methods; for enhanced cybersecurity  
18                   for computer networks and common user inter-  
19                   faces to systems; and”.

20 **SEC. 518. FEDERAL CYBER SCHOLARSHIP-FOR-SERVICE**  
21 **PROGRAM.**

22           (a) IN GENERAL.—The Director of the National  
23 Science Foundation shall establish a Federal Cyber Schol-  
24 arship-for-Service program to recruit and train the next

1 generation of Federal information technology workers and  
2 security managers.

3 (b) PROGRAM DESCRIPTION AND COMPONENTS.—

4 The program—

5 (1) shall provide scholarships, that provide full  
6 tuition, fees, and a stipend, for up to 1,000 students  
7 per year in their pursuit of undergraduate or grad-  
8 uate degrees in the cybersecurity field;

9 (2) shall require scholarship recipients, as a  
10 condition of receiving a scholarship under the pro-  
11 gram, to agree to serve in the Federal information  
12 technology workforce for a period equal to the length  
13 of the scholarship following graduation if offered em-  
14 ployment in that field by a Federal agency;

15 (3) shall provide opportunities for students to  
16 receive temporary appointments for meaningful em-  
17 ployment in the Federal information technology  
18 workforce during school vacation periods and for in-  
19 ternships;

20 (4) shall provide a procedure for identifying  
21 promising K-12 students for participation in sum-  
22 mer work and internship programs that would lead  
23 to certification of Federal information technology  
24 workforce standards and possible future employ-  
25 ment; and

1           ~~(5)~~ shall examine and develop, if appropriate,  
 2           programs to promote computer security awareness in  
 3           secondary and high school classrooms.

4           ~~(c) HIRING AUTHORITY.—~~For purposes of any law  
 5           or regulation governing the appointment of individuals in  
 6           the Federal civil service, upon the successful completion  
 7           of their studies, students receiving a scholarship under the  
 8           program shall be hired under the authority provided for  
 9           in section 213.3102(r) of title 5, Code of Federal Regula-  
 10          tions, and be exempt from competitive service. Upon ful-  
 11          fillment of the service term, such individuals shall be con-  
 12          verted to a competitive service position without competi-  
 13          tion if the individual meets the requirements for that posi-  
 14          tion.

15          ~~(d) ELIGIBILITY.—~~To be eligible to receive a scholar-  
 16          ship under this section, an individual shall—

17                 ~~(1)~~ be a citizen of the United States; and

18                 ~~(2)~~ demonstrate a commitment to a career in  
 19                 improving the Nation's cyber defenses.

20          ~~(e) CONSIDERATION AND PREFERENCE.—~~In making  
 21          selections for scholarships under this section, the Director  
 22          shall—

23                 ~~(1)~~ consider, to the extent possible, a diverse  
 24                 pool of applicants whose interests are of an inter-  
 25                 disciplinary nature, encompassing the social sci-

entific as well as the technical dimensions of cyber security; and

(2) give preference to applicants that have participated in the competition and challenge described in section 13.

(f) **EVALUATION AND REPORT.**—The Director shall evaluate and report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology on the success of recruiting individuals for the scholarships.

(g) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation to carry out this section—

(1) \$50,000,000 for fiscal year 2010;

(2) \$55,000,000 for fiscal year 2011;

(3) \$60,000,000 for fiscal year 2012;

(4) \$65,000,000 for fiscal year 2013; and

(5) \$70,000,000 for fiscal year 2014.

## **TITLE VI—INNOVATION**

### **SEC. 601. OFFICE OF INNOVATION AND ENTREPRENEURSHIP.**

The Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3701 et seq.), as amended by section 107 of this Act, is amended by adding at the end the following:



1 **“SEC. 25. OFFICE OF INNOVATION AND ENTREPRENEUR-**  
2 **SHIP.**

3 “(a) IN GENERAL.—The Secretary shall establish an  
4 Office of Innovation and Entrepreneurship to foster inno-  
5 vation and the commercialization of new technologies;  
6 products, processes, and services with the goal of pro-  
7 moting productivity and economic growth in the United  
8 States.

9 “(b) DUTIES.—The Office of Innovation and Entre-  
10 preneurship shall be responsible for—

11 “(1) developing policies to accelerate innovation  
12 and advance the commercialization of research and  
13 development, including federally funded research and  
14 development;

15 “(2) identifying existing barriers to innovation  
16 and commercialization, including access to capital  
17 and other resources, and ways to overcome those  
18 barriers;

19 “(3) providing access to relevant data, research,  
20 and technical assistance on innovation and commer-  
21 cialization;

22 “(4) strengthening collaboration on and coordi-  
23 nation of policies relating to innovation and commer-  
24 cialization, including those focused on the needs of  
25 small businesses and rural communities, within the  
26 Department of Commerce and between the Depart-

1       ment of Commerce and other Federal agencies, as  
2       appropriate; and

3           ~~“(5) any other duties as determined by the Sec-~~  
4       ~~retary.~~

5       ~~“(e) ADVISORY COMMITTEE.—The Secretary shall es-~~  
6       ~~tablish an Advisory Council on Innovation and Entrepre-~~  
7       ~~neurship to provide advice to the Secretary on carrying~~  
8       ~~out subsection (b).”.~~

9       **SEC. 602. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**  
10       **TECHNOLOGIES IN MANUFACTURING.**

11       The Stevenson-Wydler Technology Innovation Act of  
12       1980 (~~15 U.S.C. 3701 et seq.~~), as amended by section  
13       601, is further amended by adding at the end the fol-  
14       lowing:

15       **“SEC. 26. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**  
16       **TECHNOLOGIES IN MANUFACTURING.**

17       ~~“(a) ESTABLISHMENT.—The Secretary shall estab-~~  
18       ~~lish a program to provide loan guarantees for obligations~~  
19       ~~to small- or medium-sized manufacturers for the use or~~  
20       ~~production of innovative technologies.~~

21       ~~“(b) ELIGIBLE PROJECTS.—A loan guarantee may be~~  
22       ~~made under the program only for a project that re-equips,~~  
23       ~~expands, or establishes a manufacturing facility in the~~  
24       ~~United States—~~

1           ~~“(1) to use an innovative technology or an inno-~~  
 2           ~~vative process in manufacturing; or~~

3           ~~“(2) to manufacture an innovative technology~~  
 4           ~~product or an integral component of such a product.~~

5           ~~“(e) ELIGIBLE BORROWER.—A loan guarantee may~~  
 6           ~~be made under the program only for a borrower who is~~  
 7           ~~a small- or medium-sized manufacturer, as determined by~~  
 8           ~~the Secretary under the criteria established pursuant to~~  
 9           ~~subsection (m).~~

10          ~~“(d) LIMITATION ON AMOUNT.—A loan guarantee~~  
 11          ~~shall not exceed an amount equal to 80 percent of the obli-~~  
 12          ~~gation, as estimated at the time at which the loan guar-~~  
 13          ~~antee is issued.~~

14          ~~“(e) LIMITATIONS ON LOAN GUARANTEE.—No loan~~  
 15          ~~guarantee shall be made unless the Secretary determines~~  
 16          ~~that—~~

17                 ~~“(1) there is a reasonable prospect of repay-~~  
 18                 ~~ment of the principal and interest on the obligation~~  
 19                 ~~by the borrower;~~

20                 ~~“(2) the amount of the obligation (when com-~~  
 21                 ~~bined with amounts available to the borrower from~~  
 22                 ~~other sources) is sufficient to carry out the project;~~

23                 ~~“(3) the obligation is not subordinate to other~~  
 24                 ~~financing;~~

1           “(4) the obligation bears interest at a rate that  
 2           does not exceed a level that the Secretary determines  
 3           appropriate, taking into account the prevailing rate  
 4           of interest in the private sector for similar loans and  
 5           risks; and

6           “(5) the term of an obligation requires full re-  
 7           payment over a period not to exceed the lesser of—

8                   “(A) 30 years; or

9                   “(B) 90 percent of the projected useful  
 10           life, as determined by the Secretary, of the  
 11           physical asset to be financed by the obligation.

12          “(f) DEFAULTS.—

13               “(1) PAYMENT BY SECRETARY.—

14                   “(A) IN GENERAL.—If a borrower defaults  
 15           (as defined in regulations promulgated by the  
 16           Secretary and specified in the loan guarantee)  
 17           on the obligation, the holder of the loan guar-  
 18           antee shall have the right to demand payment  
 19           of the unpaid amount from the Secretary.

20                   “(B) PAYMENT REQUIRED.—Within such  
 21           period as may be specified in the loan guar-  
 22           antee or related agreements, the Secretary shall  
 23           pay to the holder of the loan guarantee the un-  
 24           paid interest on and unpaid principal of the ob-  
 25           ligation as to which the borrower has defaulted;

1 unless the Secretary finds that there was no de-  
 2 fault by the borrower in the payment of interest  
 3 or principal or that the default has been rem-  
 4 edied.

5 “(C) FORBEARANCE.—Nothing in this sub-  
 6 section precludes any forbearance by the holder  
 7 of the obligation for the benefit of the borrower  
 8 which may be agreed upon by the parties to the  
 9 obligation and approved by the Secretary.

10 “(2) SUBROGATION.—

11 “(A) IN GENERAL.—If the Secretary  
 12 makes a payment under paragraph (1), the Sec-  
 13 retary shall be subrogated to the rights, as  
 14 specified in the loan guarantee, of the recipient  
 15 of the payment or related agreements including,  
 16 if appropriate, the authority (notwithstanding  
 17 any other provision of law)—

18 “(i) to complete, maintain, operate,  
 19 lease, or otherwise dispose of any property  
 20 acquired pursuant to such loan guarantee  
 21 or related agreement; or

22 “(ii) to permit the borrower, pursuant  
 23 to an agreement with the Secretary, to  
 24 continue to pursue the purposes of the

1                   project if the Secretary determines that  
2                   such an agreement is in the public interest.

3                   “(B) SUPERIORITY OF RIGHTS.—The  
4                   rights of the Secretary, with respect to any  
5                   property acquired pursuant to a loan guarantee  
6                   or related agreements, shall be superior to the  
7                   rights of any other person with respect to the  
8                   property.

9                   “(3) NOTIFICATION.—If the borrower defaults  
10                  on an obligation, the Secretary shall notify the At-  
11                  torney General of the default.

12                  “(h) TERMS AND CONDITIONS.—A loan guarantee  
13                  under this section shall include such detailed terms and  
14                  conditions as the Secretary determines appropriate—

15                   “(1) to protect the interests of the United  
16                  States in the case of default; and

17                   “(2) to have available all the patents and tech-  
18                  nology necessary for any person selected, including  
19                  the Secretary, to complete and operate the project.

20                  “(i) CONSULTATION.—In establishing the terms and  
21                  conditions of a loan guarantee under this section, the Sec-  
22                  retary shall consult with the Secretary of the Treasury.

23                  “(j) FEES.—

24                   “(1) IN GENERAL.—The Secretary shall charge  
25                  and collect fees for loan guarantees in amounts the

1 Secretary determines are sufficient to cover applica-  
 2 ble administrative expenses.

3 ~~“(2) AVAILABILITY.—Fees collected under this~~  
 4 ~~subsection shall—~~

5 ~~“(A) be deposited by the Secretary into the~~  
 6 ~~Treasury of the United States; and~~

7 ~~“(B) remain available until expended; sub-~~  
 8 ~~ject to such other conditions as are contained in~~  
 9 ~~annual appropriations Acts.~~

10 ~~“(3) LIMITATION.—In charging and collecting~~  
 11 ~~fees under paragraph (1), the Secretary shall take~~  
 12 ~~into consideration the amount of the obligation.~~

13 ~~“(k) RECORDS.—~~

14 ~~“(1) IN GENERAL.—With respect to a loan~~  
 15 ~~guarantee under this section, the borrower, the lend-~~  
 16 ~~er, and any other appropriate party shall keep such~~  
 17 ~~records and other pertinent documents as the Sec-~~  
 18 ~~retary shall prescribe by regulation, including such~~  
 19 ~~records as the Secretary may require to facilitate an~~  
 20 ~~effective audit.~~

21 ~~“(2) ACCESS.—The Secretary and the Comp-~~  
 22 ~~troller General of the United States, or their duly~~  
 23 ~~authorized representatives, shall have access to~~  
 24 ~~records and other pertinent documents for the pur-~~  
 25 ~~pose of conducting an audit.~~

1       “(1) ~~FULL FAITH AND CREDIT.~~—The full faith and  
 2 credit of the United States is pledged to the payment of  
 3 all loan guarantees issued under this section with respect  
 4 to principal and interest.

5       “(m) ~~REGULATIONS.~~—The Secretary shall issue final  
 6 regulations before making any loan guarantees under the  
 7 program. The regulations shall include—

8               “(1) criteria that the Secretary shall use to de-  
 9 termine eligibility for loan guarantees under this sec-  
 10 tion; including—

11                       “(A) whether a borrower is a small- or me-  
 12 dium-sized manufacturer; and

13                       “(B) whether a borrower demonstrates  
 14 that a market exists for the innovative tech-  
 15 nology product, or the integral component of  
 16 such a product, to be manufactured, as evi-  
 17 denced by written statements of interest from  
 18 potential purchasers;

19       “(2) criteria that the Secretary shall use to de-  
 20 termine the amount of any fees charged under sub-  
 21 section (j); including criteria related to the amount  
 22 of the obligation;

23       “(3) policies and procedures for selecting and  
 24 monitoring lenders and loan performance; and



1           ~~“(4) any other policies, procedures, or informa-~~  
 2           ~~tion necessary to implement this section.~~

3           ~~“(n) AUDIT.—~~

4           ~~“(1) ANNUAL INDEPENDENT AUDITS.—The~~  
 5           ~~Secretary shall enter into an arrangement with an~~  
 6           ~~independent auditor for annual evaluations of the~~  
 7           ~~program under this section.~~

8           ~~“(2) COMPTROLLER GENERAL REVIEW.—The~~  
 9           ~~Comptroller General of the United States shall con-~~  
 10          ~~duct a biennial review of the Secretary’s execution of~~  
 11          ~~the program under this section.~~

12          ~~“(3) REPORT.—The results of the independent~~  
 13          ~~audit under paragraph (1) and the Comptroller Gen-~~  
 14          ~~eral’s review under paragraph (2) shall be provided~~  
 15          ~~directly to the Committee on Science and Tech-~~  
 16          ~~nology of the House of Representatives and the~~  
 17          ~~Committee on Commerce, Science, and Transpor-~~  
 18          ~~tation of the Senate.~~

19          ~~“(o) REPORT TO CONGRESS.—Concurrent with the~~  
 20          ~~submission to Congress of the President’s annual budget~~  
 21          ~~request in each year after the date of enactment of the~~  
 22          ~~America COMPETES Reauthorization Act of 2010, the~~  
 23          ~~Secretary shall transmit to the Committee on Science and~~  
 24          ~~Technology of the House of Representatives and the Com-~~  
 25          ~~mittee on Commerce, Science, and Transportation of the~~

1 Senate a report containing a summary of all activities car-  
 2 ried out under this section.

3 “(p) COORDINATION AND NONDUPLICATION.—To  
 4 the maximum extent practicable, the Secretary shall en-  
 5 sure that the activities carried out under this section are  
 6 coordinated with, and do not duplicate the efforts of, other  
 7 loan guarantee programs within the Federal Government.

8 “(q) MEP CENTERS.—The Secretary may use cen-  
 9 ters established under section 25 of the National Institute  
 10 of Standards and Technology Act (15 U.S.C. 278k) to  
 11 provide information about the program established under  
 12 this section and to conduct outreach to potential bor-  
 13 rowers, as appropriate.

14 “(r) MINIMIZING RISK.—The Secretary shall promul-  
 15 gate regulations and policies to carry out this section in  
 16 accordance with Office of Management and Budget Cir-  
 17 cular No. A-129, entitled ‘Policies for Federal Credit Pro-  
 18 grams and Non-Tax Receivables’, as in effect on the date  
 19 of enactment of the America COMPETES Reauthoriza-  
 20 tion Act of 2010.

21 “(s) SENSE OF CONGRESS.—It is the sense of Con-  
 22 gress that no loan guarantee shall be made under this sec-  
 23 tion unless the borrower agrees to use a federally approved  
 24 electronic employment eligibility verification system to  
 25 verify the employment eligibility of—

1           “(1) all persons hired during the contract term  
2           by the borrower to perform employment duties with-  
3           in the United States; and

4           “(2) all persons assigned by the borrower to  
5           perform work within the United States on the  
6           project.

7           “(t) DEFINITIONS.—In this section:

8           “(1) COST.—The term ‘cost’ has the meaning  
9           given such term under section 502 of the Federal  
10          Credit Reform Act of 1990 (2 U.S.C. 661a).

11          “(2) INNOVATIVE PROCESS.—The term ‘innova-  
12          tive process’ means a process that is significantly  
13          improved as compared to the process in general use  
14          in the commercial marketplace in the United States  
15          at the time the loan guarantee is issued.

16          “(3) INNOVATIVE TECHNOLOGY.—The term ‘in-  
17          novative technology’ means a technology that is sig-  
18          nificantly improved as compared to the technology in  
19          general use in the commercial marketplace in the  
20          United States at the time the loan guarantee is  
21          issued.

22          “(4) LOAN GUARANTEE.—The term ‘loan guar-  
23          antee’ has the meaning given such term in section  
24          502 of the Federal Credit Reform Act of 1990 (2  
25          U.S.C. 661a). The term includes a loan guarantee

1       commitment (as defined in section 502 of such Act  
2       (2 U.S.C. 661a)).

3           ~~“(5) OBLIGATION.—The term ‘obligation’~~  
4       means the loan or other debt obligation that is guar-  
5       anteed under this section.

6           ~~“(6) PROGRAM.—The term ‘program’ means~~  
7       the loan guarantee program established in sub-  
8       section (a).

9       ~~“(u) AUTHORIZATION OF APPROPRIATIONS.—~~

10           ~~“(1) COST OF LOAN GUARANTEES.—There are~~  
11       authorized to be appropriated \$100,000,000 for each  
12       of fiscal years 2011 through 2015 to provide the  
13       cost of loan guarantees under this section.

14           ~~“(2) PRINCIPAL AND INTEREST.—There are au-~~  
15       thorized to be appropriated such sums as are nec-  
16       essary to carry out subsection (g).”.

17   **SEC. 603. REGIONAL INNOVATION PROGRAM.**

18       The Stevenson-Wydler Technology Innovation Act of  
19   1980 (15 U.S.C. 3701 et seq.), as amended by section  
20   602, is further amended by adding at the end thereof the  
21   following:

22   **“SEC. 27. REGIONAL INNOVATION PROGRAM.**

23           ~~“(a) ESTABLISHMENT.—The Secretary shall estab-~~  
24       lish a regional innovation program to encourage and sup-  
25       port the development of regional innovation strategies, in-

1 eluding regional innovation clusters and science and re-  
 2 search parks.

3 ~~“(b) REGIONAL INNOVATION CLUSTER GRANTS.—~~

4 ~~“(1) IN GENERAL.—As part of the program es-~~  
 5 ~~tablished under subsection (a), the Secretary may~~  
 6 ~~award grants on a competitive basis to eligible re-~~  
 7 ~~cipients for activities relating to the formation and~~  
 8 ~~development of regional innovation clusters.~~

9 ~~“(2) PERMISSIBLE ACTIVITIES.—Grants award-~~  
 10 ~~ed under this subsection may be used for activities~~  
 11 ~~determined appropriate by the Secretary, including~~  
 12 ~~the following:~~

13 ~~“(A) Feasibility studies.~~

14 ~~“(B) Planning activities.~~

15 ~~“(C) Technical assistance.~~

16 ~~“(D) Developing or strengthening commu-~~  
 17 ~~nication and collaboration between and among~~  
 18 ~~participants of a regional innovation cluster.~~

19 ~~“(E) Attracting additional participants to~~  
 20 ~~a regional innovation cluster.~~

21 ~~“(F) Facilitating market development of~~  
 22 ~~products and services developed by a regional~~  
 23 ~~innovation cluster, including through dem-~~  
 24 ~~onstration, deployment, technology transfer,~~  
 25 ~~and commercialization activities.~~

1           “(G) Developing relationships between a  
2           regional innovation cluster and entities or clus-  
3           ters in other regions.

4           “(H) Interacting with the public and State  
5           and local governments to meet the goals of the  
6           cluster.

7           “(3) ELIGIBLE RECIPIENT DEFINED.—In this  
8           subsection, the term ‘eligible recipient’ means—

9           “(A) a State;

10          “(B) an Indian tribe;

11          “(C) a city or other political subdivision of  
12          a State;

13          “(D) an entity that—

14               “(i) is a nonprofit organization, an in-  
15               stitution of higher education, a public-pri-  
16               vate partnership, a science park, a Federal  
17               laboratory, or an economic development or-  
18               ganization or similar entity; and

19               “(ii) has an application that is sup-  
20               ported by a State or a political subdivision  
21               of a State; or

22          “(E) a consortium of any of the entities  
23          described in subparagraphs (A) through (D).

24          “(4) APPLICATION.—

1           “(A) IN GENERAL.—An eligible recipient  
2 shall submit an application to the Secretary at  
3 such time, in such manner, and containing such  
4 information and assurances as the Secretary  
5 may require.

6           “(B) COMPONENTS.—The application shall  
7 include, at a minimum, a description of the re-  
8 gional innovation cluster supported by the pro-  
9 posed activity, including a description of—

10           “(i) whether the regional innovation  
11 cluster is supported by the private sector,  
12 State and local governments, and other rel-  
13 evant stakeholders;

14           “(ii) how the existing participants in  
15 the regional innovation cluster will encour-  
16 age and solicit participation by all types of  
17 entities that might benefit from participa-  
18 tion, including newly formed entities and  
19 those rival to existing participants;

20           “(iii) the extent to which the regional  
21 innovation cluster is likely to stimulate in-  
22 novation and have a positive impact on re-  
23 gional economic growth and development;

1           “(iv) whether the participants in the  
2           regional innovation cluster have access to;  
3           or contribute to, a well-trained workforce;

4           “(v) whether the participants in the  
5           regional innovation cluster are capable of  
6           attracting additional funds from non-Fed-  
7           eral sources; and

8           “(vi) the likelihood that the partici-  
9           pants in the regional innovation cluster will  
10          be able to sustain activities once grant  
11          funds under this subsection have been ex-  
12          pended.

13          “(C) SPECIAL CONSIDERATION.—The Sec-  
14          retary shall give special consideration to appli-  
15          cations from regions that contain communities  
16          negatively impacted by trade.

17          “(5) SPECIAL CONSIDERATION.—The Secretary  
18          shall give special consideration to an eligible recipi-  
19          ent who agrees to collaborate with local workforce  
20          investment area boards.

21          “(6) COST SHARE.—The Secretary may not  
22          provide more than 50 percent of the total cost of  
23          any activity funded under this subsection.

24          “(7) USE AND APPLICATION OF RESEARCH AND  
25          INFORMATION PROGRAM.—To the maximum extent



1 practicable, the Secretary shall ensure that activities  
 2 funded under this subsection use and apply any rel-  
 3 evant research, best practices, and metrics developed  
 4 under the program established in subsection (c).

5 “(c) REGIONAL INNOVATION RESEARCH AND INFOR-  
 6 MATION PROGRAM.—

7 “(1) IN GENERAL.—As part of the program es-  
 8 tablished under subsection (a), the Secretary shall  
 9 establish a regional innovation research and infor-  
 10 mation program—

11 “(A) to gather, analyze, and disseminate  
 12 information on best practices for regional inno-  
 13 vation strategies (including regional innovation  
 14 clusters), including information relating to how  
 15 innovation, productivity, and economic develop-  
 16 ment can be maximized through such strategies;

17 “(B) to provide technical assistance, in-  
 18 cluding through the development of technical  
 19 assistance guides, for the development and im-  
 20 plementation of regional innovation strategies  
 21 (including regional innovation clusters);

22 “(C) to support the development of rel-  
 23 evant metrics and measurement standards to  
 24 evaluate regional innovation strategies (includ-  
 25 ing regional innovation clusters), including the

1 extent to which such strategies stimulate inno-  
 2 vation, productivity, and economic development;  
 3 and

4 “(D) to collect and make available data on  
 5 regional innovation cluster activity in the  
 6 United States, including data on—

7 “(i) the size, specialization, and com-  
 8 petitiveness of regional innovation clusters;

9 “(ii) the regional domestic product  
 10 contribution, total jobs and earnings by  
 11 key occupations, establishment size, nature  
 12 of specialization, patents, Federal research  
 13 and development spending, and other rel-  
 14 evant information for regional innovation  
 15 clusters; and

16 “(iii) supply chain product and service  
 17 flows within and between regional innova-  
 18 tion clusters.

19 “(2) RESEARCH GRANTS.—The Secretary may  
 20 award research grants on a competitive basis to sup-  
 21 port and further the goals of the program estab-  
 22 lished under this subsection.

23 “(3) DISSEMINATION OF INFORMATION.—Data  
 24 and analysis compiled by the Secretary under the  
 25 program established in this subsection shall be made

1 available to other Federal agencies, State and local  
2 governments, and nonprofit and for-profit entities.

3 ~~“(4) CLUSTER GRANT PROGRAM.—The Sec-~~  
4 ~~retary shall incorporate data and analysis relating to~~  
5 ~~any regional innovation cluster supported by a grant~~  
6 ~~under subsection (b) into the program established~~  
7 ~~under this subsection.~~

8 ~~“(d) INTERAGENCY COORDINATION.—~~

9 ~~“(1) IN GENERAL.—To the maximum extent~~  
10 ~~practicable, the Secretary shall ensure that the ac-~~  
11 ~~tivities carried out under this section are coordinated~~  
12 ~~with, and do not duplicate the efforts of, other pro-~~  
13 ~~grams at the Department of Commerce or other~~  
14 ~~Federal agencies.~~

15 ~~“(2) COLLABORATION.—~~

16 ~~“(A) IN GENERAL.—The Secretary shall~~  
17 ~~explore and pursue collaboration with other~~  
18 ~~Federal agencies, including through multi-~~  
19 ~~agency funding opportunities, on regional inno-~~  
20 ~~vation strategies.~~

21 ~~“(B) SMALL BUSINESSES.—The Secretary~~  
22 ~~shall ensure that such collaboration with Fed-~~  
23 ~~eral agencies prioritizes the needs and chal-~~  
24 ~~lenges of small businesses.~~

25 ~~“(e) EVALUATION.—~~

1           “(1) IN GENERAL.—Not later than 4 years  
 2           after the date of enactment of the America COM-  
 3           PETES Reauthorization Act of 2010, the Secretary  
 4           shall enter into a contract with an independent enti-  
 5           ty, such as the National Academy of Sciences, to  
 6           conduct an evaluation of the program established  
 7           under subsection (a).

8           “(2) REQUIREMENTS.—The evaluation shall in-  
 9           clude—

10                   “(A) whether the program is achieving its  
 11                   goals;

12                   “(B) any recommendations for how the  
 13                   program may be improved; and

14                   “(C) a recommendation as to whether the  
 15                   program should be continued or terminated.

16           “(f) DEFINITIONS.—In this section:

17                   “(1) REGIONAL INNOVATION CLUSTER.—The  
 18                   term ‘regional innovation cluster’ means a geo-  
 19                   graphically bounded network of similar, synergistic,  
 20                   or complementary entities that—

21                           “(A) are engaged in or with a particular  
 22                           industry sector;

23                           “(B) have active channels for business  
 24                           transactions and communication;

1           “(C) share specialized infrastructure, labor  
2           markets, and services; and

3           “(D) leverage the region’s unique competi-  
4           tive strengths to stimulate innovation and cre-  
5           ate jobs.

6           “(2) STATE.—The term ‘State’ means one of  
7           the several States, the District of Columbia, the  
8           Commonwealth of Puerto Rico, the Virgin Islands,  
9           Guam, American Samoa, the Commonwealth of the  
10          Northern Mariana Islands, or any other territory or  
11          possession of the United States.

12          “(g) AUTHORIZATION OF APPROPRIATIONS.—There  
13          are authorized to be appropriated such sums as are nec-  
14          essary for each of fiscal years 2011 through 2015 to carry  
15          out this section, including such sums as are necessary to  
16          carry out the evaluation required under subsection (e).”.

17       **SEC. 604. SCIENCE AND RESEARCH PARKS.**

18          The Stevenson-Wydler Technology Innovation Act of  
19          1980 (15 U.S.C. 3701 et seq.), as amended by section  
20          603, is further amended by adding at the end thereof the  
21          following:

22       **“SEC. 28. SCIENCE AND RESEARCH PARKS.**

23          “(a) ESTABLISHMENT.—Upon the application of an  
24          eligible recipient, the Secretary is authorized to provide  
25          financial assistance under this section for the development

1 and construction of science and research parks to promote  
 2 the clustering of innovation through high technology ac-  
 3 tivities.

4 “(b) DEVELOPMENT OF PLANS FOR CONSTRUCTION  
 5 OF SCIENCE PARKS.—

6 “(1) IN GENERAL.—The Secretary may award  
 7 grants for the development of feasibility studies and  
 8 plans for the construction of new science parks or  
 9 renovation or expansion of existing science parks.

10 “(2) LIMITATION ON AMOUNT OF GRANTS.—  
 11 The amount of a grant awarded under this sub-  
 12 section may not exceed \$750,000.

13 “(3) AWARD.—

14 “(A) COMPETITION REQUIRED.—The Sec-  
 15 retary shall award grants under this subsection  
 16 pursuant to a full and open competition.

17 “(B) GEOGRAPHIC DISPERSION.— In con-  
 18 ducting a competitive process, the Secretary  
 19 shall consider the need to avoid undue geo-  
 20 graphic concentration among any one category  
 21 of States based on their predominate rural or  
 22 urban character as indicated by population den-  
 23 sity.

24 “(C) SELECTION CRITERIA.—The Sec-  
 25 retary shall publish the criteria to be utilized in

1 any competition under this paragraph for the  
2 selection of recipients of grants under this sub-  
3 section, which shall include requirements relat-  
4 ing to the—

5 “(i) effect the science park will have  
6 on regional economic growth and develop-  
7 ment;

8 “(ii) number of jobs to be created at  
9 the science park and the surrounding re-  
10 gional community each year during its first  
11 5 years;

12 “(iii) funding to be required to con-  
13 struct, renovate or expand, the science  
14 park during its first 5 years;

15 “(iv) amount and type of financing  
16 and access to capital available to the appli-  
17 cant;

18 “(v) types of businesses and research  
19 entities expected in the science park and  
20 surrounding regional community;

21 “(vi) letters of intent by businesses  
22 and research entities to locate in the  
23 science park;

24 “(vii) capability to attract a well  
25 trained workforce to the science park;

1           “(viii) the management of the science  
2 park during its first 5 years;

3           “(ix) expected financial risks in the  
4 construction and operation of the science  
5 park and the risk mitigation strategy;

6           “(x) physical infrastructure available  
7 to the science park, including roads, utili-  
8 ties, and telecommunications;

9           “(xi) utilization of energy-efficient  
10 building technology including nationally  
11 recognized green building design practices,  
12 renewable energy, cogeneration, and other  
13 methods that increase energy efficiency  
14 and conservation;

15           “(xii) consideration to the trans-  
16 formation of military bases affected by the  
17 base realignment and closure process  
18 (BRAC) or the redevelopment of existing  
19 buildings, structures, or brownfield sites  
20 that are abandoned, idled, or underused  
21 into single or multiple building facilities for  
22 science and technology companies and in-  
23 stitutions;

24           “(xiii) ability to collaborate with other  
25 science parks throughout the world;



1                   “(xiv) consideration of sustainable de-  
 2                   velopment practices and the quality of life  
 3                   at the science park; and

4                   “(xv) other such criteria as the Sec-  
 5                   retary shall prescribe.

6                   “(4) AUTHORIZATION OF APPROPRIATIONS.—

7                   There are authorized to be appropriated \$7,500,000  
 8                   for each of the fiscal years 2011 through 2015 to  
 9                   carry out this subsection.

10                  “(c) LOAN GUARANTEES FOR SCIENCE PARK INFRA-  
 11                  STRUCTURE.—

12                  “(1) IN GENERAL.—Subject to paragraph (2),  
 13                  the Secretary may guarantee up to 80 percent of the  
 14                  loan amount for projects for the construction or ex-  
 15                  pansion, including renovation and modernization, of  
 16                  science park infrastructure.

17                  “(2) LIMITATIONS ON GUARANTEE AMOUNTS.—

18                  The maximum amount of loan principal guaranteed  
 19                  under this subsection may not exceed—

20                         “(A) \$50,000,000 with respect to any  
 21                         single project; and

22                         “(B) \$500,000,000 with respect to all  
 23                         projects.

24                  “(3) SELECTION OF GUARANTEE RECIPI-  
 25                  ENTS.—The Secretary shall select recipients of loan

1       guarantees under this subsection based upon the  
 2       ability of the recipient to collateralize the loan  
 3       amount through bonds, equity, property, and such  
 4       other things of values as the Secretary shall deem  
 5       necessary. Recipients of grants under subsection (a)  
 6       are not eligible for a loan guarantee during the pe-  
 7       riod of the grant. To the extent that the Secretary  
 8       determines it to be feasible, the Secretary may select  
 9       recipients of guarantee assistance in accord with a  
 10      competitive process that takes into account the fac-  
 11      tors set out in subsection (c) of this section.

12           ~~“(4) TERMS AND CONDITIONS FOR LOAN GUAR-~~  
 13      ~~ANTEES.—~~The loans guaranteed under this sub-  
 14      section shall be subject to such terms and conditions  
 15      as the Secretary may prescribe, except that—

16           ~~“(A) the final maturity of such loans made~~  
 17           ~~or guaranteed may not exceed the lesser of—~~

18                   ~~“(i) 30 years; or~~

19                   ~~“(ii) 90 percent of the useful life of~~  
 20                   ~~any physical asset to be financed by the~~  
 21                   ~~loan;~~

22           ~~“(B) a loan guaranteed under this sub-~~  
 23           ~~section may not be subordinated to another~~  
 24           ~~debt contracted by the borrower or to any other~~

1       claims against the borrowers in the case of de-  
2       fault;

3               ~~“(C) a loan may not be guaranteed under~~  
4       this subsection unless the Secretary determines  
5       that the lender is responsible and that provision  
6       is made for servicing the loan on reasonable  
7       terms and in a manner that adequately protects  
8       the financial interest of the United States;

9               ~~“(D) a loan may not be guaranteed under~~  
10      this subsection if—

11               ~~“(i) the income from the loan is ex-~~  
12      cluded from gross income for purposes of  
13      chapter 1 of the Internal Revenue Code of  
14      1986; or

15               ~~“(ii) the guarantee provides signifi-~~  
16      cant collateral or security, as determined  
17      by the Secretary in coordination with the  
18      Secretary of the Treasury, for other obliga-  
19      tions the income from which is so excluded;

20               ~~“(E) any guarantee provided under this~~  
21      subsection shall be conclusive evidence that—

22               ~~“(i) the guarantee has been properly~~  
23      obtained;

24               ~~“(ii) the underlying loan qualified for~~  
25      the guarantee; and

1           ~~“(iii) absent fraud or material mis-~~  
 2           ~~representation by the holder, the guarantee~~  
 3           ~~is presumed to be valid, legal, and enforce-~~  
 4           ~~able;~~

5           ~~“(F) the Secretary may not extend credit~~  
 6           ~~assistance unless the Secretary has determined~~  
 7           ~~that there is a reasonable assurance of repay-~~  
 8           ~~ment; and~~

9           ~~“(G) new loan guarantees may not be com-~~  
 10          ~~mitted except to the extent that appropriations~~  
 11          ~~of budget authority to cover their costs are~~  
 12          ~~made in advance, as required under section 504~~  
 13          ~~of the Federal Credit Reform Act of 1990 (2~~  
 14          ~~U.S.C. 661e).~~

15          ~~“(5) PAYMENT OF LOSSES.—~~

16          ~~“(A) IN GENERAL.—If, as a result of a de-~~  
 17          ~~fault by a borrower under a loan guaranteed~~  
 18          ~~under this subsection, after the holder has~~  
 19          ~~made such further collection efforts and insti-~~  
 20          ~~tuted such enforcement proceedings as the Sec-~~  
 21          ~~retary may require, the Secretary determines~~  
 22          ~~that the holder has suffered a loss, the Sec-~~  
 23          ~~retary shall pay to the holder the percentage of~~  
 24          ~~the loss specified in the guarantee contract.~~  
 25          ~~Upon making any such payment, the Secretary~~

1 shall be subrogated to all the rights of the re-  
 2 cipient of the payment. The Secretary shall be  
 3 entitled to recover from the borrower the  
 4 amount of any payments made pursuant to any  
 5 guarantee entered into under this section.

6 “(B) ENFORCEMENT OF RIGHTS.—The At-  
 7 torney General shall take such action as may be  
 8 appropriate to enforce any right accruing to the  
 9 United States as a result of the issuance of any  
 10 guarantee under this section.

11 “(C) FORBEARANCE.—Nothing in this sec-  
 12 tion may be construed to preclude any forbear-  
 13 ance for the benefit of the borrower which may  
 14 be agreed upon by the parties to the guaranteed  
 15 loan and approved by the Secretary, if budget  
 16 authority for any resulting subsidy costs (as de-  
 17 fined in section 502(5) of the Federal Credit  
 18 Reform Act of 1990) is available.

19 “(6) REVIEW.—

20 “(A) The Secretary shall periodically as-  
 21 sess the credit risk of new and existing direct  
 22 loans or guaranteed loans.

23 “(B) Not later than 2 years after the date  
 24 of the enactment of the America COMPETES

1           Reauthorization Act of 2010, the Comptroller  
2           General of the United States shall—

3                   “(i) conduct a review of the subsidy  
4                   estimates for the loan guarantees under  
5                   this subsection; and

6                   “(ii) submit to Congress a report on  
7                   the review conducted under this paragraph.

8           ~~“(7) TERMINATION.—A loan may not be guar-~~  
9           ~~anteed under this subsection after September 30,~~  
10          ~~2015.~~

11          ~~“(8) AUTHORIZATION OF APPROPRIATIONS.—~~  
12          ~~There are authorized to be appropriated—~~

13                   ~~“(A) such sums as are necessary annually~~  
14                   ~~for the cost (as defined in section 502(5) of the~~  
15                   ~~Federal Credit Reform Act of 1990) of guaran-~~  
16                   ~~teeing \$500,000,000 in loans under this sub-~~  
17                   ~~section; and~~

18                   ~~“(B) such sums as may be necessary for~~  
19                   ~~administrative expenses in fiscal year 2011 and~~  
20                   ~~thereafter,~~

21          ~~such sums to remain available until expended.~~

22          ~~“(d) SCIENCE PARK DEFINED.—In this section, the~~  
23          ~~term ‘science park’ means a property-based venture that—~~

24                   ~~“(1) has—~~

1           “(A) master-planned property and build-  
2           ings designed primarily for private-public re-  
3           search and development activities; high tech-  
4           nology and science-based companies; and re-  
5           search and development support services;

6           “(B) a contractual or operational relation-  
7           ship with one or more science- or research-re-  
8           lated institution of higher education or govern-  
9           mental or non-profit research laboratories;

10          “(C) as its primary mission the promotion  
11          of research and development through industry  
12          partnerships; assisting in the growth of new  
13          ventures; and promoting innovation-driven eco-  
14          nomic development;

15          “(D) a role in facilitating the transfer of  
16          technology and business skills between research-  
17          ers and industry teams; and

18          “(E) a role in promoting technology-led  
19          economic development for the community or re-  
20          gion in which the science park is located;

21          “(2) is owned by a governmental or not-for-  
22          profit entity; and

23          “(3) may enter into partnerships or joint ven-  
24          tures with for-profit entities for development or  
25          management of specific components of the park.”.

# TITLE VII—GENERAL PROVISIONS

## SEC. 701. GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.

Not later than May 31, 2013, the Comptroller General of the United States shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science and Technology that evaluates the status of the programs authorized in this Act, including the extent to which such programs have been funded, implemented, and are contributing to achieving the goals of the Act.

## SEC. 702. SALARY RESTRICTIONS.

### (a) OBSCENE MATTER ON FEDERAL PROPERTY.—

None of the funds authorized under this Act may be used to pay the salary of any individual who is convicted of violating section 1460 of title 18, United States Code.

### (b) USE OF FEDERAL COMPUTERS FOR CHILD POR-

### NOGRAPHY OR EXPLOITATION OF MINORS.—None of the

funds authorized under this Act may be used to pay the

salary of any individual who is convicted of a violation of

section 2252 of title 18, United States Code.

## SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) *SHORT TITLE.*—This Act may be cited as the

“America COMPETES Reauthorization Act of 2010” or the

“America Creating Opportunities to Meaningfully Promote



1 *Excellence in Technology, Education, and Science Reau-*  
 2 *thorization Act of 2010”.*

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

*Sec. 1. Short title; table of contents.*

*Sec. 2. Definitions.*

#### *TITLE I—OFFICE OF SCIENCE AND TECHNOLOGY POLICY*

*Sec. 101. Coordination of Federal STEM education.*

*Sec. 102. Coordination of advanced manufacturing research and development.*

*Sec. 103. Interagency public access committee.*

*Sec. 104. Federal scientific collections.*

*Sec. 105. Prize competitions.*

#### *TITLE II—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION*

*Sec. 201. NASA’s contribution to innovation and competitiveness.*

*Sec. 202. NASA’s contribution to education.*

*Sec. 203. International Space Station’s contribution to national competitiveness  
enhancement.*

*Sec. 204. Definitions.*

#### *TITLE III—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION*

*Sec. 301. Oceanic and atmospheric research and development program.*

*Sec. 302. Oceanic and atmospheric science education programs.*

*Sec. 303. Workforce study.*

#### *TITLE IV—NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY*

*Sec. 401. Short title.*

*Sec. 402. Authorization of appropriations.*

*Sec. 403. Under Secretary of Commerce for Standards and Technology.*

*Sec. 404. Manufacturing Extension Partnership.*

*Sec. 405. Emergency communication and tracking technologies research initia-  
tive.*

*Sec. 406. Broadening participation.*

*Sec. 407. NIST Fellowships.*

*Sec. 408. Green manufacturing and construction.*

*Sec. 409. Definitions.*

#### *TITLE V—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS SUPPORT PROGRAMS*

##### *SUBTITLE A—NATIONAL SCIENCE FOUNDATION*

*Sec. 501. Short title.*

*Sec. 502. Definitions.*

*Sec. 503. Authorization of appropriations.*

*Sec. 504. National Science Board administrative amendments.*

*Sec. 505. National Center for Science and Engineering statistics.*

- Sec. 506. National Science Foundation manufacturing research and education.*
- Sec. 507. National Science Board report on mid-scale instrumentation.*
- Sec. 508. Partnerships for innovation.*
- Sec. 509. Sustainable chemistry basic research.*
- Sec. 510. Graduate student support.*
- Sec. 511. Robert Noyce teacher scholarship program.*
- Sec. 512. Undergraduate broadening participation program.*
- Sec. 513. Research experiences for high school students.*
- Sec. 514. Research experiences for undergraduates.*
- Sec. 515. STEM industry internship programs.*
- Sec. 516. Cyber-enabled learning for national challenges.*
- Sec. 517. Experimental Program to Stimulate Competitive Research.*
- Sec. 518. Sense of the Senate regarding the science, technology, engineering, and mathematics talent expansion program.*
- Sec. 519. Sense of the Senate regarding the National Science Foundation's contributions to basic research and education.*
- Sec. 520. Grantee reports on commercialization strategy and results.*
- Sec. 521. Study to develop improved impact-on-society metrics.*
- Sec. 522. NSF grants in support of sponsored post-doctoral fellowship programs.*
- Sec. 523. Collaboration in planning for stewardship of large-scale facilities.*
- Sec. 524. Cloud computing research enhancement.*
- Sec. 525. Tribal colleges and universities program.*

#### *SUBTITLE B—STEM-TRAINING GRANT PROGRAM*

- Sec. 551. Purpose.*
- Sec. 552. Program requirements.*
- Sec. 553. Grant program.*
- Sec. 554. Grant oversight and administration.*
- Sec. 555. Definitions.*
- Sec. 556. Authorization of appropriations.*

#### *TITLE VI—INNOVATION*

- Sec. 601. Office of innovation and entrepreneurship.*
- Sec. 602. Federal loan guarantees for innovative technologies in manufacturing.*
- Sec. 603. Regional innovation program.*
- Sec. 604. Study on economic competitiveness and innovative capacity of United States and development of national economic competitiveness strategy.*
- Sec. 605. Promoting use of high-end computing simulation and modeling by small- and medium-sized manufacturers.*

#### *TITLE VII—NIST GREEN JOBS*

- Sec. 701. Short title.*
- Sec. 702. Findings.*
- Sec. 703. National Institute of Standards and Technology competitive grant program.*

#### *TITLE VIII—GENERAL PROVISIONS*

- Sec. 801. Government Accountability Office review.*
- Sec. 802. Salary restrictions.*
- Sec. 803. Additional research authorities of the FCC.*

1 **SEC. 2. DEFINITIONS.**

2 *In this Act:*

3 (1) *DIRECTOR.*—*In title I, the term “Director”*  
 4 *means the Director of the Office of Science and Tech-*  
 5 *nology Policy.*

6 (2) *STEM.*—*The term “STEM” means the aca-*  
 7 *demic and professional disciplines of science, tech-*  
 8 *nology, engineering, and mathematics.*

9 **TITLE I—OFFICE OF SCIENCE**  
 10 **AND TECHNOLOGY POLICY**

11 **SEC. 101. COORDINATION OF FEDERAL STEM EDUCATION.**

12 (a) *ESTABLISHMENT.*—*The Director shall establish a*  
 13 *committee under the National Science and Technology*  
 14 *Council, including the Office of Management and Budget,*  
 15 *with the responsibility to coordinate Federal programs and*  
 16 *activities in support of STEM education, including at the*  
 17 *National Science Foundation, the Department of Energy,*  
 18 *the National Aeronautics and Space Administration, the*  
 19 *National Oceanic and Atmospheric Administration, the De-*  
 20 *partment of Education, and all other Federal agencies that*  
 21 *have programs and activities in support of STEM edu-*  
 22 *cation.*

23 (b) *RESPONSIBILITIES.*—*The committee established*  
 24 *under subsection (a) shall—*

25 (1) *coordinate the STEM education activities*  
 26 *and programs of the Federal agencies;*

1           (2) *coordinate STEM education activities and*  
2           *programs with the Office of Management and Budget;*

3           (3) *encourage the teaching of innovation and en-*  
4           *trepreneurship as part of STEM education activities;*

5           (4) *review STEM education activities and pro-*  
6           *grams to ensure they are not duplicative of similar ef-*  
7           *forts within the Federal government;*

8           (5) *develop, implement through the participating*  
9           *agencies, and update once every 5 years a 5-year*  
10          *STEM education strategic plan, which shall—*

11                (A) *specify and prioritize annual and long-*  
12                *term objectives;*

13                (B) *specify the common metrics that will be*  
14                *used to assess progress toward achieving the ob-*  
15                *jectives;*

16                (C) *describe the approaches that will be*  
17                *taken by each participating agency to assess the*  
18                *effectiveness of its STEM education programs*  
19                *and activities; and*

20                (D) *with respect to subparagraph (A), de-*  
21                *scribe the role of each agency in supporting pro-*  
22                *grams and activities designed to achieve the ob-*  
23                *jectives; and*

24           (6) *establish, periodically update, and maintain*  
25          *an inventory of federally sponsored STEM education*

1        *programs and activities, including documentation of*  
2        *assessments of the effectiveness of such programs and*  
3        *activities and rates of participation by women,*  
4        *underrepresented minorities, and persons in rural*  
5        *areas in such programs and activities.*

6        *(b) RESPONSIBILITIES OF OSTP.—The Director shall*  
7        *encourage and monitor the efforts of the participating agen-*  
8        *cies to ensure that the strategic plan under subsection (b)(5)*  
9        *is developed and executed effectively and that the objectives*  
10       *of the strategic plan are met.*

11       *(c) REPORT.—The Director shall transmit a report an-*  
12       *nually to Congress at the time of the President’s budget re-*  
13       *quest describing the plan required under subsection (b)(5).*  
14       *The annual report shall include—*

15                *(1) a description of the STEM education pro-*  
16        *grams and activities for the previous and current fis-*  
17        *cal years, and the proposed programs and activities*  
18        *under the President’s budget request, of each partici-*  
19        *parting Federal agency;*

20                *(2) the levels of funding for each participating*  
21        *Federal agency for the programs and activities de-*  
22        *scribed under paragraph (1) for the previous fiscal*  
23        *year and under the President’s budget request;*

1           (3) *an evaluation of the levels of duplication and*  
 2           *fragmentation of the programs and activities de-*  
 3           *scribed under paragraph (1)*

4           (4) *except for the initial annual report, a de-*  
 5           *scription of the progress made in carrying out the im-*  
 6           *plementation plan, including a description of the out-*  
 7           *come of any program assessments completed in the*  
 8           *previous year, and any changes made to that plan*  
 9           *since the previous annual report; and*

10          (5) *a description of how the participating Fed-*  
 11          *eral agencies will disseminate information about fed-*  
 12          *erally supported resources for STEM education prac-*  
 13          *titioners, including teacher professional development*  
 14          *programs, to States and to STEM education practi-*  
 15          *tioners, including to teachers and administrators in*  
 16          *schools that meet the criteria described in subsection*  
 17          *(c)(1)(A) and (B) of section 3175 of the Department*  
 18          *of Energy Science Education Enhancement Act (42*  
 19          *U.S.C. 7381j(c)(1)(A) and (B)).*

20   **SEC. 102. COORDINATION OF ADVANCED MANUFACTURING**  
 21                           **RESEARCH AND DEVELOPMENT.**

22          (a) *INTERAGENCY COMMITTEE.*—*The Director shall es-*  
 23          *tablish or designate a Committee on Technology under the*  
 24          *National Science and Technology Council. The Committee*  
 25          *shall be responsible for planning and coordinating Federal*

1 *programs and activities in advanced manufacturing re-*  
2 *search and development.*

3 (b) *RESPONSIBILITIES OF COMMITTEE.*—*The Com-*  
4 *mittee shall—*

5 (1) *coordinate the advanced manufacturing re-*  
6 *search and development programs and activities of*  
7 *the Federal agencies;*

8 (2) *establish goals and priorities for advanced*  
9 *manufacturing research and development that will*  
10 *strengthen United States manufacturing;*

11 (3) *work with industry organizations, Federal*  
12 *agencies, and Federally Funded Research and Devel-*  
13 *opment Centers not represented on the Committee, to*  
14 *identify and reduce regulatory, logistical, and fiscal*  
15 *barriers within the Federal government and State*  
16 *governments that inhibit United States manufac-*  
17 *turing;*

18 (4) *facilitate the transfer of intellectual property*  
19 *and technology based on federally supported univer-*  
20 *sity research into commercialization and manufac-*  
21 *turing;*

22 (5) *identify technological, market, or business*  
23 *challenges that may best be addressed by public-pri-*  
24 *vate partnerships, and are likely to attract both par-*  
25 *ticipation and primary funding from industry;*

1           (6) encourage the formation of public-private  
2           partnerships to respond to those challenges for transi-  
3           tion to United States manufacturing; and

4           (7) develop, and update every 5 years, a strategic  
5           plan to guide Federal programs and activities in sup-  
6           port of advanced manufacturing research and devel-  
7           opment, which shall—

8                   (A) specify and prioritize near-term and  
9                   long-term research and development objectives,  
10                  the anticipated time frame for achieving the ob-  
11                  jectives, and the metrics for use in assessing  
12                  progress toward the objectives;

13                  (B) specify the role of each Federal agency  
14                  in carrying out or sponsoring research and de-  
15                  velopment to meet the objectives of the strategic  
16                  plan;

17                  (C) describe how the Federal agencies and  
18                  Federally Funded Research and Development  
19                  Centers supporting advanced manufacturing re-  
20                  search and development will foster the transfer of  
21                  research and development results into new man-  
22                  ufacturing technologies and United States based  
23                  manufacturing of new products and processes for  
24                  the benefit of society to ensure national, energy,  
25                  and economic security;



1           (D) describe how Federal agencies and Fed-  
2           erally Funded Research and Development Cen-  
3           ters supporting advanced manufacturing re-  
4           search and development will strengthen all levels  
5           of manufacturing education and training pro-  
6           grams to ensure an adequate, well-trained work-  
7           force;

8           (E) describe how the Federal agencies and  
9           Federally Funded Research and Development  
10          Centers supporting advanced manufacturing re-  
11          search and development will assist small- and  
12          medium-sized manufacturers in developing and  
13          implementing new products and processes; and

14          (F) take into consideration the rec-  
15         ommendations of a wide range of stakeholders,  
16         including representatives from diverse manufac-  
17         turing companies, academia, and other relevant  
18         organizations and institutions.

19          (c) *REPORT*.—Not later than 1 year after the date of  
20          enactment of this Act, the Director shall transmit the stra-  
21          tegic plan developed under subsection (b)(7) to the Senate  
22          Committee on Commerce, Science, and Transportation, and  
23          the House of Representatives Committee on Science and  
24          Technology, and shall transmit subsequent updates to those  
25          committees as appropriate.

1 **SEC. 103. INTERAGENCY PUBLIC ACCESS COMMITTEE.**

2       (a) *ESTABLISHMENT.*—*The Director shall establish a*  
3 *working group under the National Science and Technology*  
4 *Council with the responsibility to coordinate Federal*  
5 *science agency research and policies related to the dissemi-*  
6 *nation and long-term stewardship of the results of unclassi-*  
7 *fied research, including digital data and peer-reviewed*  
8 *scholarly publications, supported wholly, or in part, by*  
9 *funding from the Federal science agencies.*

10       (b) *RESPONSIBILITIES.*—*The working group shall—*

11               (1) *identify the specific objectives and public in-*  
12 *terests that need to be addressed by any policies co-*  
13 *ordinated under (a);*

14               (2) *take into account inherent variability among*  
15 *Federal science agencies and scientific disciplines in*  
16 *the nature of research, types of data, and dissemina-*  
17 *tion models;*

18               (3) *coordinate the development or designation of*  
19 *standards for research data, the structure of full text*  
20 *and metadata, navigation tools, and other applica-*  
21 *tions to maximize interoperability across Federal*  
22 *science agencies, across science and engineering dis-*  
23 *ciplines, and between research data and scholarly*  
24 *publications, taking into account existing consensus*  
25 *standards, including international standards;*

1           (4) *coordinate Federal science agency programs*  
2           *and activities that support research and education on*  
3           *tools and systems required to ensure preservation and*  
4           *stewardship of all forms of digital research data, in-*  
5           *cluding scholarly publications;*

6           (5) *work with international science and tech-*  
7           *nology counterparts to maximize interoperability be-*  
8           *tween United States based unclassified research data-*  
9           *bases and international databases and repositories;*

10          (6) *solicit input and recommendations from, and*  
11          *collaborate with, non-Federal stakeholders, including*  
12          *the public, universities, nonprofit and for-profit pub-*  
13          *lishers, libraries, federally funded and non federally*  
14          *funded research scientists, and other organizations*  
15          *and institutions with a stake in long term preserva-*  
16          *tion and access to the results of federally funded re-*  
17          *search;*

18          (7) *establish priorities for coordinating the devel-*  
19          *opment of any Federal science agency policies related*  
20          *to public access to the results of federally funded re-*  
21          *search to maximize the benefits of such policies with*  
22          *respect to their potential economic or other impact on*  
23          *the science and engineering enterprise and the stake-*  
24          *holders thereof;*

1           (8) *take into consideration the distinction be-*  
2           *tween scholarly publications and digital data;*

3           (9) *take into consideration the role that scientific*  
4           *publishers play in the peer review process in ensuring*  
5           *the integrity of the record of scientific research, in-*  
6           *cluding the investments and added value that they*  
7           *make; and*

8           (10) *examine Federal agency practices and pro-*  
9           *cedures for providing research reports to the agencies*  
10          *charged with locating and preserving unclassified re-*  
11          *search.*

12          (c) *PATENT OR COPYRIGHT LAW.*—*Nothing in this sec-*  
13          *tion shall be construed to undermine any right under the*  
14          *provisions of title 17 or 35, United States Code.*

15          (d) *APPLICATION WITH EXISTING LAW.*—*Nothing de-*  
16          *finied in section (b) shall be construed to affect existing law*  
17          *with respect to Federal science agencies' policies related to*  
18          *public access.*

19          (e) *REPORT TO CONGRESS.*—*Not later than 1 year*  
20          *after the date of enactment of this Act, the Director shall*  
21          *transmit a report to Congress describing—*

22                 (1) *the specific objectives and public interest*  
23                 *identified under (b)(1);*

24                 (2) *any priorities established under subsection*  
25                 *(b)(7);*

1           (3) *the impact the policies described under (a)*  
 2           *have had on the science and engineering enterprise*  
 3           *and the stakeholders, including the financial impact*  
 4           *on research budgets;*

5           (4) *the status of any Federal science agency poli-*  
 6           *cies related to public access to the results of federally*  
 7           *funded research; and*

8           (5) *how any policies developed or being developed*  
 9           *by Federal science agencies, as described in subsection*  
 10          *(a), incorporate input from the non-Federal stake-*  
 11          *holders described in subsection (b)(6).*

12          (f) *FEDERAL SCIENCE AGENCY DEFINED.—For the*  
 13          *purposes of this section, the term “Federal science agency”*  
 14          *means any Federal agency with an annual extramural re-*  
 15          *search expenditure of over \$100,000,000.*

16   **SEC. 104. FEDERAL SCIENTIFIC COLLECTIONS.**

17          (a) *MANAGEMENT OF SCIENTIFIC COLLECTIONS.—The*  
 18          *Office of Science and Technology Policy shall develop poli-*  
 19          *cies for the management and use of Federal scientific collec-*  
 20          *tions to improve the quality, organization, access, including*  
 21          *online access, and long-term preservation of such collections*  
 22          *for the benefit of the scientific enterprise. In developing*  
 23          *those policies the Office of Science and Technology Policy*  
 24          *shall consult, as appropriate, with—*

25               (1) *Federal agencies with such collections; and*

1           (2) *representatives of other organizations, insti-*  
 2           *tutions, and other entities not a part of the Federal*  
 3           *Government that have a stake in the preservation,*  
 4           *maintenance, and accessibility of such collections, in-*  
 5           *cluding State and local government agencies, institu-*  
 6           *tions of higher education, museums, and other entities*  
 7           *engaged in the acquisition, holding, management, or*  
 8           *use of scientific collections.*

9           (b) *CLEARINGHOUSE.*—*The Office of Science and Tech-*  
 10          *nology Policy, in consultation with relevant Federal agen-*  
 11          *cies, shall ensure the development of an online clearinghouse*  
 12          *for information on the contents of and access to Federal*  
 13          *scientific collections.*

14          (c) *DISPOSAL OF COLLECTIONS.*—*The policies devel-*  
 15          *oped under subsection (a) shall—*

16               (1) *require that, before disposing of a scientific*  
 17               *collection, a Federal agency shall—*

18                       (A) *conduct a review of the research value*  
 19                       *of the collection; and*

20                       (B) *consult with researchers who have used*  
 21                       *the collection, and other potentially interested*  
 22                       *parties, concerning—*

23                               (i) *the collection's value for research*  
 24                               *purposes; and*

1                   (ii) possible additional educational  
2                   uses for the collection; and

3           (2) include procedures for Federal agencies to  
4           transfer scientific collections they no longer need to  
5           researchers at institutions or other entities qualified  
6           to manage the collections.

7           (d) *COST PROJECTIONS.*—The Office of Science and  
8           Technology Policy, in consultation with relevant Federal  
9           agencies, shall develop a common set of methodologies to be  
10          used by Federal agencies for the assessment and projection  
11          of costs associated with the management and preservation  
12          of their scientific collections.

13          (e) *SCIENTIFIC COLLECTION DEFINED.*—In this sec-  
14          tion, the term “scientific collection” means a set of physical  
15          specimens, living or inanimate, created for the purpose of  
16          supporting science and serving as a long-term research  
17          asset, rather than for their market value as collectibles or  
18          their historical, artistic, or cultural significance, and, as  
19          appropriate and feasible, the associated specimen data and  
20          materials.

21   **SEC. 105. PRIZE COMPETITIONS.**

22          (a) *IN GENERAL.*—The Stevenson-Wydler Technology  
23          Innovation Act of 1980 (15 U.S.C. 3701 et seq.) is amended  
24          by adding at the end the following:

1 **“SEC. 24. PRIZE COMPETITIONS.**

2 “(a) *DEFINITIONS.—In this section:*

3 “(1) *AGENCY.—The term ‘agency’ means a Fed-*  
4 *eral agency.*

5 “(2) *DIRECTOR.—The term ‘Director’ means the*  
6 *Director of the Office of Science and Technology Pol-*  
7 *icy.*

8 “(3) *FEDERAL AGENCY.—The term ‘Federal*  
9 *agency’ has the meaning given under section 4, except*  
10 *that term shall not include any agency of the legisla-*  
11 *tive branch of the Federal Government.*

12 “(4) *HEAD OF AN AGENCY.—The term ‘head of*  
13 *an agency’ means the head of a Federal agency.*

14 “(b) *IN GENERAL.—Each head of an agency, or the*  
15 *heads of multiple agencies in cooperation, may carry out*  
16 *a program to award prizes competitively to stimulate inno-*  
17 *vation that has the potential to advance the mission of the*  
18 *respective agency.*

19 “(c) *PRIZES.—For purposes of this section, a prize*  
20 *may be one or more of the following:*

21 “(1) *A point solution prize that rewards and*  
22 *spurs the development of solutions for a particular,*  
23 *well-defined problem.*

24 “(2) *An exposition prize that helps identify and*  
25 *promote a broad range of ideas and practices that*  
26 *may not otherwise attract attention, facilitating fur-*



1        *ther development of the idea or practice by third par-*  
 2        *ties.*

3                *“(3) Participation prizes that create value dur-*  
 4        *ing and after the competition by encouraging contest-*  
 5        *ants to change their behavior or develop new skills*  
 6        *that may have beneficial effects during and after the*  
 7        *competition.*

8                *“(4) Such other types of prizes as each head of*  
 9        *an agency considers appropriate to stimulate innova-*  
 10       *tion that has the potential to advance the mission of*  
 11       *the respective agency.*

12               *“(d) TOPICS.—In selecting topics for prize competi-*  
 13       *tions, the head of an agency shall consult widely both with-*  
 14       *in and outside the Federal Government, and may empanel*  
 15       *advisory committees.*

16               *“(e) ADVERTISING.—The head of an agency shall wide-*  
 17       *ly advertise each prize competition to encourage broad par-*  
 18       *ticipation.*

19               *“(f) REQUIREMENTS AND REGISTRATION.—For each*  
 20       *prize competition, the head of an agency shall publish a*  
 21       *notice in the Federal Register announcing—*

22                        *“(1) the subject of the competition;*

23                        *“(2) the rules for being eligible to participate in*  
 24       *the competition;*

1           “(3) the process for participants to register for  
2       the competition;

3           “(4) the amount of the prize; and

4           “(5) the basis on which a winner will be selected.

5           “(g) *ELIGIBILITY.*—To be eligible to win a prize under  
6 this section, an individual or entity—

7           “(1) shall have registered to participate in the  
8 competition under any rules promulgated by the head  
9 of an agency under subsection (f);

10          “(2) shall have complied with all the require-  
11 ments under this section;

12          “(3) in the case of a private entity, shall be in-  
13 corporated in and maintain a primary place of busi-  
14 ness in the United States, and in the case of an indi-  
15 vidual, whether participating singly or in a group,  
16 shall be a citizen or permanent resident of the United  
17 States; and

18          “(4) may not be a Federal entity or Federal em-  
19 ployee acting within the scope of their employment.

20          “(h) *CONSULTATION WITH FEDERAL EMPLOYEES.*—  
21 An individual or entity shall not be deemed ineligible under  
22 subsection (g) because the individual or entity used Federal  
23 facilities or consulted with Federal employees during a com-  
24 petition if the facilities and employees are made available

1 *to all individuals and entities participating in the competi-*  
 2 *tion on an equitable basis.*

3 “(i) *LIABILITY.*—

4 “(1) *IN GENERAL.*—

5 “(A) *DEFINITION.*—*In this paragraph, the*  
 6 *term ‘related entity’ means a contractor or sub-*  
 7 *contractor at any tier, and a supplier, user, cus-*  
 8 *tomers, cooperating party, grantee, investigator,*  
 9 *or detailee.*

10 “(B) *LIABILITY.*—*Registered participants*  
 11 *shall be required to agree to assume any and all*  
 12 *risks and waive claims against the Federal Gov-*  
 13 *ernment and its related entities, except in the*  
 14 *case of willful misconduct, for any injury, death,*  
 15 *damage, or loss of property, revenue, or profits,*  
 16 *whether direct, indirect, or consequential, arising*  
 17 *from their participation in a competition,*  
 18 *whether the injury, death, damage, or loss arises*  
 19 *through negligence or otherwise.*

20 “(2) *INSURANCE.*—*Participants shall be required*  
 21 *to obtain liability insurance or demonstrate financial*  
 22 *responsibility, in amounts determined by the head of*  
 23 *an agency, for claims by—*

24 “(A) *a third party for death, bodily injury,*  
 25 *or property damage, or loss resulting from an*

1        *activity carried out in connection with partici-*  
 2        *pation in a competition, with the Federal Gov-*  
 3        *ernment named as an additional insured under*  
 4        *the registered participant's insurance policy and*  
 5        *registered participants agreeing to indemnify the*  
 6        *Federal Government against third party claims*  
 7        *for damages arising from or related to competi-*  
 8        *tion activities; and*

9                *“(B) the Federal Government for damage or*  
 10        *loss to Government property resulting from such*  
 11        *an activity.*

12                *“(3) EXCEPTION.—The head of an agency may*  
 13        *not require a participant to waive claims against the*  
 14        *administering entity arising out of the unauthorized*  
 15        *use or disclosure by the agency of the intellectual*  
 16        *property, trade secrets, or confidential business infor-*  
 17        *mation of the participant.*

18                *“(j) INTELLECTUAL PROPERTY.—*

19                *“(1) PROHIBITION ON THE GOVERNMENT AC-*  
 20        *QUIRING INTELLECTUAL PROPERTY RIGHTS.—The*  
 21        *Federal Government may not gain an interest in in-*  
 22        *tellectual property developed by a participant in a*  
 23        *competition without the written consent of the partic-*  
 24        *ipant.*

1           “(2) *LICENSES.*—*The Federal Government may*  
 2           *negotiate a license for the use of intellectual property*  
 3           *developed by a participant for a competition.*

4           “(k) *JUDGES.*—

5           “(1) *IN GENERAL.*—*For each competition, the*  
 6           *head of an agency, either directly or through an*  
 7           *agreement under subsection (l), shall appoint one or*  
 8           *more qualified judges to select the winner or winners*  
 9           *of the prize competition on the basis described under*  
 10          *subsection (f). Judges for each competition may in-*  
 11          *clude individuals from outside the agency, including*  
 12          *from the private sector.*

13          “(2) *RESTRICTIONS.*—*A judge may not—*

14                 “(A) *have personal or financial interests in,*  
 15                 *or be an employee, officer, director, or agent of*  
 16                 *any entity that is a registered participant in a*  
 17                 *competition; or*

18                 “(B) *have a familial or financial relation-*  
 19                 *ship with an individual who is a registered par-*  
 20                 *ticipant.*

21          “(3) *GUIDELINES.*—*The heads of agencies who*  
 22          *carry out competitions under this section shall de-*  
 23          *velop guidelines to ensure that the judges appointed*  
 24          *for such competitions are fairly balanced and operate*  
 25          *in a transparent manner.*

1           “(4) *EXEMPTION FROM FACA.*—*The Federal Ad-*  
 2           *visory Committee Act (5 U.S.C. App.) shall not apply*  
 3           *to any committee, board, commission, panel, task*  
 4           *force, or similar entity, created solely for the purpose*  
 5           *of judging prize competitions under this section.*

6           “(l) *ADMINISTERING THE COMPETITION.*—*The head of*  
 7           *an agency may enter into an agreement with a private,*  
 8           *nonprofit entity to administer a prize competition, subject*  
 9           *to the provisions of this section.*

10          “(m) *FUNDING.*—

11           “(1) *IN GENERAL.*—*Support for a prize competi-*  
 12           *tion under this section, including financial support*  
 13           *for the design and administration of a prize or funds*  
 14           *for a monetary prize purse, may consist of Federal*  
 15           *appropriated funds and funds provided by the private*  
 16           *sector for such cash prizes. The head of an agency*  
 17           *may accept funds from other Federal agencies to sup-*  
 18           *port such competitions. The head of an agency may*  
 19           *not give any special consideration to any private sec-*  
 20           *tor entity in return for a donation.*

21           “(2) *AVAILABILITY OF FUNDS.*—*Notwithstanding*  
 22           *any other provision of law, funds appropriated for*  
 23           *prize awards under this section shall remain avail-*  
 24           *able until expended. No provision in this section per-*

mits obligation or payment of funds in violation of  
section 1341 of title 31, United States Code.

“(3) *AMOUNT OF PRIZE.*—

“(A) *ANNOUNCEMENT.*—No prize may be  
announced under subsection (f) until all the  
funds needed to pay out the announced amount  
of the prize have been appropriated or committed  
in writing by a private source.

“(B) *INCREASE IN AMOUNT.*—The head of  
an agency may increase the amount of a prize  
after an initial announcement is made under  
subsection (f) only if—

“(i) notice of the increase is provided  
in the same manner as the initial notice of  
the prize; and

“(ii) the funds needed to pay out the  
announced amount of the increase have been  
appropriated or committed in writing by a  
private source.

“(4) *LIMITATION ON AMOUNT.*—

“(A) *NOTICE TO CONGRESS.*—No prize com-  
petition under this section may offer a prize in  
an amount greater than \$50,000,000 unless 30  
days have elapsed after written notice has been  
transmitted to the Committee on Commerce,

1           *Science, and Transportation of the Senate and*  
 2           *the Committee on Science and Technology of the*  
 3           *House of Representatives.*

4           “(B) *APPROVAL OF HEAD OF AGENCY.—No*  
 5           *prize competition under this section may result*  
 6           *in the award of more than \$1,000,000 in cash*  
 7           *prizes without the approval of the head of an*  
 8           *agency.*

9           “(n) *GENERAL SERVICE ADMINISTRATION ASSIST-*  
 10          *ANCE.—Not later than 180 days after the date of the enact-*  
 11          *ment of the America COMPETES Reauthorization Act of*  
 12          *2010, the General Services Administration shall provide*  
 13          *government wide services to share best practices and assist*  
 14          *agencies in developing guidelines for issuing prize competi-*  
 15          *tions. The General Services Administration shall develop a*  
 16          *contract vehicle to provide agencies access to relevant prod-*  
 17          *ucts and services, including technical assistance in struc-*  
 18          *turing and conducting prize competitions to take maximum*  
 19          *benefit of the marketplace as they identify and pursue prize*  
 20          *competitions to further the policy objectives of the Federal*  
 21          *Government.*

22          “(o) *COMPLIANCE WITH EXISTING LAW.—*

23                 “(1) *IN GENERAL.—The Federal Government*  
 24                 *shall not, by virtue of offering or providing a prize*  
 25                 *under this section, be responsible for compliance by*



1     *registered participants in a prize competition with*  
 2     *Federal law, including licensing, export control, and*  
 3     *nonproliferation laws, and related regulations.*

4             “(2) *OTHER PRIZE AUTHORITY.*— *Nothing in*  
 5     *this section affects the prize authority authorized by*  
 6     *any other provision of law.*

7             “(p) *ANNUAL REPORT.*—

8                 “(1) *IN GENERAL.*—*Not later than March 1 of*  
 9     *each year, the Director shall submit to the Committee*  
 10    *on Commerce, Science, and Transportation of the*  
 11    *Senate and the Committee on Science and Technology*  
 12    *of the House of Representatives a report on the activi-*  
 13    *ties carried out during the preceding fiscal year*  
 14    *under the authority in subsection (b).*

15             “(2) *INFORMATION INCLUDED.*—*The report for a*  
 16    *fiscal year under this subsection shall include, for*  
 17    *each prize competition under subsection (b), the fol-*  
 18    *lowing:*

19                 “(A) *PROPOSED GOALS.*—*A description of*  
 20    *the proposed goals of each prize competition.*

21                 “(B) *PREFERABLE METHOD.*—*An analysis*  
 22    *of why the utilization of the authority in sub-*  
 23    *section (b) was the preferable method of achiev-*  
 24    *ing the goals described in subparagraph (A) as*  
 25    *opposed to other authorities available to the*

1       agency, such as contracts, grants, and coopera-  
2       tive agreements.

3               “(C) *AMOUNT OF CASH PRIZES.*—The total  
4       amount of cash prizes awarded for each prize  
5       competition, including a description of amount  
6       of private funds contributed to the program, the  
7       sources of such funds, and the manner in which  
8       the amounts of cash prizes awarded and claimed  
9       were allocated among the accounts of the agency  
10      for recording as obligations and expenditures.

11              “(D) *SOLICITATIONS AND EVALUATION OF*  
12      *SUBMISSIONS.*—The methods used for the solici-  
13      tation and evaluation of submissions under each  
14      prize competition, together with an assessment of  
15      the effectiveness of such methods and lessons  
16      learned for future prize competitions.

17              “(E) *RESOURCES.*—A description of the re-  
18      sources, including personnel and funding, used  
19      in the execution of each prize competition to-  
20      gether with a detailed description of the activi-  
21      ties for which such resources were used and an  
22      accounting of how funding for execution was al-  
23      located among the accounts of the agency for re-  
24      cording as obligations and expenditures.

1                   “(F) *RESULTS*.—A description of how each  
2                   prize competition advanced the mission of the  
3                   agency concerned.”.

4           (b) *REPEAL OF SPACE ACT LIMITATION*.—Section  
5   314(a) of the National Aeronautics and Space Act of 1958  
6   (42 U.S.C. 2459f-1 is amended by striking “The Adminis-  
7   tration may carry out a program to award prizes only in  
8   conformity with this section.”.

9   **TITLE       II—NATIONAL       AERO-**  
10   **NAUTICS AND SPACE ADMIN-**  
11   **ISTRATION**

12   **SEC. 201. NASA’S CONTRIBUTION TO INNOVATION AND**  
13                   **COMPETITIVENESS.**

14           *It is the sense of Congress that a renewed emphasis*  
15   *on technology development would enhance current mission*  
16   *capabilities and enable future missions, while encouraging*  
17   *NASA, private industry, and academia to spur innovation.*  
18   *NASA’s Innovative Partnership Program is a valuable*  
19   *mechanism to accelerate technology maturation and encour-*  
20   *age the transfer of technology into the private sector.*

21   **SEC. 202. NASA’S CONTRIBUTION TO EDUCATION.**

22           (a) *SENSE OF CONGRESS*.—*It is the sense of Congress*  
23   *that NASA is uniquely positioned to interest students in*  
24   *science, technology, engineering, and mathematics, not only*  
25   *by the example it sets, but through its education programs.*

1       (b) *EDUCATIONAL PROGRAM GOALS*.—NASA shall de-  
2   velop educational programs—

3               (1) *to carry out and support research based pro-*  
4       grams and activities designed to increase student in-  
5       terest and participation in STEM;

6               (2) *to improve public literacy in STEM;*

7               (3) *that employ proven strategies and methods*  
8       *for improving student learning and teaching in*  
9       STEM;

10              (4) *to provide curriculum support materials and*  
11      other resources that—

12                      (A) *are designed to be integrated with com-*  
13      prehensive STEM education;

14                      (B) *are aligned with national science edu-*  
15      cation standards;

16                      (C) *promote the adoption and implementa-*  
17      tion of high-quality education practices that  
18      build toward college and career-readiness; and

19              (5) *to create and support opportunities for en-*  
20      hanced and ongoing professional development for  
21      teachers using best practices that improve the STEM  
22      content and knowledge of the teachers, including  
23      through programs linking STEM teachers with  
24      STEM educators at the higher education level.

1 **SEC. 203. INTERNATIONAL SPACE STATION'S CONTRIBU-**  
2 **TION TO NATIONAL COMPETITIVENESS EN-**  
3 **HANCEMENT.**

4 (a) *SENSE OF CONGRESS.*—*It is the sense of the Con-*  
5 *gress that the International Space Station represents a val-*  
6 *uable and unique national asset which can be utilized to*  
7 *increase educational opportunities and scientific and tech-*  
8 *nological innovation which will enhance the Nation's eco-*  
9 *nomie security and competitiveness in the global technology*  
10 *fields of endeavor. If the period for active utilization of the*  
11 *International Space Station is extended to at least the year*  
12 *2020, the potential for such opportunities and innovation*  
13 *would be increased. Efforts should be made to fully realize*  
14 *that potential.*

15 (b) *EVALUATION AND ASSESSMENT OF NASA'S INTER-*  
16 *AGENCY CONTRIBUTION.*—*Pursuant to the authority pro-*  
17 *vided in title II of the America COMPETES Act (Public*  
18 *Law 110–69), the Administrator shall evaluate and, where*  
19 *possible, expand efforts to maximize NASA's contribution*  
20 *to interagency efforts to enhance science, technology, engi-*  
21 *neering, and mathematics education capabilities, and to en-*  
22 *hance the Nation's technological excellence and global com-*  
23 *petitiveness. The Administrator shall identify these en-*  
24 *hancements in the annual reports required by section*  
25 *2001(e) of that Act (42 U.S.C. 16611a(e)).*

1       (c) *REPORT TO THE CONGRESS.*—Within 120 days  
2 after the date of enactment of this Act, the Administrator  
3 shall provide to the House of Representatives Committee on  
4 Science and Technology and the Senate Committee on Com-  
5 merce, Science, and Transportation a report on the assess-  
6 ment made pursuant to subsection (a). The report shall in-  
7 clude—

8               (1) a description of current and potential activi-  
9 ties associated with utilization of the International  
10 Space Station which are supportive of the goals of  
11 educational excellence and innovation and competi-  
12 tive enhancement established or reaffirmed by this  
13 Act, including a summary of the goals supported, the  
14 number of individuals or organizations participating  
15 in or benefiting from such activities, and a summary  
16 of how such activities might be expanded or improved  
17 upon;

18               (2) a description of government and private  
19 partnerships which are, or may be, established to ef-  
20 fectively utilize the capabilities represented by the  
21 International Space Station to enhance United States  
22 competitiveness, innovation and science, technology,  
23 engineering, and mathematics education; and

24               (3) a summary of proposed actions or activities  
25 to be undertaken to ensure the maximum utilization

1       of the International Space Station to contribute to  
 2       fulfillment of the goals and objectives of this Act, and  
 3       the identification of any additional authority, assets,  
 4       or funding that would be required to support such ac-  
 5       tivities.

6   **SEC. 204. DEFINITIONS.**

7       *In this title:*

8           (1) *ADMINISTRATOR.*—The term “Adminis-  
 9       trator” means the Administrator of NASA.

10          (2) *NASA.*—The term “NASA” means the Na-  
 11       tional Aeronautics and Space Administration.

12   **TITLE III—NATIONAL OCEANIC**  
 13       **AND ATMOSPHERIC ADMINIS-**  
 14       **TRATION**

15   **SEC. 301. OCEANIC AND ATMOSPHERIC RESEARCH AND DE-**  
 16       **VELOPMENT PROGRAM.**

17       Section 4001 of the America COMPETES Act (33  
 18   U.S.C. 893) is amended—

19           (1) by inserting “(a) *IN GENERAL.*—” before  
 20       “*The Administrator*”; and

21           (2) by adding at the end the following:

22       “(b) *OCEANIC AND ATMOSPHERIC RESEARCH AND DE-*  
 23   *VELOPMENT PROGRAM.*—The Administrator shall imple-  
 24   ment programs and activities—

1           “(1) to identify emerging and innovative re-  
2           search and development priorities to enhance United  
3           States competitiveness, support development of new  
4           economic opportunities based on NOAA research, ob-  
5           servations, monitoring modeling, and predictions that  
6           sustain ecosystem services;

7           “(2) to promote United States leadership in oce-  
8           anic and atmospheric science and competitiveness in  
9           the applied uses of such knowledge, including for the  
10          development and expansion of economic opportunities;  
11          and

12          “(3) to advance ocean, coastal, Great Lakes, and  
13          atmospheric research and development, including po-  
14          tentially transformational research, in collaboration  
15          with other relevant Federal agencies, academic insti-  
16          tutions, the private sector, and nongovernmental pro-  
17          grams, consistent with NOAA’s mission to under-  
18          stand, observe, and model the Earth’s atmosphere and  
19          biosphere, including the oceans, in an integrated  
20          manner.

21          “(c) *REPORT*.—No later than 12 months after the date  
22          of enactment of the America COMPETES Reauthorization  
23          Act of 2010, the Administrator, in consultation with the  
24          National Science Foundation or other such agencies with  
25          mature transformational research portfolios, shall develop



1 *and submit a report to the Senate Committee on Commerce,*  
 2 *Science, and Transportation and the House of Representa-*  
 3 *tives Committee on Science and Technology that describes*  
 4 *NOAA’s strategy for enhancing transformational research*  
 5 *in its research and development portfolio to increase United*  
 6 *States competitiveness in oceanic and atmospheric science*  
 7 *and technology. The report shall—*

8           “(1) define ‘transformational research’;

9           “(2) identify emerging and innovative areas of  
 10       *research and development where transformational re-*  
 11       *search has the potential to make significant and revo-*  
 12       *lutionary advancements in both understanding and*  
 13       *U.S. science leadership;*

14           “(3) describe how transformational research pri-  
 15       *orities are identified and appropriately balanced in*  
 16       *the context of NOAA’s broader research portfolio;*

17           “(4) describe NOAA’s plan for developing a com-  
 18       *petitive peer review and priority-setting process,*  
 19       *funding mechanisms, performance and evaluation*  
 20       *measures, and transition-to-operation guidelines for*  
 21       *transformational research; and*

22           “(5) describe partnerships with other agencies  
 23       *involved in transformational research.*

24       “(d) *PARTNERSHIPS AND AGREEMENTS.—*

1           “(1) *IN GENERAL.*—*The Administrator may exe-*  
2       *cute such contracts, leases, grants, cooperative agree-*  
3       *ments, or other agreements and transactions with any*  
4       *agency or instrumentality of the United States, any*  
5       *State, local, tribal, territorial or foreign government,*  
6       *or with any person, corporation, firm, partnership,*  
7       *educational institution, nonprofit organization, or*  
8       *international organization as may be necessary to*  
9       *carry out this title.*

10          “(2) *SPECIFIC AUTHORITY.*—*Notwithstanding*  
11       *any other provision of law, the Administrator may—*

12           “(A) *execute long-term leases of up to 20*  
13       *years for the use of unimproved land to site*  
14       *small shelter facilities, antennae, and equipment*  
15       *including weather, tide, tidal currents, river,*  
16       *and air sampling or measuring equipment;*

17           “(B) *grant long-term licenses of up to 20*  
18       *years at no cost to site facilities and equipment*  
19       *including weather, tide, tidal currents, river,*  
20       *and air sampling or measuring equipment;*

21           “(C) *acquire (by purchase, lease, or other-*  
22       *wise), lease, sell, and dispose of or convey serv-*  
23       *ices, money, securities, or property (whether real,*  
24       *personal, intellectual, or of any other kind) or an*  
25       *interest therein;*

1           “(D) construct, improve, repair, operate,  
2           maintain, outgrant, and dispose of real or per-  
3           sonal property, including buildings, facilities,  
4           and land; and

5           “(E) waive capital lease scoring require-  
6           ments for any lease of space on commercial an-  
7           tennas to support weather radio equipment, air  
8           sampling, or measuring equipment.

9           “(3) CERTAIN LEASED EQUIPMENT.—Notwith-  
10          standing any other provision of law, rule, or regula-  
11          tion, leases of antenna or equipment on towers or  
12          other structures shall be considered operating leases  
13          for the purpose of capital lease scoring.

14          “(4) AUTHORITY TO RECEIVE FUNDS.—The Ad-  
15          ministrator may accept, retain, and use funds re-  
16          ceived from any party pursuant to an agreement en-  
17          tered into under this subsection for activities fur-  
18          thering the purposes of this title.”.

19 **SEC. 302. OCEANIC AND ATMOSPHERIC SCIENCE EDU-**  
20 **CATION PROGRAMS.**

21          Section 4002 of the America COMPETES Act (33  
22          U.S.C. 893a) is amended—

23               (1) by striking “the agency.” in subsection (a)  
24               and inserting “agency, with consideration given to  
25               the goal of promoting the participation of individuals

1     *from underrepresented groups in STEM fields and in*  
 2     *promoting the acquisition and retention of highly*  
 3     *qualified and motivated young scientists to com-*  
 4     *plement and supplement workforce needs.”;*

5             *(2) by redesignating subsections (b) and (c) as*  
 6     *subsections (c) and (d), respectively;*

7             *(3) by inserting after subsection (a) the fol-*  
 8     *lowing:*

9             *“(b) EDUCATIONAL PROGRAM GOALS.—The education*  
 10     *programs developed by NOAA shall, to the extent applica-*  
 11     *ble—*

12             *“(1) carry out and support research based pro-*  
 13     *grams and activities designed to increase student in-*  
 14     *terest and participation in STEM;*

15             *“(2) improve public literacy in STEM;*

16             *“(3) employ proven strategies and methods for*  
 17     *improving student learning and teaching in STEM;*

18             *“(4) provide curriculum support materials and*  
 19     *other resources that—*

20             *“(A) are designed to be integrated with*  
 21     *comprehensive STEM education;*

22             *“(B) are aligned with national science edu-*  
 23     *cation standards; and*

1                   “(C) *promote the adoption and implementa-*  
 2                   *tion of high-quality education practices that*  
 3                   *build toward college and career-readiness; and*

4                   “(5) *create and support opportunities for en-*  
 5                   *hanced and ongoing professional development for*  
 6                   *teachers using best practices that improves the STEM*  
 7                   *content and knowledge of the teachers, including*  
 8                   *through programs linking STEM teachers with*  
 9                   *STEM educators at the higher education level.”;*

10                  (4) *by striking “develop” in subsection (c), as re-*  
 11                  *designated, and inserting “maintain”; and*

12                  (5) *by adding at the end thereof the following:*

13                  “(e) *STEM DEFINED.—In this section, the term*  
 14                  *‘STEM’ means the academic and professional disciplines*  
 15                  *of science, technology, engineering, and mathematics.”.*

16   **SEC. 303. WORKFORCE STUDY.**

17                  (a) *IN GENERAL.—The Secretary of Commerce, in co-*  
 18                  *operation with the Secretary of Education, shall request the*  
 19                  *National Academy of Sciences to conduct a study on the*  
 20                  *scientific workforce in the areas of oceanic and atmospheric*  
 21                  *research and development. The study shall investigate—*

22                  (1) *whether there is a shortage in the number of*  
 23                  *individuals with advanced degrees in oceanic and at-*  
 24                  *mospheric sciences who have the ability to conduct*  
 25                  *high quality scientific research in physical and chem-*

1        *ical oceanography, meteorology, and atmospheric*  
 2        *modeling, and related fields, for government, non-*  
 3        *profit, and private sector entities;*

4            *(2) what Federal programs are available to help*  
 5        *facilitate the education of students hoping to pursue*  
 6        *these degrees;*

7            *(3) barriers to transitioning highly qualified oce-*  
 8        *anic and atmospheric scientists into Federal civil*  
 9        *service scientist career tracks;*

10          *(4) what institutions of higher education, the*  
 11        *private sector, and the Congress could do to increase*  
 12        *the number of individuals with such post bacca-*  
 13        *laureate degrees;*

14          *(5) the impact of an aging Federal scientist*  
 15        *workforce on the ability of Federal agencies to conduct*  
 16        *high quality scientific research; and*

17          *(6) what actions the Federal government can*  
 18        *take to assist the transition of highly qualified sci-*  
 19        *entists into Federal career scientist positions and en-*  
 20        *sure that the experiences of retiring Federal scientists*  
 21        *are adequately documented and transferred prior to*  
 22        *retirement from Federal service.*

23        *(b) COORDINATION.—The Secretary of Commerce and*  
 24        *the Secretary of Education shall consult with the heads of*  
 25        *other Federal agencies and departments with oceanic and*

1 *atmospheric expertise or authority in preparing the speci-*  
2 *fications for the study.*

3       (c) *REPORT.*—No later than 18 months after the date  
4 of enactment of this Act, the Secretary of Commerce and  
5 the Secretary of Education shall transmit a joint report to  
6 each committee of Congress with jurisdiction over the pro-  
7 grams described in 4002(b) of the America COMPETES  
8 Act (33 U.S.C. 893a(b)), as amended by section 302 of this  
9 Act, detailing the findings and recommendations of the  
10 study and setting forth a prioritized plan to implement the  
11 recommendations.

12       (d) *PROGRAM AND PLAN.*—The Administrator of the  
13 National Oceanic and Atmospheric Administration shall  
14 evaluate the National Academy of Sciences study and de-  
15 velop a workforce program and plan to institutionalize the  
16 Administration’s Federal science career pathways and ad-  
17 dress aging workforce issues. The program and plan shall  
18 be developed in consultation with the Administration’s co-  
19 operative institutes and other academic partners to identify  
20 and implement programs and mechanisms to ensure that—

21               (1) *sufficient highly qualified scientists are able*  
22 *to transition into Federal career scientist positions in*  
23 *the Administration’s laboratories and programs; and*

1           (2) *the technical and management experiences of*  
 2           *senior employees are documented and transferred be-*  
 3           *fore leaving Federal service.*

4   ***TITLE IV—NATIONAL INSTITUTE***  
 5       ***OF STANDARDS AND TECH-***  
 6       ***NOLOGY***

7   ***SEC. 401. SHORT TITLE.***

8           *This title may be cited as the “National Institute of*  
 9           *Standards and Technology Authorization Act of 2010”.*

10   ***SEC. 402. AUTHORIZATION OF APPROPRIATIONS.***

11           *(a) FISCAL YEAR 2011.—*

12               *(1) IN GENERAL.—There are authorized to be ap-*  
 13               *propriated to the Secretary of Commerce*  
 14               *\$991,100,000 for the National Institute of Standards*  
 15               *and Technology for fiscal year 2011.*

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

18                       *(A) \$620,000,000 shall be authorized for sci-*  
 19                       *entific and technical research and services lab-*  
 20                       *oratory activities;*

21                       *(B) \$125,000,000 shall be authorized for the*  
 22                       *construction and maintenance of facilities; and*

23                       *(C) \$246,100,000 shall be authorized for in-*  
 24                       *dustrial technology services activities, of which—*



1                   (i) \$95,000,000 shall be authorized for  
 2                   the Technology Innovation Program under  
 3                   section 28 of the National Institute of  
 4                   Standards and Technology Act (15 U.S.C.  
 5                   278n);

6                   (ii) \$141,100,000 shall be authorized  
 7                   for the Manufacturing Extension Partner-  
 8                   ship program under sections 25 and 26 of  
 9                   such Act (15 U.S.C. 278k and 278l), of  
 10                  which not more than \$5,000,000 shall be for  
 11                  the competitive grant program under sec-  
 12                  tion 25(f) of such Act; and

13                  (iii) \$10,000,000 shall be authorized  
 14                  for the Malcolm Baldrige National Quality  
 15                  Award program under section 17 of the Ste-  
 16                  venson-Wydler Technology Innovation Act  
 17                  of 1980 (15 U.S.C. 3711a).

18           (b) FISCAL YEAR 2012.—

19                   (1) IN GENERAL.—There are authorized to be ap-  
 20                   propriated to the Secretary of Commerce  
 21                   \$992,400,000 for the National Institute of Standards  
 22                   and Technology for fiscal year 2012.

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

1           (A) \$657,200,000 shall be authorized for sci-  
2           entific and technical research and services lab-  
3           oratory activities;

4           (B) \$85,000,000 shall be authorized for the  
5           construction and maintenance of facilities; and

6           (C) \$250,200,000 shall be authorized for in-  
7           dustrial technology services activities, of which—

8               (i) \$89,000,000 shall be authorized for  
9               the Technology Innovation Program under  
10              section 28 of the National Institute of  
11              Standards and Technology Act (15 U.S.C.  
12              278n);

13              (ii) \$150,900,000 shall be authorized  
14              for the Manufacturing Extension Partner-  
15              ship program under sections 25 and 26 of  
16              such Act (15 U.S.C. 278k and 278l), of  
17              which not more than \$5,000,000 shall be for  
18              the competitive grant program under sec-  
19              tion 25(f) of such Act; and

20              (iii) \$10,300,000 shall be authorized  
21              for the Malcolm Baldrige National Quality  
22              Award program under section 17 of the Ste-  
23              venson-Wylder Technology Innovation Act  
24              of 1980 (15 U.S.C. 3711a).

25           (c) FISCAL YEAR 2013.—

1           (1) *IN GENERAL.*—*There are authorized to be ap-*  
 2           *propriated to the Secretary of Commerce*  
 3           *\$1,079,809,000 for the National Institute of Stand-*  
 4           *ards and Technology for fiscal year 2013.*

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

7                   (A) *\$696,700,000 shall be authorized for sci-*  
 8                   *entific and technical research and services lab-*  
 9                   *oratory activities;*

10                  (B) *\$122,000,000 shall be authorized for the*  
 11                  *construction and maintenance of facilities; and*

12                  (C) *\$261,109,000 shall be authorized for in-*  
 13                  *dustrial technology services activities, of which—*

14                           (i) *\$89,000,000 shall be authorized for*  
 15                           *the Technology Innovation Program under*  
 16                           *section 28 of the National Institute of*  
 17                           *Standards and Technology Act (15 U.S.C.*  
 18                           *278n);*

19                           (ii) *\$161,500,000 shall be authorized*  
 20                           *for the Manufacturing Extension Partner-*  
 21                           *ship program under sections 25 and 26 of*  
 22                           *such Act (15 U.S.C. 278k and 278l), of*  
 23                           *which not more than \$5,000,000 shall be for*  
 24                           *the competitive grant program under sec-*  
 25                           *tion 25(f) of such Act; and*

1                   (iii) \$10,609,000 shall be authorized  
 2                   for the Malcolm Baldrige National Quality  
 3                   Award program under section 17 of the Ste-  
 4                   venson-Wyidler Technology Innovation Act  
 5                   of 1980 (15 U.S.C. 3711a).

6 **SEC. 403. UNDER SECRETARY OF COMMERCE FOR STAND-**  
 7 **ARDS AND TECHNOLOGY.**

8           (a) *ESTABLISHMENT.*—The National Institute of  
 9 Standards and Technology Act is amended by inserting  
 10 after section 3 the following:

11 **“SEC. 4. UNDER SECRETARY OF COMMERCE FOR STAND-**  
 12 **ARDS AND TECHNOLOGY.**

13           “(a) *ESTABLISHMENT.*—There shall be in the Depart-  
 14 ment of Commerce an Under Secretary of Commerce for  
 15 Standards and Technology (in this section referred to as  
 16 the ‘Under Secretary’).

17           “(b) *APPOINTMENT.*—The Under Secretary shall be  
 18 appointed by the President by and with the advice and con-  
 19 sent of the Senate.

20           “(c) *COMPENSATION.*—The Under Secretary shall be  
 21 compensated at the rate in effect for level III of the Execu-  
 22 tive Schedule under section 5314 of title 5, United States  
 23 Code.

24           “(d) *DUTIES.*—The Under Secretary shall serve as the  
 25 Director of the Institute and shall perform such duties as

1 *required of the Director by the Secretary under this Act*  
 2 *or by law.*

3 “(e) *APPLICABILITY.—The individual serving as the*  
 4 *Director of the Institute on the date of enactment of the*  
 5 *National Institute of Standards and Technology Authoriza-*  
 6 *tion Act of 2010 shall also serve as the Under Secretary*  
 7 *until such time as a successor is appointed under subsection*  
 8 *(b).”.*

9 (b) *CONFORMING AMENDMENTS.—*

10 (1) *TITLE 5, UNITED STATES CODE.—*

11 (A) *LEVEL III.—Section 5314 of title 5,*  
 12 *United States Code, is amended by inserting be-*  
 13 *fore the item “Associate Attorney General” the*  
 14 *following:*

15 “*Under Secretary of Commerce for Standards*  
 16 *and Technology, who also serves as Director of the*  
 17 *National Institute of Standards and Technology.”.*

18 (B) *LEVEL IV.—Section 5315 of title 5,*  
 19 *United States Code, is amended by striking “Di-*  
 20 *rector, National Institute of Standards and*  
 21 *Technology, Department of Commerce.”.*

22 (2) *NATIONAL INSTITUTE OF STANDARDS AND*  
 23 *TECHNOLOGY ACT.—Section 5 of the National Insti-*  
 24 *tute of Standards and Technology Act (15 U.S.C.*

1       274) is amended by striking the first, fifth, and sixth  
2       sentences.

3       **SEC. 404. MANUFACTURING EXTENSION PARTNERSHIP.**

4       (a) *COMMUNITY COLLEGE SUPPORT*.—Section 25(a) of  
5       the National Institute of Standards and Technology Act (15  
6       U.S.C. 278k(a)) is amended—

7               (1) by striking “and” after the semicolon in  
8       paragraph (4);

9               (2) by striking “Institute.” in paragraph (5)  
10       and inserting “Institute; and”; and

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

12              “(6) providing to community colleges informa-  
13       tion about the job skills needed in small- and me-  
14       dium-sized manufacturing businesses in the regions  
15       they serve.”.

16       (b) *INNOVATIVE SERVICES INITIATIVE*.—Section 25 of  
17       such Act (15 U.S.C. 278k) is amended by adding at the  
18       end the following:

19              “(g) *INNOVATIVE SERVICES INITIATIVE*.—

20              “(1) *ESTABLISHMENT*.—The Director shall estab-  
21       lish, within the Centers program under this section,  
22       an innovative services initiative to assist small- and  
23       medium-sized manufacturers in—

1           “(A) *reducing their energy usage, green-*  
 2           *house gas emissions, and environmental waste to*  
 3           *improve profitability;*

4           “(B) *accelerating the domestic commer-*  
 5           *cialization of new product technologies, includ-*  
 6           *ing components for renewable energy and energy*  
 7           *efficiency systems; and*

8           “(C) *identification of and diversification to*  
 9           *new markets, including support for transitioning*  
 10          *to the production of components for renewable*  
 11          *energy and energy efficiency systems.*

12          “(2) *MARKET DEMAND.—The Director may not*  
 13          *undertake any activity to accelerate the domestic com-*  
 14          *mercialization of a new product technology under this*  
 15          *subsection unless an analysis of market demand for*  
 16          *the new product technology has been conducted.”.*

17          “(c) *REPORTS.—Section 25 of such Act (15 U.S.C.*  
 18          *278k), as amended by subsection (b), is further amended*  
 19          *by adding at the end the following:*

20           “(h) *REPORTS.—*

21           “(1) *IN GENERAL.—In submitting the 3-year*  
 22           *programmatic planning document and annual up-*  
 23           *dates under section 23, the Director shall include an*  
 24           *assessment of the Director’s governance of the pro-*  
 25           *gram established under this section.*

1           “(2) *CRITERIA.—In conducting the assessment,*  
 2           *the Director shall use the criteria established pursu-*  
 3           *ant to the Malcolm Baldrige National Quality Award*  
 4           *under section 17(d)(1)(C) of the Stevenson-Wydler*  
 5           *Technology Innovation Act of 1980 (15 U.S.C.*  
 6           *3711a(d)(1)(C)).”.*

7           *(d) HOLLINGS MANUFACTURING EXTENSION PART-*  
 8           *nership Program Cost-Sharing.—Section 25(c) of such*  
 9           *Act (15 U.S.C. 278k(c)) is amended by adding at the end*  
 10          *the following:*

11           “(7) *Not later than 90 days after the date of en-*  
 12           *actment of the National Institute of Standards and*  
 13           *Technology Authorization Act of 2010, the Comp-*  
 14           *troller General shall submit to Congress a report on*  
 15           *the cost share requirements under the program. The*  
 16           *report shall—*

17           “(A) *discuss various cost share structures,*  
 18           *including the cost share structure in place prior*  
 19           *to such date of enactment, and the effect of such*  
 20           *cost share structures on individual Centers and*  
 21           *the overall program; and*

22           “(B) *include recommendations for how best*  
 23           *to structure the cost share requirement to provide*  
 24           *for the long-term sustainability of the program.”.*



1           “(8) *If consistent with the recommendations in*  
 2           *the report transmitted to Congress under paragraph*  
 3           *(7), the Secretary shall alter the cost structure re-*  
 4           *quirements specified under paragraph (3)(B) and (5)*  
 5           *provided that the modification does not increase the*  
 6           *cost share structure in place before the date of enact-*  
 7           *ment of the America COMPETES Reauthorization*  
 8           *Act of 2010, or allow the Secretary to provide a Cen-*  
 9           *ter more than 50 percent of the costs incurred by that*  
 10          *Center.”.*

11          *(e) ADVISORY BOARD.—Section 25(e)(4) of such Act*  
 12          *(15 U.S.C. 278k(e)(4)) is amended to read as follows:*

13                 “(4) *FEDERAL ADVISORY COMMITTEE ACT APPLI-*  
 14                 *CABILITY.—*

15                         “(A) *IN GENERAL.—In discharging its du-*  
 16                         *ties under this subsection, the MEP Advisory*  
 17                         *Board shall function solely in an advisory ca-*  
 18                         *capacity, in accordance with the Federal Advisory*  
 19                         *Committee Act.*

20                         “(B) *EXCEPTION.—Section 14 of the Fed-*  
 21                         *eral Advisory Committee Act shall not apply to*  
 22                         *the MEP Advisory Board.’.*

23          *(f) DESIGNATION OF PROGRAM.—*

24                         “(1) *IN GENERAL.—Section 25 of the National In-*  
 25                         *stitute of Standards and Technology Act (15 U.S.C.*

1     278k), as amended by subsection (c), is further  
 2     amended by adding at the end the following:

3     “(i) *DESIGNATION*.—

4             “(1) *HOLLINGS MANUFACTURING EXTENSION*  
 5     *PARTNERSHIP*.—The program under this section shall  
 6     be known as the ‘Hollings Manufacturing Extension  
 7     Partnership’.

8             “(2) *HOLLINGS MANUFACTURING EXTENSION*  
 9     *CENTERS*.—The Regional Centers for the Transfer of  
 10    Manufacturing Technology created and supported  
 11    under subsection (a) shall be known as the ‘Hollings  
 12    Manufacturing Extension Centers’ (in this Act re-  
 13    ferred to as the ‘Centers’).”.

14            (2) *CONFORMING AMENDMENT TO CONSOLIDATED*  
 15    *APPROPRIATIONS ACT, 2005*.—Division B of title II of  
 16    the Consolidated Appropriations Act, 2005 (Public  
 17    Law 108-447; 118 Stat. 2879; 15 U.S.C. 278k note)  
 18    is amended under the heading “*INDUSTRIAL TECH-*  
 19    *NOLOGY SERVICES*” by striking “2007: Provided fur-  
 20    ther, That” and all that follows through “*Extension*  
 21    *Centers*.” and inserting “2007.”.

22            (3) *TECHNICAL AMENDMENTS*.—

23                (A) Section 25(a) of the National Institute  
 24                of Standards and Technology Act (15 U.S.C.  
 25                278k(a)) is amended in the matter preceding

1           *paragraph (1) by striking “Regional Centers for*  
 2           *the Transfer of Manufacturing Technology” and*  
 3           *inserting “regional centers for the transfer of*  
 4           *manufacturing technology”.*

5           *(B) Section 25 of such Act (15 U.S.C.*  
 6           *278k), as amended by subsection (f), is further*  
 7           *amended by adding at the end the following:*

8           *“(j) COMMUNITY COLLEGE DEFINED.—In this section,*  
 9           *the term ‘community college’ means an institution of higher*  
 10           *education (as defined under section 101(a) of the Higher*  
 11           *Education Act of 1965 (20 U.S.C. 1001(a))) at which the*  
 12           *highest degree that is predominately awarded to students*  
 13           *is an associate’s degree.”.*

14           *(h) EVALUATION OF OBSTACLES UNIQUE TO SMALL*  
 15           *MANUFACTURERS.—Section 25 of such Act (15 U.S.C.*  
 16           *278k), as amended by subsection (g), is further amended*  
 17           *by adding at the end the following:*

18           *“(k) EVALUATION OF OBSTACLES UNIQUE TO SMALL*  
 19           *MANUFACTURERS.—The Director shall—*

20                   *“(1) evaluate obstacles that are unique to small*  
 21                   *manufacturers that prevent such manufacturers from*  
 22                   *effectively competing in the global market;*

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

1           “(3) *facilitate improved communication between*  
 2           *the Centers to assist such manufacturers in imple-*  
 3           *menting appropriate, targeted solutions to such obsta-*  
 4           *cles.*”.

5           *(i) NIST ACT AMENDMENT.—Section 25(f)(3) of the*  
 6           *National Institute of Standards and Technology Act (15*  
 7           *U.S.C. 278k(f)(3)) is amended by striking “Director of the*  
 8           *Centers program,” and inserting “Director of the Hollings*  
 9           *MEP program,”.*

10   **SEC. 405. EMERGENCY COMMUNICATION AND TRACKING**  
 11           **TECHNOLOGIES RESEARCH INITIATIVE.**

12           *(a) ESTABLISHMENT.—The Director shall establish a*  
 13           *research initiative to support the development of emergency*  
 14           *communication and tracking technologies for use in locat-*  
 15           *ing trapped individuals in confined spaces, such as under-*  
 16           *ground mines, and other shielded environments, such as*  
 17           *high-rise buildings or collapsed structures, where conven-*  
 18           *tional radio communication is limited.*

19           *(b) ACTIVITIES.—In order to carry out this section, the*  
 20           *Director shall work with the private sector and appropriate*  
 21           *Federal agencies to—*

22                   *(1) perform a needs assessment to identify and*  
 23                   *evaluate the measurement, technical standards, and*  
 24                   *conformity assessment needs required to improve the*

1        *operation and reliability of such emergency commu-*  
 2        *nication and tracking technologies;*

3            *(2) support the development of technical stand-*  
 4        *ards and conformance architecture to improve the op-*  
 5        *eration and reliability of such emergency communica-*  
 6        *tion and tracking technologies; and*

7            *(3) incorporate and build upon existing reports*  
 8        *and studies on improving emergency communications.*

9        *(c) REPORT.—Not later than 18 months after the date*  
 10       *of enactment of this Act, the Director shall submit to Con-*  
 11       *gress and make publicly available a report describing the*  
 12       *assessment performed under subsection (b)(1) and making*  
 13       *recommendations about research priorities to address gaps*  
 14       *in the measurement, technical standards, and conformity*  
 15       *assessment needs identified by the assessment.*

16       **SEC. 406. BROADENING PARTICIPATION.**

17       *(a) RESEARCH FELLOWSHIPS.—Section 18 of the Na-*  
 18       *tional Institute of Standards and Technology Act (15*  
 19       *U.S.C. 278g–1) is amended by adding at the end the fol-*  
 20       *lowing:*

21       *“(c) UNDERREPRESENTED MINORITIES.—In evalu-*  
 22       *ating applications for fellowships under this section, the Di-*  
 23       *rector shall give consideration to the goal of promoting the*  
 24       *participation of underrepresented minorities in research*  
 25       *areas supported by the Institute.”.*

1       (b) *POSTDOCTORAL FELLOWSHIP PROGRAM*.—Section  
 2 19 of such Act (15 U.S.C. 278g-2) is amended by adding  
 3 at the end the following: “In evaluating applications for  
 4 fellowships under this section, the Director shall give consid-  
 5 eration to the goal of promoting the participation of under-  
 6 represented minorities in research areas supported by the  
 7 Institute.”.

8       (c) *TEACHER DEVELOPMENT*.—Section 19A(c) of such  
 9 Act (15 U.S.C. 278g-2a(c)) is amended by adding at the  
 10 end the following: “The Director shall give special consider-  
 11 ation to an application from a teacher from a high-need  
 12 school, as defined in section 200 of the Higher Education  
 13 Act of 1965 (20 U.S.C. 1021).”.

14 **SEC. 407. NIST FELLOWSHIPS.**

15       (a) *POST-DOCTORAL FELLOWSHIP PROGRAM*.—Sec-  
 16 tion 19 of the National Institute of Standards and Tech-  
 17 nology Act (15 U.S.C. 278g-2) is amended by striking “,  
 18 in conjunction with the National Academy of Sciences,”.

19       (b) *RESEARCH FELLOWSHIPS*.—Section 18(a) of that  
 20 Act (15 USC 278g-1(a)) is amended by striking “up to 1.5  
 21 percent of the”.

22       (c) *COMMERCE, SCIENCE, AND TECHNOLOGY FELLOW-*  
 23 *SHIP PROGRAM*.—Section 5163(d) of the Omnibus Trade  
 24 and Competition Act of 1988 (15 U.S.C. 1533) is repealed.

1 **SEC. 408. GREEN MANUFACTURING AND CONSTRUCTION.**

2 *The Director shall carry out a green manufacturing*  
 3 *and construction initiative—*

4 *(1) to develop accurate sustainability metrics*  
 5 *and practices for use in manufacturing;*

6 *(2) to advance the development of standards, in-*  
 7 *cluding high performance green building standards,*  
 8 *and the creation of an information infrastructure to*  
 9 *communicate sustainability information about sup-*  
 10 *pliers; and*

11 *(3) to move buildings toward becoming high per-*  
 12 *formance green buildings, including improving energy*  
 13 *performance, service life, and indoor air quality of*  
 14 *new and retrofitted buildings through validated meas-*  
 15 *urement data.*

16 **SEC. 409. DEFINITIONS.**

17 *In this title:*

18 *(1) DIRECTOR.—The term “Director” means the*  
 19 *Director of the National Institute of Standards and*  
 20 *Technology.*

21 *(2) FEDERAL AGENCY.—The term “Federal agen-*  
 22 *cy” has the meaning given such term in section 4 of*  
 23 *the Stevenson-Wydler Technology Innovation Act of*  
 24 *1980 (15 U.S.C. 3703).*

25 *(3) HIGH PERFORMANCE GREEN BUILDING.—The*  
 26 *term “high performance green building” has the*

1        *meaning given that term by section 401(13) of the*  
 2        *Energy Independence and Security Act of 2009 (42*  
 3        *U.S.C. 17061(13)).*

4        **TITLE        V—SCIENCE,        TECH-**  
 5        **NOLOGY, ENGINEERING, AND**  
 6        **MATHEMATICS SUPPORT PRO-**  
 7        **GRAMS**

8                **SUBTITLE A—NATIONAL**  
 9                **SCIENCE FOUNDATION**

10    **SEC. 501. SHORT TITLE.**

11        *This subtitle may be cited as the “National Science*  
 12        *Foundation Authorization Act of 2010”.*

13    **SEC. 502. DEFINITIONS.**

14        *In this subtitle:*

15                (1) *DIRECTOR.—The term “Director” means the*  
 16        *Director of the National Science Foundation.*

17                (2) *EPSCoR.—The term “EPSCoR” means the*  
 18        *Experimental Program to Stimulate Competitive Re-*  
 19        *search.*

20                (3) *FOUNDATION.—The term “Foundation”*  
 21        *means the National Science Foundation established*  
 22        *under section 2 of the National Science Foundation*  
 23        *Act of 1950 (42 U.S.C. 1861).*

24                (4) *INSTITUTION OF HIGHER EDUCATION.—The*  
 25        *term “institution of higher education” has the mean-*



1 *ing given such term in section 101(a) of the Higher*  
 2 *Education Act of 1965 (20 U.S.C. 1001(a)).*

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

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

15 **SEC. 503. AUTHORIZATION OF APPROPRIATIONS.**

16 (a) *FISCAL YEAR 2011.*—

17 (1) *IN GENERAL.*—*There are authorized to be ap-*  
 18 *propriated to the Foundation \$7,481,000,000 for fis-*  
 19 *cal year 2011.*

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

22 (A) *\$6,020,000,000 shall be made available*  
 23 *to carry research and related activities;*

24 (B) *\$945,000,000 shall be made available*  
 25 *for education and human resources;*

1           (C) \$166,000,000 shall be made available  
2           for major research equipment and facilities con-  
3           struction;

4           (D) \$330,000,000 shall be made available  
5           for agency operations and award management;

6           (E) \$4,840,000 shall be made available for  
7           the Office of the National Science Board; and

8           (F) \$14,830,000 shall be made available for  
9           the Office of Inspector General.

10       (b) *FISCAL YEAR 2012.*—

11           (1) *IN GENERAL.*—There are authorized to be ap-  
12           propriated to the Foundation \$8,127,000,000 for fis-  
13           cal year 2012.

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

16           (A) \$6,496,000,000 shall be made available  
17           to carry research and related activities;

18           (B) \$1,020,000,000 shall be made available  
19           for education and human resources;

20           (C) \$235,000,000 shall be made available  
21           for major research equipment and facilities con-  
22           struction;

23           (D) \$356,000,000 shall be made available  
24           for agency operations and award management;

1                   (E) \$5,010,000 shall be made available for  
2                   the Office of the National Science Board; and

3                   (F) \$15,350,000 shall be made available for  
4                   the Office of Inspector General.

5           (c) FISCAL YEAR 2013.—

6                   (1) IN GENERAL.—There are authorized to be ap-  
7                   propriated to the Foundation \$8,764,000,000 for fis-  
8                   cal year 2013.

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

11                   (A) \$7,009,000,000 shall be made available  
12                   to carry research and related activities;

13                   (B) \$1,100,000,000 shall be made available  
14                   for education and human resources;

15                   (C) \$250,000,000 shall be made available  
16                   for major research equipment and facilities con-  
17                   struction;

18                   (D) \$384,000,000 shall be made available  
19                   for agency operations and award management;

20                   (E) \$5,180,000 shall be made available for  
21                   the Office of the National Science Board; and

22                   (F) \$15,890,000 shall be made available for  
23                   the Office of Inspector General.

1 **SEC. 504. NATIONAL SCIENCE BOARD ADMINISTRATIVE**  
 2 **AMENDMENTS.**

3 (a) *STAFFING AT THE NATIONAL SCIENCE BOARD.*—  
 4 *Section 4(g) of the National Science Foundation Act of*  
 5 *1950 (42 U.S.C. 1863(g)) is amended by striking “not more*  
 6 *than 5”.*

7 (b) *NATIONAL SCIENCE BOARD REPORTS.*—*Section*  
 8 *4(j)(2) of the National Science Foundation Act of 1950 (42*  
 9 *U.S.C. 1863(j)(2)) is amended by inserting “within the au-*  
 10 *thority of the Foundation (or otherwise as requested by the*  
 11 *Congress or the President)” after “individual policy mat-*  
 12 *ters”.*

13 (c) *BOARD ADHERENCE TO SUNSHINE ACT.*—*Section*  
 14 *15(a)(2) of the National Science Foundation Authorization*  
 15 *Act of 2002 (42 U.S.C. 1862n-5(a)(2)) is amended—*

16 (1) *by striking “The Board” and inserting “To*  
 17 *ensure transparency of the Board’s entire decision-*  
 18 *making process, including deliberations on Board*  
 19 *business occurring within its various subdivisions, the*  
 20 *Board”;* and

21 (2) *by adding at the end the following: “The pre-*  
 22 *ceding requirement will apply to meetings of the full*  
 23 *Board, whenever a quorum is present; and to meet-*  
 24 *ings of its subdivisions, whenever a quorum of the*  
 25 *subdivision is present.”.*

1 **SEC. 505. NATIONAL CENTER FOR SCIENCE AND ENGINEER-**  
2 **ING STATISTICS.**

3 (a) *ESTABLISHMENT.*—*There is established within the*  
4 *Foundation a National Center for Science and Engineering*  
5 *Statistics that shall serve as a central Federal clearinghouse*  
6 *for the collection, interpretation, analysis, and dissemina-*  
7 *tion of objective data on science, engineering, technology,*  
8 *and research and development.*

9 (b) *DUTIES.*—*In carrying out subsection (a) of this*  
10 *section, the Director, acting through the Center shall—*

11 (1) *collect, acquire, analyze, report, and dissemi-*  
12 *nate statistical data related to the science and engi-*  
13 *neering enterprise in the United States and other na-*  
14 *tions that is relevant and useful to practitioners, re-*  
15 *searchers, policymakers, and the public, including*  
16 *statistical data on—*

17 (A) *research and development trends;*

18 (B) *the science and engineering workforce;*

19 (C) *United States competitiveness in*  
20 *science, engineering, technology, and research*  
21 *and development; and*

22 (D) *the condition and progress of United*  
23 *States STEM education;*

24 (2) *support research using the data it collects,*  
25 *and on methodologies in areas related to the work of*  
26 *the Center; and*

1           (3) support the education and training of re-  
 2           searchers in the use of large-scale, nationally rep-  
 3           resentative data sets.

4           (c) *STATISTICAL REPORTS.*—The Director or the Na-  
 5           tional Science Board, acting through the Center, shall issue  
 6           regular, and as necessary, special statistical reports on top-  
 7           ics related to the national and international science and  
 8           engineering enterprise such as the biennial report required  
 9           by section 4(j)(1) of the National Science Foundation Act  
 10          of 1950 (42 U.S.C. 1863(j)(1)) on indicators of the state  
 11          of science and engineering in the United States.

12   **SEC. 506. NATIONAL SCIENCE FOUNDATION MANUFAC-**  
 13                           **TURING RESEARCH AND EDUCATION.**

14          (a) *MANUFACTURING RESEARCH.*—The Director shall  
 15          carry out a program to award merit-reviewed, competitive  
 16          grants to institutions of higher education to support funda-  
 17          mental research leading to transformative advances in  
 18          manufacturing technologies, processes, and enterprises that  
 19          will support United States manufacturing through im-  
 20          proved performance, productivity, sustainability, and com-  
 21          petitiveness. Research areas may include—

22               (1) nanomanufacturing;

23               (2) manufacturing and construction machines  
 24               and equipment, including robotics, automation, and  
 25               other intelligent systems;

- 1           (3) *manufacturing enterprise systems;*
- 2           (4) *advanced sensing and control techniques;*
- 3           (5) *materials processing; and*
- 4           (6) *information technologies for manufacturing,*
- 5           *including predictive and real-time models and sim-*
- 6           *ulations, and virtual manufacturing.*

7           (b) *MANUFACTURING EDUCATION.*—In order to help  
 8 *ensure a well-trained manufacturing workforce, the Direc-*  
 9 *tor shall award grants to strengthen and expand scientific*  
 10 *and technical education and training in advanced manu-*  
 11 *facturing, including through the Foundation’s Advanced*  
 12 *Technological Education program.*

13 **SEC. 507. NATIONAL SCIENCE BOARD REPORT ON MID-**  
 14 **SCALE INSTRUMENTATION.**

15           (a) *MID-SCALE RESEARCH INSTRUMENTATION*  
 16 *NEEDS.*—The National Science Board shall evaluate the  
 17 *needs, across all disciplines supported by the Foundation,*  
 18 *for mid-scale research instrumentation that falls between*  
 19 *the instruments funded by the Major Research Instrumenta-*  
 20 *tion program and the very large projects funded by the*  
 21 *Major Research Equipment and Facilities Construction*  
 22 *program.*

23           (b) *REPORT ON MID-SCALE RESEARCH INSTRUMENTA-*  
 24 *TION PROGRAM.*—Not later than 1 year after the date of  
 25 *enactment of this Act, the National Science Board shall sub-*

1 *mit to Congress a report on mid-scale research instrumenta-*  
2 *tion at the Foundation. At a minimum, this report shall*  
3 *include—*

4           (1) *the findings from the Board’s evaluation of*  
5 *instrumentation needs required under subsection (a),*  
6 *including a description of differences across dis-*  
7 *ciplines and Foundation research directorates;*

8           (2) *a recommendation or recommendations re-*  
9 *garding how the Foundation should set priorities for*  
10 *mid-scale instrumentation across disciplines and*  
11 *Foundation research directorates;*

12           (3) *a recommendation or recommendations re-*  
13 *garding the appropriateness of expanding existing*  
14 *programs, including the Major Research Instrumenta-*  
15 *tion program or the Major Research Equipment and*  
16 *Facilities Construction program, to support more in-*  
17 *strumentation at the mid-scale;*

18           (4) *a recommendation or recommendations re-*  
19 *garding the need for and appropriateness of a new,*  
20 *Foundation-wide program or initiative in support of*  
21 *mid-scale instrumentation, including any rec-*  
22 *ommendations regarding the administration of and*  
23 *budget for such a program or initiative and the ap-*  
24 *propriate scope of instruments to be funded under*  
25 *such a program or initiative; and*



1           (5) *any recommendation or recommendations re-*  
 2           *garding other options for supporting mid-scale re-*  
 3           *search instrumentation at the Foundation.*

4 **SEC. 508. PARTNERSHIPS FOR INNOVATION.**

5           (a) *IN GENERAL.*—*The Director shall carry out a pro-*  
 6           *gram to award merit-reviewed, competitive grants to insti-*  
 7           *tutions of higher education to establish and to expand part-*  
 8           *nerships that promote innovation and increase the impact*  
 9           *of research by developing tools and resources to connect new*  
 10          *scientific discoveries to practical uses.*

11          (b) *PARTNERSHIPS.*—

12           (1) *IN GENERAL.*—*To be eligible for funding*  
 13           *under this section, an institution of higher education*  
 14           *must propose establishment of a partnership that—*

15                   (A) *includes at least one private sector enti-*  
 16                   *ty; and*

17                   (B) *may include other institutions of higher*  
 18                   *education, public sector institutions, private sec-*  
 19                   *tor entities, and nonprofit organizations.*

20           (2) *PRIORITY.*—*In selecting grant recipients*  
 21           *under this section, the Director shall give priority to*  
 22           *partnerships that include one or more institutions of*  
 23           *higher education and at least one of the following:*

24                   (A) *A minority serving institution.*

25                   (B) *A primarily undergraduate institution.*

1                   (C) A 2-year institution of higher edu-  
2                   cation.

3           (c) PROGRAM.—Proposals funded under this section  
4 shall seek—

5                   (1) to increase the impact of the most promising  
6                   research at the institution or institutions of higher  
7                   education that are members of the partnership  
8                   through knowledge transfer or commercialization;

9                   (2) to increase the engagement of faculty and  
10                  students across multiple disciplines and departments,  
11                  including faculty and students in schools of business  
12                  and other appropriate non-STEM fields and dis-  
13                  ciplines in knowledge transfer activities;

14                  (3) to enhance education and mentoring of stu-  
15                  dents and faculty in innovation and entrepreneurship  
16                  through networks, courses, and development of best  
17                  practices and curricula;

18                  (4) to strengthen the culture of the institution or  
19                  institutions of higher education to undertake and par-  
20                  ticipate in activities related to innovation and lead-  
21                  ing to economic or social impact;

22                  (5) to broaden the participation of all types of  
23                  institutions of higher education in activities to meet  
24                  STEM workforce needs and promote innovation and  
25                  knowledge transfer; and

1           (6) *to build lasting partnerships with local and*  
 2           *regional businesses, local and State governments, and*  
 3           *other relevant entities.*

4           (d) *ADDITIONAL CRITERIA.—In selecting grant recipi-*  
 5           *ents under this section, the Director shall also consider the*  
 6           *extent to which the applicants are able to demonstrate evi-*  
 7           *dence of institutional support for, and commitment to—*

8                 (1) *achieving the goals of the program as de-*  
 9                 *scribed in subsection (c);*

10                (2) *expansion to an institution-wide program if*  
 11                *the initial proposal is not for an institution-wide*  
 12                *program; and*

13                (3) *sustaining any new innovation tools and re-*  
 14                *sources generated from funding under this program.*

15           (e) *LIMITATION.—No funds provided under this section*  
 16           *may be used to construct or renovate a building or struc-*  
 17           *ture.*

18   **SEC. 509. SUSTAINABLE CHEMISTRY BASIC RESEARCH.**

19           *The Director shall establish a Green Chemistry Basic*  
 20           *Research program to award competitive, merit-based grants*  
 21           *to support research into green and sustainable chemistry*  
 22           *which will lead to clean, safe, and economical alternatives*  
 23           *to traditional chemical products and practices. The research*  
 24           *program shall provide sustained support for green chem-*  
 25           *istry research, education, and technology transfer through—*

1           (1) *merit-reviewed competitive grants to indi-*  
2           *vidual investigators and teams of investigators, in-*  
3           *cluding, to the extent practicable, young investigators,*  
4           *for research;*

5           (2) *grants to fund collaborative research partner-*  
6           *ships among universities, industry, and nonprofit or-*  
7           *ganizations;*

8           (3) *symposia, forums, and conferences to increase*  
9           *outreach, collaboration, and dissemination of green*  
10          *chemistry advances and practices; and*

11          (4) *education, training, and retraining of under-*  
12          *graduate and graduate students and professional*  
13          *chemists and chemical engineers, including through*  
14          *partnerships with industry, in green chemistry*  
15          *science and engineering.*

16 **SEC. 510. GRADUATE STUDENT SUPPORT.**

17          (a) *FINDING.—The Congress finds that—*

18               (1) *the Integrative Graduate Education and Re-*  
19               *search Traineeship program is an important program*  
20               *for training the next generation of scientists and engi-*  
21               *neers in team-based interdisciplinary research and*  
22               *problem solving, and for providing them with the*  
23               *many additional skills, such as communication skills,*  
24               *needed to thrive in diverse STEM careers; and*

1           (2) *the Integrative Graduate Education and Re-*  
 2           *search Traineeship program is no less valuable to the*  
 3           *preparation and support of graduate students than*  
 4           *the Foundation's Graduate Research Fellowship pro-*  
 5           *gram.*

6           (b) *EQUAL TREATMENT OF IGERT AND GRF.*—Be-  
 7           *ginning in fiscal year 2011, the Director shall increase or,*  
 8           *if necessary, decrease funding for the Foundation's Integra-*  
 9           *tive Graduate Education and Research Traineeship pro-*  
 10          *gram (or any program by which it is replaced) at least*  
 11          *at the same rate as it increases or decreases funding for*  
 12          *the Graduate Research Fellowship program.*

13          (c) *SUPPORT FOR GRADUATE STUDENT RESEARCH*  
 14          *FROM THE RESEARCH ACCOUNT.*—For each of the fiscal  
 15          *years 2011 through 2013, at least 50 percent of the total*  
 16          *Foundation funds allocated to the Integrative Graduate*  
 17          *Education and Research Traineeship program and the*  
 18          *Graduate Research Fellowship program shall come from*  
 19          *funds appropriated for Research and Related Activities.*

20          (d) *COST OF EDUCATION ALLOWANCE FOR GRF PRO-*  
 21          *GRAM.*—Section 10 of the National Science Foundation Act  
 22          *of 1950 (42 U.S.C. 1869) is amended—*

23                  (1) *by inserting “(a) IN GENERAL.—” before*  
 24                  *“The Foundation is authorized”; and*

25                  (2) *by adding at the end the following:*

(a) *MATCHING REQUIREMENT.*—Section 10A(h)(1) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-1a(h)(1)) is amended to read as follows:

16                   “(A) in the case of grants in an amount of  
17                   less than \$1,500,000, an amount equal to at least  
18                   30 percent of the amount of the grant, at least  
19                   one half of which shall be in cash; and

24 (b) *RETIRING STEM PROFESSIONALS.*—Section  
25 10A(a)(2)(A) of the National Science Foundation Author-

1 ization Act of 2002 (42 U.S.C. 1862n-1a(a)(2)(A)) is  
 2 amended by inserting “including retiring professionals in  
 3 those fields,” after “mathematics professionals,”.

4 **SEC. 512 UNDERGRADUATE BROADENING PARTICIPATION**  
 5 **PROGRAM.**

6 *The Foundation shall continue to support the Histori-*  
 7 *cally Black Colleges and Universities Undergraduate Pro-*  
 8 *gram, the Louis Stokes Alliances for Minority Participation*  
 9 *program, the Tribal Colleges and Universities Program,*  
 10 *and Hispanic-serving institutions as separate programs.*

11 **SEC. 513. RESEARCH EXPERIENCES FOR HIGH SCHOOL STU-**  
 12 **DENTS.**

13 *The Director shall permit specialized STEM high*  
 14 *schools conducting research to participate in major data*  
 15 *collection initiatives from universities, corporations, or gov-*  
 16 *ernment labs under a research grant from the Foundation,*  
 17 *as part of the research proposal.*

18 **SEC. 514. RESEARCH EXPERIENCES FOR UNDERGRADU-**  
 19 **ATES.**

20 (a) *RESEARCH SITES.*—*The Director shall award*  
 21 *grants, on a merit-reviewed, competitive basis, to institu-*  
 22 *tions of higher education, nonprofit organizations, or con-*  
 23 *sortia of such institutions and organizations, for sites des-*  
 24 *ignated by the Director to provide research experiences for*  
 25 *6 or more undergraduate STEM students for sites des-*

1 *ignated at primarily undergraduate institutions of higher*  
 2 *education and 10 or more undergraduate STEM students*  
 3 *for all other sites, with consideration given to the goal of*  
 4 *promoting the participation of individuals identified in*  
 5 *section 33 or 34 of the Science and Engineering Equal Op-*  
 6 *portunities Act (42 U.S.C. 1885a or 1885b). The Director*  
 7 *shall ensure that—*

8           (1) *at least half of the students participating in*  
 9           *a program funded by a grant under this subsection*  
 10          *at each site shall be recruited from institutions of*  
 11          *higher education where research opportunities in*  
 12          *STEM are limited, including 2-year institutions;*

13          (2) *the awards provide undergraduate research*  
 14          *experiences in a wide range of STEM disciplines;*

15          (3) *the awards support a variety of projects, in-*  
 16          *cluding independent investigator-led projects, inter-*  
 17          *disciplinary projects, and multi-institutional projects*  
 18          *(including virtual projects);*

19          (4) *students participating in each program fund-*  
 20          *ed have mentors, including during the academic year*  
 21          *to the extent practicable, to help connect the students'*  
 22          *research experiences to the overall academic course of*  
 23          *study and to help students achieve success in courses*  
 24          *of study leading to a baccalaureate degree in a STEM*  
 25          *field;*



1           (5) *mentors and students are supported with ap-*  
 2           *propriate salary or stipends; and*

3           (6) *student participants are tracked, for employ-*  
 4           *ment and continued matriculation in STEM fields,*  
 5           *through receipt of the undergraduate degree and for at*  
 6           *least 3 years thereafter.*

7           (b) *INCLUSION OF UNDERGRADUATES IN STANDARD*  
 8           *RESEARCH GRANTS.—The Director shall require that every*  
 9           *recipient of a research grant from the Foundation pro-*  
 10          *posing to include 1 or more students enrolled in certificate,*  
 11          *associate, or baccalaureate degree programs in carrying out*  
 12          *the research under the grant shall request support, includ-*  
 13          *ing stipend support, for such undergraduate students as*  
 14          *part of the research proposal itself rather than as a supple-*  
 15          *ment to the research proposal, unless such undergraduate*  
 16          *participation was not foreseeable at the time of the original*  
 17          *proposal.*

18       **SEC. 515. STEM INDUSTRY INTERNSHIP PROGRAMS.**

19          (a) *IN GENERAL.—The Director may award grants,*  
 20          *on a competitive, merit-reviewed basis, to institutions of*  
 21          *higher education, or consortia thereof, to establish or expand*  
 22          *partnerships with local or regional private sector entities,*  
 23          *for the purpose of providing undergraduate students with*  
 24          *integrated internship experiences that connect private sector*  
 25          *internship experiences with the students' STEM*

1 *coursework. The partnerships may also include industry or*  
 2 *professional associations.*

3 *(b) INTERNSHIP PROGRAM.— The grants awarded*  
 4 *under section (a) may include internship programs in the*  
 5 *manufacturing sector.*

6 *(c) USE OF GRANT FUNDS.—Grants under this section*  
 7 *may be used—*

8 *(1) to develop and implement hands-on learning*  
 9 *opportunities;*

10 *(2) to develop curricula and instructional mate-*  
 11 *rials related to industry, including the manufacturing*  
 12 *sector;*

13 *(3) to perform outreach to secondary schools;*

14 *(4) to develop mentorship programs for students*  
 15 *with partner organizations; and*

16 *(5) to conduct activities to support awareness of*  
 17 *career opportunities and skill requirements.*

18 *(d) PRIORITY.—In awarding grants under this section,*  
 19 *the Director shall give priority to institutions of higher edu-*  
 20 *cation or consortia thereof that demonstrate significant out-*  
 21 *reach to and coordination with local or regional private*  
 22 *sector entities and Regional Centers for the Transfer of*  
 23 *Manufacturing Technology established by section 25(a) of*  
 24 *the National Institute of Standards and Technology Act (15*  
 25 *U.S.C. 278k(a)) in developing academic courses designed to*

1 *provide students with the skills or certifications necessary*  
2 *for employment in local or regional companies.*

3 (c) *OUTREACH TO RURAL COMMUNITIES.*—*The Foun-*  
4 *dation shall conduct outreach to institutions of higher edu-*  
5 *cation and private sector entities in rural areas to encour-*  
6 *age those entities to participate in partnerships under this*  
7 *section.*

8 (d) *COST-SHARE.*—*The Director shall require a 50*  
9 *percent non-Federal cost-share from partnerships estab-*  
10 *lished or expanded under this section.*

11 (e) *RESTRICTION.*—*No Federal funds provided under*  
12 *this section may be used—*

13 (1) *for the purpose of providing stipends or com-*  
14 *pensation to students for private sector internships*  
15 *unless private sector entities match 75 percent of such*  
16 *funding; or*

17 (2) *as payment or reimbursement to private sec-*  
18 *tor entities, except for institutions of higher edu-*  
19 *cation.*

20 (f) *REPORT.*—*Not less than 3 years after the date of*  
21 *enactment of this Act, the Director shall submit a report*  
22 *to Congress on the number and total value of awards made*  
23 *under this section, the number of students affected by those*  
24 *awards, any evidence of the effect of those awards on work-*  
25 *force preparation and jobs placement for participating stu-*

1 dents, and an economic and ethnic breakdown of the par-  
 2 ticipating students.

3 **SEC. 516. CYBER-ENABLED LEARNING FOR NATIONAL CHAL-**  
 4 **LENGES.**

5 *The Director shall, in consultation with appropriate*  
 6 *Federal agencies, identify ways to use cyber-enabled learn-*  
 7 *ing to create an innovative STEM workforce and to help*  
 8 *retrain and retain our existing STEM workforce to address*  
 9 *national challenges, including national security and com-*  
 10 *petitiveness, and use technology to enhance or supplement*  
 11 *laboratory based learning.*

12 **SEC. 517. EXPERIMENTAL PROGRAM TO STIMULATE COM-**  
 13 **PETITIVE RESEARCH.**

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

15 (1) *The National Science Foundation Act of*  
 16 *1950 stated, “it shall be an objective of the Founda-*  
 17 *tion to strengthen research and education in the*  
 18 *sciences and engineering, including independent re-*  
 19 *search by individuals, throughout the United States,*  
 20 *and to avoid undue concentration of such research*  
 21 *and education,”;*

22 (2) *National Science Foundation funding re-*  
 23 *mains highly concentrated, with 27 States and 2 ju-*  
 24 *risdictions, taken together, receiving only about 10*  
 25 *percent of all NSF research funding; each of these*

1       *States received only a fraction of one percent of Foun-*  
 2       *dation's research dollars each year;*

3               *(3) the Nation requires the talent, expertise, and*  
 4       *research capabilities of all States in order to prepare*  
 5       *sufficient numbers of scientists and engineers, remain*  
 6       *globally competitive and support economic develop-*  
 7       *ment.*

8       *(b) CONTINUATION OF PROGRAM.—The Director shall*  
 9       *continue to carry out EPSCoR, with the objective of helping*  
 10       *the eligible States to develop the research infrastructure that*  
 11       *will make them more competitive for Foundation and other*  
 12       *Federal research funding. The program shall continue to*  
 13       *increase as the National Science Foundation funding in-*  
 14       *creases.*

15       *(c) CONGRESSIONAL REPORTS.—The Director shall re-*  
 16       *port to the appropriate committees of Congress on an an-*  
 17       *nual basis, using the most recent available data—*

18               *(1) the total amount made available, by State,*  
 19       *under EPSCoR;*

20               *(2) the amount of co-funding made available to*  
 21       *EPSCoR States;*

22               *(3) the total amount of National Science Foun-*  
 23       *dation funding made available to all institutions and*  
 24       *entities within EPSCoR States; and*

1           (4) *efforts and accomplishments to more fully in-*  
 2           *tegrate the 29 EPSCoR jurisdictions in major activi-*  
 3           *ties and initiatives of the Foundation.*

4           (d) *COORDINATION OF EPSCoR AND SIMILAR FED-*  
 5           *ERAL PROGRAMS.—*

6           (1) *ANOTHER FINDING.—The Congress finds that*  
 7           *a number of Federal agencies have programs, such as*  
 8           *Experimental Programs to Stimulate Competitive Re-*  
 9           *search and the National Institutes of Health Institu-*  
 10          *tional Development Award program, designed to in-*  
 11          *crease the capacity for and quality of science and*  
 12          *technology research and training at academic institu-*  
 13          *tions in States that historically have received rel-*  
 14          *atively little Federal research and development fund-*  
 15          *ing.*

16          (2) *COORDINATION REQUIRED.—The EPSCoR*  
 17          *Interagency Coordinating Committee, chaired by the*  
 18          *National Science Foundation, shall—*

19               (A) *coordinate EPSCoR and Federal*  
 20               *EPSCoR-like programs to maximize the impact*  
 21               *of Federal support for building competitive re-*  
 22               *search infrastructure, and in order to achieve an*  
 23               *integrated Federal effort;*

24               (B) *coordinate agency objectives with State*  
 25               *and institutional goals, to obtain continued non-*

1       *Federal support of science and technology re-*  
2       *search and training;*

3               *(C) develop metrics to assess gains in aca-*  
4       *ademic research quality and competitiveness, and*  
5       *in science and technology human resource devel-*  
6       *opment;*

7               *(D) conduct a cross-agency evaluation of*  
8       *EPSCoR and other Federal EPSCoR-like pro-*  
9       *grams and accomplishments, including manage-*  
10       *ment, investment, and metric-measuring strate-*  
11       *gies implemented by the different agencies aimed*  
12       *to increase the number of new investigators re-*  
13       *ceiving peer-reviewed funding, broaden partici-*  
14       *pation, and empower knowledge generation, dis-*  
15       *semination, application, and national research*  
16       *and development competitiveness;*

17               *(E) coordinate the development and imple-*  
18       *mentation of new, novel workshops, outreach ac-*  
19       *tivities, and follow-up mentoring activities*  
20       *among EPSCoR or EPSCoR-like programs for*  
21       *colleges and universities in EPSCoR States and*  
22       *territories in order to increase the number of*  
23       *proposals submitted and successfully funded and*  
24       *to enhance statewide coordination of EPSCoR*  
25       *and Federal EPSCoR-like programs;*

1           (F) coordinate the development of new, in-  
 2           novative solicitations and programs to facilitate  
 3           collaborations, partnerships, and mentoring ac-  
 4           tivities among faculty at all levels in non-  
 5           EPSCoR and EPSCoR States and jurisdictions;

6           (G) conduct an evaluation of the roles, re-  
 7           sponsibilities and degree of autonomy that pro-  
 8           gram officers or managers (or the equivalent po-  
 9           sition) have in executing EPSCoR programs at  
 10          the different Federal agencies and the impacts  
 11          these differences have on the number of EPSCoR  
 12          State and jurisdiction faculty participating in  
 13          the peer review process and the percentage of suc-  
 14          cessful awards by individual EPSCoR State ju-  
 15          risdiction and individual researcher; and

16          (H) conduct a survey of colleges and univer-  
 17          sity faculty at all levels regarding their knowl-  
 18          edge and understanding of EPSCoR, and their  
 19          level of interaction with and knowledge about  
 20          their respective State or Jurisdictional EPSCoR  
 21          Committee.

22          (3) *MEETINGS AND REPORTS.*—The Committee  
 23          shall meet at least twice each fiscal year and shall  
 24          submit an annual report to the appropriate commit-



1        *tees of Congress describing progress made in carrying*  
 2        *out paragraph (2).*

3        *(e) FEDERAL AGENCY REPORTS.—Each Federal agen-*  
 4        *cy that administers an EPSCoR or Federal EPSCoR-like*  
 5        *program shall submit to the OSTP as part of its Federal*  
 6        *budget submission—*

7                *(1) a description of the program strategy and ob-*  
 8        *jectives;*

9                *(2) a description of the awards made in the pre-*  
 10        *vious year, including—*

11                    *(A) the percentage of reviewers and number*  
 12                    *of new reviewers from EPSCoR States;*

13                    *(B) the percentage of new investigators from*  
 14                    *EPSCoR States;*

15                    *(C) the number of programs or large col-*  
 16                    *laborator awards involving a partnership of or-*  
 17                    *ganizations and institutions from EPSCoR and*  
 18                    *non-EPSCoR States; and*

19                *(3) an analysis of the gains in academic research*  
 20        *quality and competitiveness, and in science and tech-*  
 21        *nology human resource development, achieved by the*  
 22        *program in the last year.*

23        *(f) NATIONAL ACADEMY OF SCIENCES STUDY.—*

24                *(1) IN GENERAL.—The Director shall contract*  
 25        *with the National Academy of Sciences to conduct a*

1        *study on all Federal agencies that administer an Ex-*  
2        *perimental Program to Stimulate Competitive Re-*  
3        *search or a program similar to the Experimental Pro-*  
4        *gram to Stimulate Competitive Research.*

5            (2) *MATTERS TO BE ADDRESSED.—The study*  
6        *conducted under paragraph (1) shall include the fol-*  
7        *lowing:*

8            (A) *A delineation of the policies of each*  
9        *Federal agency with respect to the awarding of*  
10       *grants to EPSCoR States.*

11          (B) *The effectiveness of each program.*

12          (C) *Recommendations for improvements for*  
13       *each agency to achieve EPSCoR goals.*

14          (D) *An assessment of the effectiveness of*  
15       *EPSCoR States in using awards to develop*  
16       *science and engineering research and education,*  
17       *and science and engineering infrastructure with-*  
18       *in their States.*

19          (E) *Such other issues that address the effec-*  
20       *tiveness of EPSCoR as the National Academy of*  
21       *Sciences considers appropriate.*

1 **SEC. 518. SENSE OF THE CONGRESS REGARDING THE**  
2 **SCIENCE, TECHNOLOGY, ENGINEERING, AND**  
3 **MATHEMATICS TALENT EXPANSION PRO-**  
4 **GRAM.**

5 *It is the sense of the Congress that—*

6 *(1) the Science, Technology, Engineering, and*  
7 *Mathematics Talent Expansion Program established*  
8 *by the National Science Foundation Authorization*  
9 *Act of 2002 continues to be an effective program to*  
10 *increase the number of students, who are citizens or*  
11 *permanent residents of the United States, receiving*  
12 *associate or baccalaureate degrees in established or*  
13 *emerging fields within science, technology, engineer-*  
14 *ing, and mathematics, and its authorization con-*  
15 *tinues;*

16 *(2) the strategies employed continue to strength-*  
17 *en mentoring and tutoring between faculty and stu-*  
18 *dents and provide students with information and ex-*  
19 *posure to potential career pathways in science, tech-*  
20 *nology, engineering, and mathematics areas;*

21 *(3) this highly competitive program awarded 145*  
22 *Program implementation awards and 12 research*  
23 *projects in the first 6 years of operations; and*

24 *(4) the Science, Technology, Engineering, and*  
25 *Mathematics Talent Expansion Program should con-*

1 *tinue to be supported by the National Science Foun-*  
 2 *dation.*

3 **SEC. 519. SENSE OF THE CONGRESS REGARDING THE NA-**  
 4 **TIONAL SCIENCE FOUNDATION'S CONTRIBU-**  
 5 **TIONS TO BASIC RESEARCH AND EDUCATION.**

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

7 *(1) the National Science Foundation is an inde-*  
 8 *pendent Federal agency created by Congress in 1950*  
 9 *to, among other things, promote the progress of*  
 10 *science, to advance the national health, prosperity,*  
 11 *and welfare, and to secure the national defense;*

12 *(2) the Foundation is the funding source for ap-*  
 13 *proximately 20 percent of all federally supported*  
 14 *basic research conducted by America's colleges and*  
 15 *universities, and is the major source of Federal back-*  
 16 *ing for mathematics, computer science and other*  
 17 *sciences;*

18 *(3) the America COMPETES Act of 2007 helped*  
 19 *rejuvenate our focus on increasing basic research in-*  
 20 *vestment in the physical sciences, strengthening edu-*  
 21 *cational opportunities in the science, technology, engi-*  
 22 *neering, and mathematics fields and developing a ro-*  
 23 *bust innovation infrastructure; and*

24 *(4) reauthorization of the America COMPETES*  
 25 *Act should continue a robust investment in basic re-*

1        *search and education and preserve the essence of the*  
 2        *original Act by increasing the investment focus on*  
 3        *science, technology, engineering, and mathematics*  
 4        *basic research and education as a national priority.*

5        *(b) SENSE OF THE CONGRES.—It is the sense of the*  
 6        *Congress that—*

7                *(1) the National Science Foundation is the finest*  
 8                *scientific foundation in the world, and is a vital*  
 9                *agency that must support basic research needed to ad-*  
 10               *vance the United States into the 21st century;*

11               *(2) the National Science Foundation should*  
 12               *focus Federal research and development resources pri-*  
 13               *marily in the areas of science, technology, engineer-*  
 14               *ing, and mathematics basic research and education;*  
 15               *and*

16               *(3) the National Science Foundation should*  
 17               *strive to ensure that federally-supported research is of*  
 18               *the finest quality, is ground breaking, and answers*  
 19               *questions or solves problems that are of utmost impor-*  
 20               *tance to society at large.*

21        **SEC. 520. GRANTEE REPORTS ON COMMERCIALIZATION**  
 22                **STRATEGY AND RESULTS.**

23               *(a) IN GENERAL.—Any institution of higher education*  
 24               *(as such term is defined in section 101(a) of the Higher*  
 25               *Education Act of 1965 (20 U.S.C. 1001(a))) that receives*

1 *1 or more grants of financial assistance from the National*  
 2 *Science Foundation for research shall submit a report to*  
 3 *the Foundation at the end of the first year of the grants,*  
 4 *and at the end of each subsequent year in which funds are*  
 5 *received pursuant to such grants, describing—*

6 *(1) the institution's strategy for commercializing*  
 7 *the results of research supported by such grants;*

8 *(2) the implementation of the strategy with re-*  
 9 *spect to research supported by the grants; and*

10 *(3) the results of its efforts to realize the commer-*  
 11 *cial potential of the research supported by those*  
 12 *grants.*

13 *(b) WEBSITE.—The Foundation shall post reports re-*  
 14 *ceived under this section on a website accessible to and*  
 15 *searchable by the public.*

16 *(c) TRADE SECRET INFORMATION.—An institution of*  
 17 *higher education that submits reports to the Foundation*  
 18 *under this section shall not reveal confidential, trade secret,*  
 19 *or proprietary information in such reports.*

20 **SEC. 521. STUDY TO DEVELOP IMPROVED IMPACT-ON-SOCI-**  
 21 **ETY METRICS.**

22 *(a) IN GENERAL.—Within 180 days after the date of*  
 23 *enactment of this Act, the Director of the National Science*  
 24 *Foundation shall contract with the National Academy of*  
 25 *Sciences to initiate a study to evaluate, develop, or improve*

1 *metrics for measuring the potential impact-on-society, in-*  
 2 *cluding—*

3 *(1) the potential for commercial applications of*  
 4 *research studies funded in whole or in part by grants*  
 5 *of financial assistance from the Foundation or other*  
 6 *Federal agencies;*

7 *(2) the manner in which research conducted at,*  
 8 *and individuals graduating from, an institution of*  
 9 *higher education contribute to the development of new*  
 10 *intellectual property and the success of commercial*  
 11 *activities;*

12 *(3) the quality of relevant scientific and inter-*  
 13 *national publications; and*

14 *(4) the ability of such institutions to attract ex-*  
 15 *ternal research funding.*

16 *(b) REPORT.—Within 1 year after initiating the study*  
 17 *required by subsection (a), the Director shall submit a re-*  
 18 *port to the Senate Committee on Commerce, Science, and*  
 19 *Transportation and the House of Representatives Com-*  
 20 *mittee on Science and Technology setting forth the Direc-*  
 21 *tor's findings, conclusions, and recommendations.*

22 **SEC. 522. NSF GRANTS IN SUPPORT OF SPONSORED POST-**  
 23 **DOCTORAL FELLOWSHIP PROGRAMS.**

24 *The Director of the National Science Foundation may*  
 25 *utilize funds appropriated to carry out grants to institu-*

1 tions of higher education (as such term is defined in section  
 2 101(a) of the Higher Education Act of 1965 (20 U.S.C.  
 3 1001(a))) to provide financial support for post-graduate re-  
 4 search in fields with potential commercial applications to  
 5 match, in whole or in part, any private sector grant of fi-  
 6 nancial assistance to any post-doctoral program in such a  
 7 field of study.

8 **SEC. 523. COLLABORATION IN PLANNING FOR STEWARD-**  
 9 **SHIP OF LARGE-SCALE FACILITIES.**

10 *It is the sense of Congress that—*

11 *(1) the Foundation should, in its planning for*  
 12 *construction and stewardship of large facilities, co-*  
 13 *ordinate and collaborate with other Federal agencies,*  
 14 *including the Department of Energy's Office of*  
 15 *Science, to ensure that joint investments may be made*  
 16 *when practicable;*

17 *(2) in particular, the Foundation should ensure*  
 18 *that it responds to recommendations by the National*  
 19 *Academy of Sciences and working groups convened by*  
 20 *the National Science and Technology Council regard-*  
 21 *ing such facilities and opportunities for partnership*  
 22 *with other agencies in the design and construction of*  
 23 *such facilities; and*

24 *(3) for facilities in which research in multiple*  
 25 *disciplines will be possible, the Director should in-*



1        *clude multiple units within the Foundation during*  
 2        *the planning process.*

3    **SEC. 524. CLOUD COMPUTING RESEARCH ENHANCEMENT.**

4        *(a) RESEARCH FOCUS AREA.—The Director may sup-*  
 5        *port a national research agenda in key areas affected by*  
 6        *the increased use of public and private cloud computing,*  
 7        *including—*

8                *(1) new approaches, techniques, technologies, and*  
 9        *tools for—*

10                *(A) optimizing the effectiveness and effi-*  
 11                *ciency of cloud computing environments; and*

12                *(B) mitigating security, identity, privacy,*  
 13                *reliability, and manageability risks in cloud-*  
 14                *based environments, including as they differ*  
 15                *from traditional data centers;*

16                *(2) new algorithms and technologies to define,*  
 17                *assess, and establish large-scale, trustworthy, cloud-*  
 18                *based infrastructures;*

19                *(3) models and advanced technologies to meas-*  
 20                *ure, assess, report, and understand the performance,*  
 21                *reliability, energy consumption, and other character-*  
 22                *istics of complex cloud environments; and*

23                *(4) advanced security technologies to protect sen-*  
 24                *sitive or proprietary information in global-scale cloud*  
 25                *environments.*

1       (b) *ESTABLISHMENT.*—

2           (1) *IN GENERAL.*—Not later than 60 days after  
3       the date of enactment of this Act, the Director shall  
4       initiate a review and assessment of cloud computing  
5       research opportunities and challenges, including re-  
6       search areas listed in subsection (a), as well as related  
7       issues such as—

8           (A) the management and assurance of data  
9       that are the subject of Federal laws and regula-  
10      tions in cloud computing environments, which  
11      laws and regulations exist on the date of enact-  
12      ment of this Act;

13          (B) misappropriation of cloud services, pi-  
14      racy through cloud technologies, and other  
15      threats to the integrity of cloud services;

16          (C) areas of advanced technology needed to  
17      enable trusted communications, processing, and  
18      storage; and

19          (D) other areas of focus determined appro-  
20      priate by the Director.

21       (2) *UNSOLICITED PROPOSALS.*—The Director  
22      may accept unsolicited proposals that review and as-  
23      sess the issues described in paragraph (1). The pro-  
24      posals may be judged according to existing criteria of  
25      the National Science Foundation.

1       (c) *REPORT.*—*The Director shall provide an annual*  
 2 *report for not less than 5 consecutive years to Congress on*  
 3 *the outcomes of National Science Foundation investments*  
 4 *in cloud computing research, recommendations for research*  
 5 *focus and program improvements, or other related rec-*  
 6 *ommendations. The reports, including any interim findings*  
 7 *or recommendations, shall be made publicly available on*  
 8 *the website of the National Science Foundation.*

9       (d) *NIST SUPPORT.*—*The Director of the National In-*  
 10 *stitute of Standards and Technology shall—*

11           (1) *collaborate with industry in the development*  
 12 *of standards supporting trusted cloud computing in-*  
 13 *frastructures, metrics, interoperability, and assur-*  
 14 *ance; and*

15           (2) *support standards development with the in-*  
 16 *tent of supporting common goals.*

17 **SEC. 525. TRIBAL COLLEGES AND UNIVERSITIES PROGRAM.**

18       (a) *IN GENERAL.*—*The Director shall continue to sup-*  
 19 *port a program to award grants on a competitive, merit-*  
 20 *reviewed basis to tribal colleges and universities (as defined*  
 21 *in section 316 of the Higher Education Act of 1965 (20*  
 22 *U.S.C. 1059c), including institutions described in section*  
 23 *317 of such Act (20 U.S.C. 1059d), to enhance the quality*  
 24 *of undergraduate STEM education at such institutions and*  
 25 *to increase the retention and graduation rates of Native*

1 *American students pursuing associate's or baccalaureate de-*  
 2 *grees in STEM.*

3 (b) *PROGRAM COMPONENTS.—Grants awarded under*  
 4 *this section shall support—*

5 (1) *activities to improve courses and curriculum*  
 6 *in STEM;*

7 (2) *faculty development;*

8 (3) *stipends for undergraduate students partici-*  
 9 *pating in research; and*

10 (4) *other activities consistent with subsection (a),*  
 11 *as determined by the Director.*

12 (c) *INSTRUMENTATION.—Funding provided under this*  
 13 *section may be used for laboratory equipment and mate-*  
 14 *rials.*

## 15 ***SUBTITLE B—STEM-TRAINING*** 16 ***GRANT PROGRAM***

### 17 ***SEC. 551. PURPOSE.***

18 *The purpose of this subtitle is to replicate and imple-*  
 19 *ment programs at institutions of higher education that pro-*  
 20 *vide integrated courses of study in science, technology, engi-*  
 21 *neering, or mathematics, and teacher education, that lead*  
 22 *to a baccalaureate degree in science, technology, engineer-*  
 23 *ing, or mathematics with concurrent teacher certification.*

1 **SEC. 552. PROGRAM REQUIREMENTS.**

2       *The Director shall replicate and implement under-*  
3 *graduate degree programs under this subtitle that—*

4           (1) *are designed to recruit and prepare students*  
5 *who pursue a baccalaureate degree in science, tech-*  
6 *nology, engineering, or mathematics to become cer-*  
7 *tified as elementary and secondary teachers;*

8           (2) *require the education department (or its*  
9 *equivalent) and the departments or division respon-*  
10 *sible for preparation of science, technology, engineer-*  
11 *ing, and mathematics majors at an institution of*  
12 *higher education to collaborate in establishing and*  
13 *implementing the program at that institution;*

14           (3) *require students participating in the pro-*  
15 *gram to enter the program through a field-based*  
16 *course and to continue to complete field-based courses*  
17 *supervised by master teachers throughout the pro-*  
18 *gram;*

19           (4) *hire sufficient teachers so that the ratio of*  
20 *students to master teachers in the program does not*  
21 *exceed 100 to 1;*

22           (5) *include instruction in the use of scientif-*  
23 *ically-based instructional materials and methods, as-*  
24 *sessments, pedagogical content knowledge (including*  
25 *the interaction between mathematics and science), the*  
26 *use of instructional technology, and how to incor-*

1        *porate State and local standards into the classroom*  
 2        *curriculum;*

3            *(6) restrict to students participating in the pro-*  
 4        *gram those courses that are specifically designed for*  
 5        *the needs of teachers of science, technology, engineer-*  
 6        *ing, and mathematics; and*

7            *(7) require students participating in the pro-*  
 8        *gram to successfully complete a final evaluation of*  
 9        *their teaching proficiency, based on their classroom*  
 10       *teaching performance, conducted by multiple trained*  
 11       *observers, and a portfolio of their accomplishments.*

12    **SEC. 553. GRANT PROGRAM.**

13        *(a) IN GENERAL.—The Director shall establish a grant*  
 14       *program to support programs at institutions of higher edu-*  
 15       *cation to carry out the purpose of this subtitle.*

16        *(b) GEOGRAPHICAL CONSIDERATIONS.—In the admin-*  
 17       *istration of this subtitle, the Director shall take such steps*  
 18       *as may be necessary to ensure that grants are equitably dis-*  
 19       *tributed across all regions of the United States, taking into*  
 20       *account population density and other geographic and demo-*  
 21       *graphic considerations.*

22        *(c) AMOUNT OF GRANT.—Subject to the requirements*  
 23       *of subsection (d), the Director may award grants annually*  
 24       *on a competitive basis to institutions of higher education*  
 25       *in the amount of \$2,000,000, per institution of which—*

1           (1) \$1,500,000 shall be used—

2                   (A) to design, implement, and evaluate a  
3           program that meets the requirements of section  
4           552;

5                   (B) to employ master teachers at the insti-  
6           tution to oversee field experiences;

7                   (C) to provide a stipend to mentor teachers  
8           participating in the program; and

9                   (D) to support curriculum development and  
10          implementation strategies for science, technology,  
11          engineering, and mathematics content courses  
12          taught through the program; and

13          (2) up to \$500,000 shall be set aside by the  
14          grantee for technical support and evaluation services  
15          from the institution whose programs will be rep-  
16          licated.

17          (d) *ELIGIBILITY.*—To be eligible to apply for a grant  
18          under this section, an institution of higher education  
19          shall—

20                   (1) include former secondary school science, tech-  
21          nology, engineering, or mathematics master teachers  
22          as faculty in its science department for this program;

23                   (2) grant terminal degrees in science, technology,  
24          engineering, and mathematics; and

1           (3) have a process to be used in establishing  
2           partnerships with local educational agencies for  
3           placement of participating students in their field ex-  
4           periences, including a process for identifying mentor  
5           teachers working in local schools to supervise class-  
6           room field experiences in cooperation with university-  
7           based master teachers;

8           (4) maintain policies allowing flexible entry to  
9           the program throughout the undergraduate  
10          coursework;

11          (5) require that master teachers employed by the  
12          institution will supervise field experiences of students  
13          in the program;

14          (6) require that the program complies with State  
15          certification or licensing requirements and the re-  
16          quirements under section 9101(23) of the Elementary  
17          and Secondary Education Act of 1965 (20 U.S.C.  
18          7801(23)) for highly qualified teachers;

19          (7) develop during the course of the grant a plan  
20          for long-term support and assessment of its graduates,  
21          which shall include—

22                  (A) induction support for graduates in their  
23                  first one to two years of teaching;



1                   (B) systems to determine the teaching status  
 2                   of graduates and thereby determine retention  
 3                   rates; and

4                   (C) methods to analyze the achievement of  
 5                   students taught by graduates, and methods to  
 6                   analyze classroom practices of graduates; and

7                   (8) be able upon completion of the grant at the  
 8                   end of 5 years to fund essential program costs, includ-  
 9                   ing salaries of master teachers and other necessary  
 10                  personnel, from recurring university budgets.

11               (e) *APPLICATION REQUIREMENTS.*—An institution of  
 12               higher education seeking a grant under the program shall  
 13               submit an application to the Director in such form, at such  
 14               time, and containing such information and assurances as  
 15               the Director may require, including—

16               (1) a description of the current rate at which in-  
 17               dividuals majoring in science, technology, engineer-  
 18               ing, and mathematics become certified as elementary  
 19               and secondary teachers;

20               (2) a description for the institution's plan for  
 21               increasing the numbers of students enrolled in and  
 22               graduating from the program supported under this  
 23               subtitle;

24               (3) a description of the institution's capacity to  
 25               develop a program in which individuals majoring in

1     *science, technology, engineering, and mathematics can*  
2     *become certified as elementary and secondary teach-*  
3     *ers;*

4             *(4) identification of the organizational unit*  
5     *within the department or division of arts and sciences*  
6     *or the science department at the institution that will*  
7     *adopt teacher certification for elementary and sec-*  
8     *ondary teachers as its primary mission;*

9             *(5) identification of core faculty within the de-*  
10    *partment or division of arts and sciences or the*  
11    *science department at the institution to champion*  
12    *teacher preparation in their departments by teaching*  
13    *courses dedicated to preparing future elementary and*  
14    *secondary school teachers, helping create new degree*  
15    *plans, advising prospective students within their*  
16    *major, and assisting as needed with program admin-*  
17    *istration;*

18            *(6) identification of core faculty in the education*  
19    *department or its equivalent at the institution to*  
20    *champion teacher preparation by creating and teach-*  
21    *ing courses specific to the preparation of science, tech-*  
22    *nology, engineering, and mathematics and working*  
23    *closely with colleagues in the department or division*  
24    *of arts and sciences or the science department; and*

1           (7) *a description of involving practical, field-*  
 2           *based experience in teaching and degree plans ena-*  
 3           *bling students to graduate in 4 years with a major*  
 4           *in science, technology, engineering, or mathematics*  
 5           *and elementary or secondary school teacher certifi-*  
 6           *cation.*

7           (f) *MATCHING REQUIREMENT.*—*An institution of*  
 8           *higher education may not receive a grant under this section*  
 9           *unless it provides, from non-federal sources, to carry out*  
 10          *the activities supported by the grant, an amount that is*  
 11          *not less than—*

12           (1) *35 percent of the amount of the grant for the*  
 13          *first fiscal year of the grant;*

14           (2) *55 percent of the amount of the grant for the*  
 15          *second and third fiscal years of the grant; and*

16           (3) *75 percent of the amount of the grant for the*  
 17          *fourth and fifth fiscal years of the grant.*

18           (g) *GUIDANCE.*—*Within 90 days after the date of en-*  
 19          *actment of this Act, the Director shall initiate a proceeding*  
 20          *to promulgate guidance for the administration of the grant*  
 21          *program established under subsection (a).*

22   **SEC. 554. GRANT OVERSIGHT AND ADMINISTRATION.**

23           (a) *IN GENERAL.*—*The Director may execute a con-*  
 24          *tract for program oversight and fiscal management with an*  
 25          *organization at an institution of higher education, a non-*

1 *profit organization, or other entity that demonstrates ca-*  
2 *capacity for and experience in—*

3 *(1) replicating 1 or more similar programs at*  
4 *regional or national levels;*

5 *(2) providing programmatic and technical im-*  
6 *plementation assistance for the program;*

7 *(3) performing data collection and analysis to*  
8 *ensure proper implementation and continuous pro-*  
9 *gram improvement; and*

10 *(4) providing accountability for results by*  
11 *measuring and monitoring achievement of pro-*  
12 *grammatic milestones.*

13 *(b) OVERSIGHT RESPONSIBILITIES.—*

14 *(1) MANDATORY DUTIES.—If the Director exe-*  
15 *cutes a contract under subsection (a) with an organi-*  
16 *zation for program oversight and fiscal management,*  
17 *the organization shall—*

18 *(A) ensure that a grant recipient faithfully*  
19 *replicates and implements the program or pro-*  
20 *grams for which the grant is awarded;*

21 *(B) ensure that grant funds are used for the*  
22 *purposes authorized and that a grant recipient*  
23 *has a system in place to track and account for*  
24 *all Federal grant funds provided;*

1           (C) provide technical assistance to grant re-  
2           cipients;

3           (D) collect and analyze data and report to  
4           the Director annually on the effects of the pro-  
5           gram on—

6                 (i) the progress of participating stu-  
7                 dents in achieving teaching competence and  
8                 teaching certification;

9                 (ii) the participation of students in the  
10                program by major, compared with local and  
11                State needs on secondary teachers by dis-  
12                cipline; and

13               (iii) the participation of students in  
14                the program by demographic subgroup;

15           (E) collect and analyze data and report to  
16           the Director annually on the effects of the pro-  
17           gram on the academic achievement of elementary  
18           and secondary school students taught by grad-  
19           uates of programs funded by grants under this  
20           subtitle; and

21           (F) submit an annual report to the Director  
22           demonstrating compliance with the requirements  
23           of subparagraphs (A) through (E).

24           (2) DISCRETIONARY DUTIES.—At the request of  
25           the Director, the organization under contract under

1 subsection (a) may assist the Director in evaluating  
2 grant applications.

3 (c) *REPORTS TO CONGRESS.*—The Director shall sub-  
4 mit a copy of the annual report required by subsection  
5 (b)(1)(F) to the Senate Committee on Commerce, Science,  
6 and Transportation, the Senate Committee on Health, Edu-  
7 cation, Labor, and Pensions, the House of Representatives  
8 Committee on Science and Technology, and the House of  
9 Representatives Committee on Education and Labor.

10 **SEC. 555. DEFINITIONS.**

11 *In this subtitle:*

12 (1) *FIELD-BASED COURSE.*—The term “field-  
13 based course” means a course of instruction offered by  
14 an institution of higher education that includes a re-  
15 quirement that students teach a minimum of 3 lessons  
16 or sequences of lessons to elementary or secondary stu-  
17 dents.

18 (2) *INSTITUTION OF HIGHER EDUCATION.*—The  
19 term “institution of higher education” has the mean-  
20 ing given that term by section 101 of the Higher Edu-  
21 cation Act of 1965 (20 U.S.C. 1001).

22 (3) *MASTER TEACHER.*—The term “master  
23 teacher” means an individual—

1           (A) who has been awarded a master's or  
 2           doctoral degree by an institution of higher edu-  
 3           cation;

4           (B) whose graduate coursework included  
 5           courses in mathematics, science, computer  
 6           science, or engineering;

7           (C) who has at least 3 years teaching expe-  
 8           rience in K-12 settings; and

9           (D) whose teaching has been recognized for  
 10          exceptional accomplishments in educating stu-  
 11          dents, or is demonstrated to have resulted in im-  
 12          proved student achievement.

13          (4) *MENTOR TEACHER.*—The term “mentor  
 14          teacher” means an elementary or secondary school  
 15          classroom teacher who assists with the training of stu-  
 16          dents participating in a field-based course.

17          (5) *DIRECTOR.*—The term “Director” means the  
 18          Director of the National Science Foundation.

19 **SEC. 557. AUTHORIZATION OF APPROPRIATIONS.**

20          There are authorized to be appropriated to the Director  
 21          to carry out this subtitle \$10,000,000 for each of fiscal years  
 22          2011 through 2013.

1                   **TITLE VI—INNOVATION**

2   **SEC. 601. OFFICE OF INNOVATION AND ENTREPRENEUR-**  
 3                   **SHIP.**

4           *The Stevenson-Wydler Technology Innovation Act of*  
 5   *1980 (15 U.S.C. 3701 et seq.), as amended by section 106*  
 6   *of this Act, is amended by adding at the end the following:*

7   **“SEC. 25. OFFICE OF INNOVATION AND ENTREPRENEUR-**  
 8                   **SHIP.**

9           “(a) *IN GENERAL.*—*The Secretary shall establish an*  
 10   *Office of Innovation and Entrepreneurship to foster innova-*  
 11   *tion and the commercialization of new technologies, prod-*  
 12   *ucts, processes, and services with the goal of promoting pro-*  
 13   *ductivity and economic growth in the United States.*

14          “(b) *DUTIES.*—*The Office of Innovation and Entrepre-*  
 15   *neurship shall be responsible for—*

16               “(1) *developing policies to accelerate innovation*  
 17   *and advance the commercialization of research and*  
 18   *development, including federally funded research and*  
 19   *development;*

20               “(2) *identifying existing barriers to innovation*  
 21   *and commercialization, including access to capital*  
 22   *and other resources, and ways to overcome those bar-*  
 23   *riers, particularly in States participating in the Ex-*  
 24   *perimental Program to Stimulate Competitive Re-*  
 25   *search;*



1           “(3) providing access to relevant data, research,  
2           and technical assistance on innovation and commer-  
3           cialization;

4           “(4) strengthening collaboration on and coordi-  
5           nation of policies relating to innovation and commer-  
6           cialization, including those focused on the needs of  
7           small businesses and rural communities, within the  
8           Department of Commerce, between the Department of  
9           Commerce and other Federal agencies, and between  
10          the Department of Commerce and appropriate State  
11          government agencies and institutions, as appropriate;  
12          and

13          “(5) any other duties as determined by the Sec-  
14          retary.

15          “(c) *ADVISORY COMMITTEE.*—The Secretary shall es-  
16          tablish an Advisory Council on Innovation and Entrepre-  
17          neurship to provide advice to the Secretary on carrying out  
18          subsection (b).”.

19       **SEC. 602. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**  
20                               **TECHNOLOGIES IN MANUFACTURING.**

21          *The Stevenson-Wydler Technology Innovation Act of*  
22          *1980 (15 U.S.C. 3701 et seq.), as amended by section 601,*  
23          *is further amended by adding at the end the following:*

1   **“SEC. 26. FEDERAL LOAN GUARANTEES FOR INNOVATIVE**  
2                   **TECHNOLOGIES IN MANUFACTURING.**

3           “(a) *ESTABLISHMENT.*—*The Secretary shall establish*  
4   *a program to provide loan guarantees for obligations to*  
5   *small- or medium-sized manufacturers for the use or pro-*  
6   *duction of innovative technologies.*

7           “(b) *ELIGIBLE PROJECTS.*—*A loan guarantee may be*  
8   *made under the program only for a project that re-equips,*  
9   *expands, or establishes a manufacturing facility in the*  
10   *United States—*

11           “(1) *to use an innovative technology or an inno-*  
12    *vative process in manufacturing;*

13           “(2) *to manufacture an innovative technology*  
14    *product or an integral component of such a product;*  
15    *or*

16           “(3) *to commercialize an innovative product,*  
17    *process, or idea that was developed by research funded*  
18    *in whole or in part by a grant from the National*  
19    *Science Foundation.*

20           “(c) *ELIGIBLE BORROWER.*—*A loan guarantee may be*  
21    *made under the program only for a borrower who is a*  
22    *small- or medium-sized manufacturer, as determined by the*  
23    *Secretary under the criteria established pursuant to sub-*  
24    *section (l).*

25           “(d) *LIMITATION ON AMOUNT.*—*A loan guarantee shall*  
26    *not exceed an amount equal to 80 percent of the obligation,*

1 *as estimated at the time at which the loan guarantee is*  
 2 *issued.*

3 “(e) *LIMITATIONS ON LOAN GUARANTEE.*—No loan  
 4 *guarantee shall be made unless the Secretary determines*  
 5 *that—*

6 “(1) *there is a reasonable prospect of repayment*  
 7 *of the principal and interest on the obligation by the*  
 8 *borrower;*

9 “(2) *the amount of the obligation (when com-*  
 10 *bined with amounts available to the borrower from*  
 11 *other sources) is sufficient to carry out the project;*

12 “(3) *the obligation is not subordinate to other fi-*  
 13 *nancing;*

14 “(4) *the obligation bears interest at a rate that*  
 15 *does not exceed a level that the Secretary determines*  
 16 *appropriate, taking into account the prevailing rate*  
 17 *of interest in the private sector for similar loans and*  
 18 *risks; and*

19 “(5) *the term of an obligation requires full re-*  
 20 *payment over a period not to exceed the lesser of—*

21 “(A) *30 years; or*

22 “(B) *90 percent of the projected useful life,*  
 23 *as determined by the Secretary, of the physical*  
 24 *asset to be financed by the obligation.*

25 “(f) *DEFAULTS.*—

1           “(1) *PAYMENT BY SECRETARY.*—

2                   “(A) *IN GENERAL.*—*If a borrower defaults*  
3                   *(as defined in regulations promulgated by the*  
4                   *Secretary and specified in the loan guarantee)*  
5                   *on the obligation, the holder of the loan guar-*  
6                   *antee shall have the right to demand payment of*  
7                   *the unpaid amount from the Secretary.*

8                   “(B) *PAYMENT REQUIRED.*—*Within such*  
9                   *period as may be specified in the loan guarantee*  
10                  *or related agreements, the Secretary shall pay to*  
11                  *the holder of the loan guarantee the unpaid in-*  
12                  *terest on and unpaid principal of the obligation*  
13                  *as to which the borrower has defaulted, unless the*  
14                  *Secretary finds that there was no default by the*  
15                  *borrower in the payment of interest or principal*  
16                  *or that the default has been remedied.*

17                  “(C) *FORBEARANCE.*—*Nothing in this sub-*  
18                  *section precludes any forbearance by the holder*  
19                  *of the obligation for the benefit of the borrower*  
20                  *which may be agreed upon by the parties to the*  
21                  *obligation and approved by the Secretary.*

22           “(2) *SUBROGATION.*—

23                   “(A) *IN GENERAL.*—*If the Secretary makes*  
24                   *a payment under paragraph (1), the Secretary*  
25                   *shall be subrogated to the rights, as specified in*

1        *the loan guarantee, of the recipient of the pay-*  
 2        *ment or related agreements including, if appro-*  
 3        *priate, the authority (notwithstanding any other*  
 4        *provision of law)—*

5                *“(i) to complete, maintain, operate,*  
 6                *lease, or otherwise dispose of any property*  
 7                *acquired pursuant to such loan guarantee*  
 8                *or related agreement; or*

9                *“(ii) to permit the borrower, pursuant*  
 10                *to an agreement with the Secretary, to con-*  
 11                *tinue to pursue the purposes of the project*  
 12                *if the Secretary determines that such an*  
 13                *agreement is in the public interest.*

14                *“(B) SUPERIORITY OF RIGHTS.—The rights*  
 15                *of the Secretary, with respect to any property ac-*  
 16                *quired pursuant to a loan guarantee or related*  
 17                *agreements, shall be superior to the rights of any*  
 18                *other person with respect to the property.*

19                *“(3) NOTIFICATION.—If the borrower defaults on*  
 20                *an obligation, the Secretary shall notify the Attorney*  
 21                *General of the default.*

22                *“(g) TERMS AND CONDITIONS.—A loan guarantee*  
 23                *under this section shall include such detailed terms and con-*  
 24                *ditions as the Secretary determines appropriate—*

1           “(1) *to protect the interests of the United States*  
2           *in the case of default; and*

3           “(2) *to have available all the patents and tech-*  
4           *nology necessary for any person selected, including*  
5           *the Secretary, to complete and operate the project.*

6           “(h) *CONSULTATION.—In establishing the terms and*  
7           *conditions of a loan guarantee under this section, the Sec-*  
8           *retary shall consult with the Secretary of the Treasury.*

9           “(i) *FEES.—*

10           “(1) *IN GENERAL.—The Secretary shall charge*  
11           *and collect fees for loan guarantees in amounts the*  
12           *Secretary determines are sufficient to cover applicable*  
13           *administrative expenses.*

14           “(2) *AVAILABILITY.—Fees collected under this*  
15           *subsection shall—*

16                   “(A) *be deposited by the Secretary into the*  
17                   *Treasury of the United States; and*

18                   “(B) *remain available until expended, sub-*  
19                   *ject to such other conditions as are contained in*  
20                   *annual appropriations Acts.*

21           “(3) *LIMITATION.—In charging and collecting*  
22           *fees under paragraph (1), the Secretary shall take*  
23           *into consideration the amount of the obligation.*

24           “(j) *RECORDS.—*

1           “(1) *IN GENERAL.*—*With respect to a loan guar-*  
 2           *antee under this section, the borrower, the lender, and*  
 3           *any other appropriate party shall keep such records*  
 4           *and other pertinent documents as the Secretary shall*  
 5           *prescribe by regulation, including such records as the*  
 6           *Secretary may require to facilitate an effective audit.*

7           “(2) *ACCESS.*—*The Secretary and the Comp-*  
 8           *troller General of the United States, or their duly au-*  
 9           *thorized representatives, shall have access to records*  
 10          *and other pertinent documents for the purpose of con-*  
 11          *ducting an audit.*

12          “(k) *FULL FAITH AND CREDIT.*—*The full faith and*  
 13          *credit of the United States is pledged to the payment of*  
 14          *all loan guarantees issued under this section with respect*  
 15          *to principal and interest.*

16          “(l) *REGULATIONS.*—*The Secretary shall issue final*  
 17          *regulations before making any loan guarantees under the*  
 18          *program. The regulations shall include—*

19                 “(1) *criteria that the Secretary shall use to de-*  
 20                 *termine eligibility for loan guarantees under this sec-*  
 21                 *tion, including—*

22                         “(A) *whether a borrower is a small- or me-*  
 23                         *dium-sized manufacturer; and*

24                         “(B) *whether a borrower demonstrates that*  
 25                         *a market exists for the innovative technology*

1           *product, or the integral component of such a*  
 2           *product, to be manufactured, as evidenced by*  
 3           *written statements of interest from potential pur-*  
 4           *chasers;*

5           “(2) *criteria that the Secretary shall use to de-*  
 6           *termine the amount of any fees charged under sub-*  
 7           *section (i), including criteria related to the amount of*  
 8           *the obligation;*

9           “(3) *policies and procedures for selecting and*  
 10          *monitoring lenders and loan performance; and*

11          “(4) *any other policies, procedures, or informa-*  
 12          *tion necessary to implement this section.*

13          “(m) *AUDIT.—*

14           “(1) *ANNUAL INDEPENDENT AUDITS.—The Sec-*  
 15           *retary shall enter into an arrangement with an inde-*  
 16           *pendent auditor for annual evaluations of the pro-*  
 17           *gram under this section.*

18           “(2) *COMPTROLLER GENERAL REVIEW.—The*  
 19           *Comptroller General of the United States shall con-*  
 20           *duct a biennial review of the Secretary’s execution of*  
 21           *the program under this section.*

22           “(3) *REPORT.—The results of the independent*  
 23           *audit under paragraph (1) and the Comptroller Gen-*  
 24           *eral’s review under paragraph (2) shall be provided*  
 25           *directly to the Committee on Science and Technology*



1       *of the House of Representatives and the Committee on*  
 2       *Commerce, Science, and Transportation of the Senate.*

3       “(n) *REPORT TO CONGRESS.*—Concurrent with the  
 4       *submission to Congress of the President’s annual budget re-*  
 5       *quest in each year after the date of enactment of the Amer-*  
 6       *ica COMPETES Reauthorization Act of 2010, the Sec-*  
 7       *retary shall transmit to the Committee on Science and*  
 8       *Technology of the House of Representatives and the Com-*  
 9       *mittee on Commerce, Science, and Transportation of the*  
 10       *Senate a report containing a summary of all activities car-*  
 11       *ried out under this section.*

12       “(o) *COORDINATION AND NONDUPLICATION.*—To the  
 13       *maximum extent practicable, the Secretary shall ensure*  
 14       *that the activities carried out under this section are coordi-*  
 15       *nated with, and do not duplicate the efforts of, other loan*  
 16       *guarantee programs within the Federal Government.*

17       “(p) *MEP CENTERS.*—The Secretary may use centers  
 18       *established under section 25 of the National Institute of*  
 19       *Standards and Technology Act (15 U.S.C. 278k) to provide*  
 20       *information about the program established under this sec-*  
 21       *tion and to conduct outreach to potential borrowers, as ap-*  
 22       *propriate.*

23       “(q) *MINIMIZING RISK.*—The Secretary shall promul-  
 24       *gate regulations and policies to carry out this section in*  
 25       *accordance with Office of Management and Budget Circular*

1 *No. A-129, entitled ‘Policies for Federal Credit Programs*  
 2 *and Non-Tax Receivables’, as in effect on the date of enact-*  
 3 *ment of the America COMPETES Reauthorization Act of*  
 4 *2010.*

5       “(r) *SENSE OF CONGRESS.—It is the sense of Congress*  
 6 *that no loan guarantee shall be made under this section un-*  
 7 *less the borrower agrees to use a federally-approved elec-*  
 8 *tronic employment eligibility verification system to verify*  
 9 *the employment eligibility of—*

10           “(1) *all persons hired during the contract term*  
 11 *by the borrower to perform employment duties within*  
 12 *the United States; and*

13           “(2) *all persons assigned by the borrower to per-*  
 14 *form work within the United States on the project.*

15       “(s) *DEFINITIONS.—In this section:*

16           “(1) *COST.—The term ‘cost’ has the meaning*  
 17 *given such term under section 502 of the Federal*  
 18 *Credit Reform Act of 1990 (2 U.S.C. 661a).*

19           “(2) *INNOVATIVE PROCESS.—The term ‘innova-*  
 20 *tive process’ means a process that is significantly im-*  
 21 *proved as compared to the process in general use in*  
 22 *the commercial marketplace in the United States at*  
 23 *the time the loan guarantee is issued.*

24           “(3) *INNOVATIVE TECHNOLOGY.—The term ‘inno-*  
 25 *vative technology’ means a technology that is signifi-*

1       cantly improved as compared to the technology in  
 2       general use in the commercial marketplace in the  
 3       United States at the time the loan guarantee is  
 4       issued.

5               “(4) *LOAN GUARANTEE.*—The term ‘loan guar-  
 6       antee’ has the meaning given such term in section 502  
 7       of the Federal Credit Reform Act of 1990 (2 U.S.C.  
 8       661a). The term includes a loan guarantee commit-  
 9       ment (as defined in section 502 of such Act (2 U.S.C.  
 10      661a)).

11              “(5) *OBLIGATION.*—The term ‘obligation’ means  
 12      the loan or other debt obligation that is guaranteed  
 13      under this section.

14              “(6) *PROGRAM.*—The term ‘program’ means the  
 15      loan guarantee program established in subsection (a).

16              “(t) *AUTHORIZATION OF APPROPRIATIONS.*—

17              “(1) *COST OF LOAN GUARANTEES.*—There are  
 18      authorized to be appropriated \$100,000,000 for each  
 19      of fiscal years 2011 through 2013 to provide the cost  
 20      of loan guarantees under this section.

21              “(2) *PRINCIPAL AND INTEREST.*—There are au-  
 22      thorized to be appropriated such sums as are nec-  
 23      essary to carry out subsection (f).”.

1 **SEC. 603. REGIONAL INNOVATION PROGRAM.**

2       *The Stevenson-Wydler Technology Innovation Act of*  
 3 *1980 (15 U.S.C. 3701 et seq.), as amended by section 602,*  
 4 *is further amended by adding at the end thereof the fol-*  
 5 *lowing:*

6 **“SEC. 27. REGIONAL INNOVATION PROGRAM.**

7       “(a) *ESTABLISHMENT.*—*The Secretary shall establish*  
 8 *a regional innovation program to encourage and support*  
 9 *the development of regional innovation strategies, including*  
 10 *regional innovation clusters and science and research parks.*

11       “(b) *CLUSTER GRANTS.*—

12               “(1) *IN GENERAL.*—*As part of the program es-*  
 13 *tablished under subsection (a), the Secretary may*  
 14 *award grants on a competitive basis to eligible recipi-*  
 15 *ents for activities relating to the formation and devel-*  
 16 *opment of regional innovation clusters.*

17               “(2) *PERMISSIBLE ACTIVITIES.*—*Grants awarded*  
 18 *under this subsection may be used for activities deter-*  
 19 *mined appropriate by the Secretary, including the*  
 20 *following:*

21                       “(A) *Feasibility studies.*

22                       “(B) *Planning activities.*

23                       “(C) *Technical assistance.*

24                       “(D) *Developing or strengthening commu-*  
 25 *nication and collaboration between and among*  
 26 *participants of a regional innovation cluster.*

1           “(E) *Attracting additional participants to*  
2           *a regional innovation cluster.*

3           “(F) *Facilitating market development of*  
4           *products and services developed by a regional in-*  
5           *novation cluster, including through demonstra-*  
6           *tion, deployment, technology transfer, and com-*  
7           *mercialization activities.*

8           “(G) *Developing relationships between a re-*  
9           *gional innovation cluster and entities or clusters*  
10          *in other regions.*

11          “(H) *Interacting with the public and State*  
12          *and local governments to meet the goals of the*  
13          *cluster.*

14          “(3) *ELIGIBLE RECIPIENT DEFINED.—In this*  
15          *subsection, the term ‘eligible recipient’ means—*

16               “(A) *a State;*

17               “(B) *an Indian tribe;*

18               “(C) *a city or other political subdivision of*  
19               *a State;*

20               “(D) *an entity that—*

21                       “(i) *is a nonprofit organization, an in-*  
22                       *stitution of higher education, a public-pri-*  
23                       *vate partnership, a science or research park,*  
24                       *a Federal laboratory, or an economic devel-*  
25                       *opment organization or similar entity; and*

1                   “(ii) *has an application that is sup-*  
 2                   *ported by a State or a political subdivision*  
 3                   *of a State; or*

4                   “(E) *a consortium of any of the entities de-*  
 5                   *scribed in subparagraphs (A) through (D).*

6                   “(4) *APPLICATION.—*

7                   “(A) *IN GENERAL.—An eligible recipient*  
 8                   *shall submit an application to the Secretary at*  
 9                   *such time, in such manner, and containing such*  
 10                   *information and assurances as the Secretary*  
 11                   *may require.*

12                   “(B) *COMPONENTS.—The application shall*  
 13                   *include, at a minimum, a description of the re-*  
 14                   *gional innovation cluster supported by the pro-*  
 15                   *posed activity, including a description of—*

16                   “(i) *whether the regional innovation*  
 17                   *cluster is supported by the private sector,*  
 18                   *State and local governments, and other rel-*  
 19                   *evant stakeholders;*

20                   “(ii) *how the existing participants in*  
 21                   *the regional innovation cluster will encour-*  
 22                   *age and solicit participation by all types of*  
 23                   *entities that might benefit from participa-*  
 24                   *tion, including newly formed entities and*  
 25                   *those rival existing participants;*

1                   “(iii) *the extent to which the regional*  
 2                   *innovation cluster is likely to stimulate in-*  
 3                   *novation and have a positive impact on re-*  
 4                   *gional economic growth and development;*

5                   “(iv) *whether the participants in the*  
 6                   *regional innovation cluster have access to,*  
 7                   *or contribute to, a well-trained workforce;*

8                   “(v) *whether the participants in the re-*  
 9                   *gional innovation cluster are capable of at-*  
 10                  *tracting additional funds from non-Federal*  
 11                  *sources; and*

12                  “(vi) *the likelihood that the partici-*  
 13                  *pants in the regional innovation cluster will*  
 14                  *be able to sustain activities once grant*  
 15                  *funds under this subsection have been ex-*  
 16                  *pended.*

17                  “(C) *SPECIAL CONSIDERATION.—The Sec-*  
 18                  *retary shall give special consideration to appli-*  
 19                  *cations from regions that contain communities*  
 20                  *negatively impacted by trade.*

21                  “(5) *SPECIAL CONSIDERATION.—The Secretary*  
 22                  *shall give special consideration to an eligible recipient*  
 23                  *who agrees to collaborate with local workforce invest-*  
 24                  *ment area boards.*

1           “(6) *COST SHARE.*—*The Secretary may not pro-*  
2           *vide more than 50 percent of the total cost of any ac-*  
3           *tivity funded under this subsection.*

4           “(7) *USE AND APPLICATION OF RESEARCH AND*  
5           *INFORMATION PROGRAM.*—*To the maximum extent*  
6           *practicable, the Secretary shall ensure that activities*  
7           *funded under this subsection use and apply any rel-*  
8           *evant research, best practices, and metrics developed*  
9           *under the program established in subsection (c).*

10          “(c) *SCIENCE AND RESEARCH PARK DEVELOPMENT*  
11          *GRANTS.*—

12               “(1) *IN GENERAL.*—*As part of the program es-*  
13               *tablished under subsection (a), the Secretary may*  
14               *award grants for the development of feasibility studies*  
15               *and plans for the construction of new science parks*  
16               *or the renovation or expansion of existing science*  
17               *parks.*

18               “(2) *LIMITATION ON AMOUNT OF GRANTS.*—*The*  
19               *amount of a grant awarded under this subsection*  
20               *may not exceed \$750,000.*

21               “(3) *AWARD.*—

22                       “(A) *COMPETITION REQUIRED.*—*The Sec-*  
23                       *retary shall award grants under this subsection*  
24                       *pursuant to a full and open competition.*



1           “(B) *GEOGRAPHIC DISPERSION.*— *In con-*  
2           *ducting a competitive process, the Secretary shall*  
3           *consider the need to avoid undue geographic con-*  
4           *centration among any one category of States*  
5           *based on their predominant rural or urban char-*  
6           *acter as indicated by population density.*

7           “(C) *SELECTION CRITERIA.*—*The Secretary*  
8           *shall publish the criteria to be utilized in any*  
9           *competition for the selection of recipients of*  
10          *grants under this subsection, which shall include*  
11          *requirements relating to the—*

12               “(i) *effect the science park will have on*  
13               *regional economic growth and development;*

14               “(ii) *number of jobs to be created at*  
15               *the science park and the surrounding re-*  
16               *gional community each year during its first*  
17               *3 years;*

18               “(iii) *funding to be required to con-*  
19               *struct, renovate or expand the science park*  
20               *during its first 3 years;*

21               “(iv) *amount and type of financing*  
22               *and access to capital available to the appli-*  
23               *cant;*

1           “(v) types of businesses and research  
2           entities expected in the science park and  
3           surrounding regional community;

4           “(vi) letters of intent by businesses and  
5           research entities to locate in the science  
6           park;

7           “(vii) capability to attract a well  
8           trained workforce to the science park;

9           “(viii) the management of the science  
10          park during its first 5 years;

11          “(ix) expected financial risks in the  
12          construction and operation of the science  
13          park and the risk mitigation strategy;

14          “(x) physical infrastructure available  
15          to the science park, including roads, utili-  
16          ties, and telecommunications;

17          “(xi) utilization of energy-efficient  
18          building technology including nationally  
19          recognized green building design practices,  
20          renewable energy, cogeneration, and other  
21          methods that increase energy efficiency and  
22          conservation;

23          “(xii) consideration to the trans-  
24          formation of military bases affected by the  
25          base realignment and closure process or the

1            *redevelopment of existing buildings, struc-*  
 2            *tures, or brownfield sites that are aban-*  
 3            *doned, idled, or underused into single or*  
 4            *multiple building facilities for science and*  
 5            *technology companies and institutions;*

6            *“(xiii) ability to collaborate with other*  
 7            *science parks throughout the world;*

8            *“(xiv) consideration of sustainable de-*  
 9            *velopment practices and the quality of life*  
 10           *at the science park; and*

11           *“(xv) other such criteria as the Sec-*  
 12           *retary shall prescribe.*

13           *“(4) ALLOCATION CONSTRAINTS.—The Secretary*  
 14           *may not allocate less than one-third of the total grant*  
 15           *funding allocated under this section for any fiscal*  
 16           *year to grants under subsection (b) or this subsection*  
 17           *without written notification to the Senate Committee*  
 18           *on Commerce, Science, and Transportation and the*  
 19           *House of Representatives Committees on Science and*  
 20           *Technology and on Energy and Commerce.*

21           *“(5) AUTHORIZATION OF APPROPRIATIONS.—*  
 22           *There are authorized to be appropriated to the Sec-*  
 23           *retary such sums as are necessary for each of fiscal*  
 24           *years 2011 through 2013 to carry out this section, in-*

1       cluding such sums as are necessary to carry out the  
2       evaluation required under subsection (g).

3       “(d) *LOAN GUARANTEES FOR SCIENCE PARK INFRA-*  
4       *STRUCTURE.*—

5               “(1) *IN GENERAL.*—Subject to paragraph (2), the  
6       Secretary may guarantee up to 80 percent of the loan  
7       amount for projects for the construction or expansion,  
8       including renovation and modernization, of science  
9       park infrastructure.

10              “(2) *LIMITATIONS ON GUARANTEE AMOUNTS.*—  
11       The maximum amount of loan principal guaranteed  
12       under this subsection may not exceed—

13                      “(A) \$50,000,000 with respect to any  
14                      single project; and

15                      “(B) \$300,000,000 with respect to all  
16                      projects.

17              “(3) *SELECTION OF GUARANTEE RECIPIENTS.*—  
18       The Secretary shall select recipients of loan guaran-  
19       tees under this subsection based upon the ability of  
20       the recipient to collateralize the loan amount through  
21       bonds, equity, property, and such other things of val-  
22       ues as the Secretary shall deem necessary. Recipients  
23       of grants under subsection (c) are not eligible for a  
24       loan guarantee during the period of the grant. To the  
25       extent that the Secretary determines it to be feasible,

1       *the Secretary may select recipients of guarantee as-*  
2       *sistance in accord with a competitive process that*  
3       *takes into account the factors set out in subsection*  
4       *(c)(3)(C) of this section.*

5               “(4) *TERMS AND CONDITIONS FOR LOAN GUAR-*  
6       *ANTEES.—The loans guaranteed under this subsection*  
7       *shall be subject to such terms and conditions as the*  
8       *Secretary may prescribe, except that—*

9               “(A) *the final maturity of such loans made*  
10       *or guaranteed may not exceed the lesser of—*

11               “(i) *30 years; or*

12               “(ii) *90 percent of the useful life of any*  
13       *physical asset to be financed by the loan;*

14               “(B) *a loan guaranteed under this sub-*  
15       *section may not be subordinated to another debt*  
16       *contracted by the borrower or to any other*  
17       *claims against the borrowers in the case of de-*  
18       *fault;*

19               “(C) *a loan may not be guaranteed under*  
20       *this subsection unless the Secretary determines*  
21       *that the lender is responsible and that provision*  
22       *is made for servicing the loan on reasonable*  
23       *terms and in a manner that adequately protects*  
24       *the financial interest of the United States;*

1           “(D) a loan may not be guaranteed under  
2       this subsection if—

3           “(i) the income from the loan is ex-  
4       cluded from gross income for purposes of  
5       chapter 1 of the Internal Revenue Code of  
6       1986; or

7           “(ii) the guarantee provides significant  
8       collateral or security, as determined by the  
9       Secretary in coordination with the Sec-  
10      retary of the Treasury, for other obligations  
11      the income from which is so excluded;

12          “(E) any guarantee provided under this  
13      subsection shall be conclusive evidence that—

14          “(i) the guarantee has been properly  
15      obtained;

16          “(ii) the underlying loan qualified for  
17      the guarantee; and

18          “(iii) absent fraud or material mis-  
19      representation by the holder, the guarantee  
20      is presumed to be valid, legal, and enforce-  
21      able;

22          “(F) the Secretary may not extend credit  
23      assistance unless the Secretary has determined  
24      that there is a reasonable assurance of repay-  
25      ment; and

1           “(G) *new loan guarantees may not be com-*  
2           *mitted except to the extent that appropriations of*  
3           *budget authority to cover their costs are made in*  
4           *advance, as required under section 504 of the*  
5           *Federal Credit Reform Act of 1990 (2 U.S.C.*  
6           *661c).*

7           “(5) *PAYMENT OF LOSSES.—*

8           “(A) *IN GENERAL.—If, as a result of a de-*  
9           *fault by a borrower under a loan guaranteed*  
10           *under this subsection, after the holder has made*  
11           *such further collection efforts and instituted such*  
12           *enforcement proceedings as the Secretary may re-*  
13           *quire, the Secretary determines that the holder*  
14           *has suffered a loss, the Secretary shall pay to the*  
15           *holder the percentage of the loss specified in the*  
16           *guarantee contract. Upon making any such pay-*  
17           *ment, the Secretary shall be subrogated to all the*  
18           *rights of the recipient of the payment. The Sec-*  
19           *retary shall be entitled to recover from the bor-*  
20           *rower the amount of any payments made pursu-*  
21           *ant to any guarantee entered into under this sec-*  
22           *tion.*

23           “(B) *ENFORCEMENT OF RIGHTS.—The At-*  
24           *torney General shall take such action as may be*  
25           *appropriate to enforce any right accruing to the*

1       *United States as a result of the issuance of any*  
2       *guarantee under this section.*

3               “(C) *FORBEARANCE.*—*Nothing in this sec-*  
4       *tion may be construed to preclude any forbear-*  
5       *ance for the benefit of the borrower which may*  
6       *be agreed upon by the parties to the guaranteed*  
7       *loan and approved by the Secretary, if budget*  
8       *authority for any resulting subsidy costs (as de-*  
9       *defined in section 502(5) of the Federal Credit Re-*  
10       *form Act of 1990) is available.*

11              “(6) *EVALUATION OF CREDIT RISK.*—

12               “(A) *The Secretary shall periodically assess*  
13       *the credit risk of new and existing direct loans*  
14       *or guaranteed loans.*

15               “(B) *Not later than 2 years after the date*  
16       *of the enactment of the America COMPETES*  
17       *Reauthorization Act of 2010, the Comptroller*  
18       *General of the United States shall—*

19                   “(i) *conduct a review of the subsidy es-*  
20       *timates for the loan guarantees under this*  
21       *section; and*

22                   “(ii) *submit to Congress a report on*  
23       *the review conducted under this paragraph.*

24               “(7) *TERMINATION.*—*A loan may not be guaran-*  
25       *teed under this section after September 30, 2013.*



1           “(8) *AUTHORIZATION OF APPROPRIATIONS.*—

2           *There are authorized to be appropriated—*

3                   “(A) *such sums as are necessary annually*  
 4                   *for the cost (as defined in section 502(5) of the*  
 5                   *Federal Credit Reform Act of 1990) of guaran-*  
 6                   *teeing \$300,000,000 in loans under this section,*  
 7                   *and*

8                   “(B) *such sums as may be necessary for ad-*  
 9                   *ministrative expenses in fiscal year 2011 and*  
 10                  *thereafter,*

11           *such sums to remain available until expended.*

12           “(e) *REGIONAL INNOVATION RESEARCH AND INFORMA-*  
 13           *TION PROGRAM.*—

14                   “(1) *IN GENERAL.*—*As part of the program es-*  
 15                   *tablished under subsection (a), the Secretary shall es-*  
 16                   *tablish a regional innovation research and informa-*  
 17                   *tion program—*

18                           “(A) *to gather, analyze, and disseminate in-*  
 19                           *formation on best practices for regional innova-*  
 20                           *tion strategies (including regional innovation*  
 21                           *clusters), including information relating to how*  
 22                           *innovation, productivity, and economic develop-*  
 23                           *ment can be maximized through such strategies;*

24                           “(B) *to provide technical assistance, includ-*  
 25                           *ing through the development of technical assist-*

1        *ance guides, for the development and implemen-*  
2        *tation of regional innovation strategies (includ-*  
3        *ing regional innovation clusters);*

4                *“(C) to support the development of relevant*  
5        *metrics and measurement standards to evaluate*  
6        *regional innovation strategies (including re-*  
7        *gional innovation clusters), including the extent*  
8        *to which such strategies stimulate innovation,*  
9        *productivity, and economic development; and*

10               *“(D) to collect and make available data on*  
11        *regional innovation cluster activity in the*  
12        *United States, including data on—*

13                *“(i) the size, specialization, and com-*  
14        *petitiveness of regional innovation clusters;*

15                *“(ii) the regional domestic product*  
16        *contribution, total jobs and earnings by key*  
17        *occupations, establishment size, nature of*  
18        *specialization, patents, Federal research*  
19        *and development spending, and other rel-*  
20        *evant information for regional innovation*  
21        *clusters; and*

22                *“(iii) supply chain product and service*  
23        *flows within and between regional innova-*  
24        *tion clusters.*

1           “(2) *RESEARCH GRANTS.*—*The Secretary may*  
 2           *award research grants on a competitive basis to sup-*  
 3           *port and further the goals of the program established*  
 4           *under this subsection.*

5           “(3) *DISSEMINATION OF INFORMATION.*—*Data*  
 6           *and analysis compiled by the Secretary under the*  
 7           *program established in this subsection shall be made*  
 8           *available to other Federal agencies, State and local*  
 9           *governments, and nonprofit and for-profit entities.*

10          “(4) *REGIONAL INNOVATION GRANT PROGRAM.*—  
 11          *The Secretary shall incorporate data and analysis re-*  
 12          *lating to any grant under subsection (b) or (c) and*  
 13          *any loan guarantee under subsection (d) into the pro-*  
 14          *gram established under this subsection.*

15          “(f) *INTERAGENCY COORDINATION.*—

16               “(1) *IN GENERAL.*—*To the maximum extent*  
 17               *practicable, the Secretary shall ensure that the activi-*  
 18               *ties carried out under this section are coordinated*  
 19               *with, and do not duplicate the efforts of, other pro-*  
 20               *grams at the Department of Commerce or other Fed-*  
 21               *eral agencies.*

22               “(2) *COLLABORATION.*—

23                       “(A) *IN GENERAL.*—*The Secretary shall ex-*  
 24                       *plore and pursue collaboration with other Fed-*  
 25                       *eral agencies, including through multiagency*

1       *funding opportunities, on regional innovation*  
 2       *strategies.*

3               “(B) *SMALL BUSINESSES.*—*The Secretary*  
 4       *shall ensure that such collaboration with Federal*  
 5       *agencies prioritizes the needs and challenges of*  
 6       *small businesses.*

7       “(g) *EVALUATION.*—

8               “(1) *IN GENERAL.*—*Not later than 3 years after*  
 9       *the date of enactment of the America COMPETES*  
 10       *Reauthorization Act of 2010, the Secretary shall enter*  
 11       *into a contract with an independent entity, such as*  
 12       *the National Academy of Sciences, to conduct an eval-*  
 13       *uation of the program established under subsection*  
 14       *(a).*

15               “(2) *REQUIREMENTS.*—*The evaluation shall in-*  
 16       *clude—*

17               “(A) *whether the program is achieving its*  
 18       *goals;*

19               “(B) *any recommendations for how the pro-*  
 20       *gram may be improved; and*

21               “(C) *a recommendation as to whether the*  
 22       *program should be continued or terminated.*

23       “(h) *DEFINITIONS.*—*In this section:*

24               “(1) *REGIONAL INNOVATION CLUSTER.*—*The*  
 25       *term ‘regional innovation cluster’ means a geographi-*

1 *cally bounded network of similar, synergistic, or com-*  
 2 *plementary entities that—*

3 *“(A) are engaged in or with a particular*  
 4 *industry sector;*

5 *“(B) have active channels for business*  
 6 *transactions and communication;*

7 *“(C) share specialized infrastructure, labor*  
 8 *markets, and services; and*

9 *“(D) leverage the region’s unique competi-*  
 10 *tive strengths to stimulate innovation and create*  
 11 *jobs.*

12 *“(2) SCIENCE PARK.—The term ‘Science park’*  
 13 *means a property-based venture, which has—*

14 *“(A) master-planned property and build-*  
 15 *ings designed primarily for private-public re-*  
 16 *search and development activities, high tech-*  
 17 *nology and science-based companies, and re-*  
 18 *search and development support services;*

19 *“(B) a contractual or operational relation-*  
 20 *ship with one or more science- or research-related*  
 21 *institution of higher education or governmental*  
 22 *or non-profit research laboratories;*

23 *“(C) a primary mission to promote research*  
 24 *and development through industry partnerships,*

1       *assisting in the growth of new ventures and pro-*  
2       *moting innovation-driven economic development;*

3               *“(D) a role in facilitating the transfer of*  
4       *technology and business skills between researchers*  
5       *and industry teams; and*

6               *“(E) a role in promoting technology-led eco-*  
7       *nomie development for the community or region*  
8       *in which the science park is located. A science*  
9       *park may be owned by a governmental or not-*  
10       *for-profit entity, but it may enter into partner-*  
11       *ships or joint ventures with for-profit entities for*  
12       *development or management of specific compo-*  
13       *nents of the park.*

14              *“(3) STATE.—The term ‘State’ means one of the*  
15       *several States, the District of Columbia, the Common-*  
16       *wealth of Puerto Rico, the Virgin Islands, Guam,*  
17       *American Samoa, the Commonwealth of the Northern*  
18       *Mariana Islands, or any other territory or possession*  
19       *of the United States.*

20              *“(i) AUTHORIZATION OF APPROPRIATIONS.—There are*  
21       *authorized to be appropriated such sums as necessary for*  
22       *each of fiscal years 2011 through 2013 to carry out this*  
23       *section.”.*

1 **SEC. 604. STUDY ON ECONOMIC COMPETITIVENESS AND IN-**  
2 **NOVATIVE CAPACITY OF UNITED STATES AND**  
3 **DEVELOPMENT OF NATIONAL ECONOMIC**  
4 **COMPETITIVENESS STRATEGY.**

5 (a) *STUDY.*—

6 (1) *IN GENERAL.*—Not later than 1 year after  
7 the date of the enactment of this Act, the Secretary of  
8 Commerce shall complete a comprehensive study of the  
9 economic competitiveness and innovative capacity of  
10 the United States.

11 (2) *MATTERS COVERED.*—The study required by  
12 paragraph (1) shall include the following:

13 (A) *An analysis of the United States econ-*  
14 *omy and innovation infrastructure.*

15 (B) *An assessment of the following:*

16 (i) *The current competitive and inno-*  
17 *vation performance of the United States*  
18 *economy relative to other countries that*  
19 *compete economically with the United*  
20 *States.*

21 (ii) *Economic competitiveness and do-*  
22 *mestic innovation in the current business*  
23 *climate, including tax and Federal regu-*  
24 *latory policy.*

25 (iii) *The business climate of the United*  
26 *States and those of other countries that*

1           *compete economically with the United*  
2           *States.*

3           *(iv) Regional issues that influence the*  
4           *economic competitiveness and innovation*  
5           *capacity of the United States, including—*

6                     *(I) the roles of State and local*  
7                     *governments and institutions of higher*  
8                     *education; and*

9                     *(II) regional factors that con-*  
10                    *tribute positively to innovation.*

11           *(v) The effectiveness of the Federal*  
12           *Government in supporting and promoting*  
13           *economic competitiveness and innovation,*  
14           *including any duplicative efforts of, or gaps*  
15           *in coverage between, Federal agencies and*  
16           *departments.*

17           *(vi) Barriers to competitiveness in*  
18           *newly emerging business or technology sec-*  
19           *tors, factors influencing underperforming*  
20           *economic sectors, unique issues facing small*  
21           *and medium enterprises, and barriers to the*  
22           *development and evolution of start-ups,*  
23           *firms, and industries.*

24           *(vii) The effects of domestic and inter-*  
25           *national trade policy on the competitiveness*



1           *of the United States and the United States*  
2           *economy.*

3           *(viii) United States export promotion*  
4           *and export finance programs relative to ex-*  
5           *port promotion and export finance pro-*  
6           *grams of other countries that compete eco-*  
7           *nomically with the United States, including*  
8           *Canada, France, Germany, Italy, Japan,*  
9           *Korea, and the United Kingdom, with not-*  
10          *ing of export promotion and export finance*  
11          *programs carried out by such countries that*  
12          *are not analogous to any programs carried*  
13          *out by the United States.*

14          *(ix) The effectiveness of current policies*  
15          *and programs affecting exports, including*  
16          *an assessment of Federal trade restrictions*  
17          *and State and Federal export promotion ac-*  
18          *tivities.*

19          *(x) The effectiveness of the Federal*  
20          *Government and Federally funded research*  
21          *and development centers in supporting and*  
22          *promoting technology commercialization*  
23          *and technology transfer.*

24          *(xi) Domestic and international intel-*  
25          *lectual property policies and practices.*

1                   (xii) *Manufacturing capacity, logistics,*  
 2                   *and supply chain dynamics of major export*  
 3                   *sectors, including access to a skilled work-*  
 4                   *force, physical infrastructure, and*  
 5                   *broadband network infrastructure.*

6                   (xiii) *Federal and State policies relat-*  
 7                   *ing to science, technology, and education*  
 8                   *and other relevant Federal and State poli-*  
 9                   *cies designed to promote commercial inno-*  
 10                   *vation, including immigration policies.*

11                   (C) *Development of recommendations on the*  
 12                   *following:*

13                   (i) *How the United States should in-*  
 14                   *vest in human capital.*

15                   (ii) *How the United States should fa-*  
 16                   *cilitate entrepreneurship and innovation.*

17                   (iii) *How best to develop opportunities*  
 18                   *for locally and regionally driven innovation*  
 19                   *by providing Federal support.*

20                   (iv) *How best to strengthen the eco-*  
 21                   *nomics infrastructure and industrial base of*  
 22                   *the United States.*

23                   (v) *How to improve the international*  
 24                   *competitiveness of the United States.*

25                   (3) *CONSULTATION.—*

1           (A) *IN GENERAL.*—*The study required by*  
 2           *paragraph (1) shall be conducted in consultation*  
 3           *with the National Economic Council of the Office*  
 4           *of Policy Development, such Federal agencies as*  
 5           *the Secretary considers appropriate, and the In-*  
 6           *novation Advisory Board established under sub-*  
 7           *paragraph (B). The Secretary shall also establish*  
 8           *a process for obtaining comments from the pub-*  
 9           *lic.*

10           (B) *INNOVATION ADVISORY BOARD.*—

11           (i) *IN GENERAL.*—*The Secretary shall*  
 12           *establish an Innovation Advisory Board for*  
 13           *purposes of obtaining advice with respect to*  
 14           *the conduct of the study required by para-*  
 15           *graph (1).*

16           (ii) *COMPOSITION.*—*The Advisory*  
 17           *Board established under clause (i) shall be*  
 18           *comprised of 15 members, appointed by the*  
 19           *Secretary—*

20                   (I) *who shall represent all major*  
 21                   *industry sectors;*

22                   (II) *a majority of whom should be*  
 23                   *from private industry, including large*  
 24                   *and small firms, representing advanced*

1                    *technology sectors and more traditional*  
 2                    *sectors that use technology; and*

3                    *(III) who may include economic*  
 4                    *or innovation policy experts, State and*  
 5                    *local government officials active in*  
 6                    *technology-based economic develop-*  
 7                    *ment, and representatives from higher*  
 8                    *education.*

9                    *(iii) EXEMPTION FROM FACA.—The*  
 10                    *Federal Advisory Committee Act (5 U.S.C.*  
 11                    *App.) shall not apply to the advisory board*  
 12                    *established under clause (i).*

13                    *(b) STRATEGY.—*

14                    *(1) IN GENERAL.—Not later than 1 year after*  
 15                    *the completion of the study required by subsection (a),*  
 16                    *the Secretary shall develop, based on the study re-*  
 17                    *quired by subsection (a)(1), a national 10-year strat-*  
 18                    *egy to strengthen the innovative and competitive ca-*  
 19                    *capacity of the Federal Government, State and local*  
 20                    *governments, United States institutions of higher edu-*  
 21                    *cation, and the private sector of the United States.*

22                    *(2) ELEMENTS.—The strategy required by para-*  
 23                    *graph (1) shall include the following:*

1           (A) *Actions to be taken by individual Fed-*  
2           *eral agencies and departments to improve com-*  
3           *petitiveness.*

4           (B) *Proposed legislative actions for consid-*  
5           *eration by Congress.*

6           (C) *Annual goals and milestones for the 10-*  
7           *year period of the strategy.*

8           (D) *A plan for monitoring the progress of*  
9           *the Federal Government with respect to improv-*  
10          *ing conditions for innovation and the competi-*  
11          *tiveness of the United States.*

12       (c) *REPORT.—*

13           (1) *IN GENERAL.—Upon the completion of the*  
14           *strategy required by subsection (b), the Secretary of*  
15           *Commerce shall submit to Congress and the President*  
16           *a report on the study conducted under subsection (a)*  
17           *and the strategy developed under subsection (b).*

18           (2) *ELEMENTS.—The report required by para-*  
19           *graph (1) shall include the following:*

20                   (A) *The findings of the Secretary with re-*  
21                   *spect to the study conducted under subsection*  
22                   *(a).*

23                   (B) *The strategy required by subsection (b).*

1 **SEC. 605. PROMOTING USE OF HIGH-END COMPUTING SIM-**  
2 **ULATION AND MODELING BY SMALL- AND ME-**  
3 **DIUM-SIZED MANUFACTURERS.**

4 (a) *FINDINGS.*—Congress finds that—

5 (1) *the utilization of high-end computing simula-*  
6 *tion and modeling by large-scale government contrac-*  
7 *tors and Federal research entities has resulted in sub-*  
8 *stantial improvements in the development of ad-*  
9 *vanced manufacturing technologies; and*

10 (2) *such simulation and modeling would also*  
11 *benefit small- and medium-sized manufacturers in the*  
12 *United States if such manufacturers were to deploy*  
13 *such simulation and modeling throughout their man-*  
14 *ufacturing chains.*

15 (b) *POLICY.*—It is the policy of the United States to  
16 *take all effective measures practicable to ensure that Federal*  
17 *programs and policies encourage and contribute to the use*  
18 *of high-end computing simulation and modeling in the*  
19 *United States manufacturing sector.*

20 (c) *STUDY.*—

21 (1) *IN GENERAL.*—Not later than 30 days after  
22 *the date of the enactment of this Act, the Secretary of*  
23 *Commerce, in consultation with the Secretary of En-*  
24 *ergy and the Director of the Office of Science and*  
25 *Technology Policy, shall carry out, through an inter-*  
26 *agency consulting process, a study of the barriers to*

1     *the use of high-end computing simulation and mod-*  
2     *eling by small- and medium-sized manufacturers in*  
3     *the United States.*

4             (2) *FACTORS.*—*In carrying out the study re-*  
5     *quired by paragraph (1), the Secretary of Commerce,*  
6     *in consultation with the Secretary of Energy and the*  
7     *Director of the Office of Science and Technology Pol-*  
8     *icy, shall consider the following:*

9             (A) *The access of small- and medium-sized*  
10     *manufacturers in the United States to high-per-*  
11     *formance computing facilities and resources.*

12            (B) *The availability of software and other*  
13     *applications tailored to meet the needs of such*  
14     *manufacturers.*

15            (C) *Whether such manufacturers employ or*  
16     *have access to individuals with appropriate ex-*  
17     *pertise for the use of such facilities and resources.*

18            (D) *Whether such manufacturers have access*  
19     *to training to develop such expertise.*

20            (E) *The availability of tools and other*  
21     *methods to such manufacturers to understand*  
22     *and manage the costs and risks associated with*  
23     *transitioning to the use of such facilities and re-*  
24     *sources.*

1           (3) *REPORT.*—Not later than 270 days after the  
2           commencement of the study required by paragraph  
3           (1), the Secretary of Commerce shall, in consultation  
4           with the Secretary of Energy and the Director of the  
5           Office of Science and Technology Policy, submit to  
6           Congress a report on such study. Such report shall in-  
7           clude such recommendations for such legislative or ad-  
8           ministrative action as the Secretary of Commerce  
9           considers appropriate in light of the study to increase  
10          the utilization of high-end computing simulation and  
11          modeling by small- and medium-sized manufacturers  
12          in the United States.

13          (d) *AUTHORIZATION OF DEMONSTRATION AND PILOT*  
14 *PROGRAMS.*—As part of the study required by subsection  
15 (c)(1), the Secretary of Commerce, the Secretary of Energy,  
16 and the Director of the Office of Science and Technology  
17 Policy may carry out such demonstration or pilot programs  
18 as either Secretary or the Director considers appropriate  
19 to gather experiential data to evaluate the feasibility and  
20 advisability of a specific program or policy initiative to  
21 reduce barriers to the utilization of high-end computer mod-  
22 eling and simulation by small- and medium-sized manufac-  
23 turers in the United States.



1       (e) *AUTHORIZATION OF APPROPRIATIONS.*—*There is*  
 2 *authorized to be appropriated such sums as may be nec-*  
 3 *essary to carry out this section.*

## 4       ***TITLE VII—NIST GREEN JOBS***

### 5       ***SEC. 701. SHORT TITLE.***

6       *This title may be cited as the “NIST Grants for En-*  
 7 *ergy Efficiency, New Job Opportunities, and Business Solu-*  
 8 *tions Act of 2010” or the “NIST GREEN JOBS Act of*  
 9 *2010”.*

### 10       ***SEC. 702. FINDINGS.***

11       *Congress finds the following:*

12               (1) *Over its 20-year existence, the Hollings Man-*  
 13 *ufacturing Extension Partnership has proven its*  
 14 *value to manufacturers as demonstrated by the result-*  
 15 *ing impact on jobs and the economies of all 50 States*  
 16 *and the Nation as a whole.*

17               (2) *The Hollings Manufacturing Extension Part-*  
 18 *nership has helped thousands of companies reinvest in*  
 19 *themselves through process improvement and business*  
 20 *growth initiatives leading to more sales, new markets,*  
 21 *and the adoption of technology to deliver new prod-*  
 22 *ucts and services.*

23               (3) *Manufacturing is an increasingly important*  
 24 *part of the construction sector as the industry moves*

1        *to the use of more components and factory built sub-*  
2        *assemblies.*

3            *(4) Construction practices must become more ef-*  
4        *ficent and precise if the United States is to construct*  
5        *and renovate its building stock to reduce related car-*  
6        *bon emissions to levels that are consistent with com-*  
7        *bating global warming.*

8            *(5) Many companies involved in construction are*  
9        *small, without access to innovative manufacturing*  
10       *techniques, and could benefit from the type of train-*  
11       *ing and business analysis activities that the Hollings*  
12       *Manufacturing Extension Partnership routinely pro-*  
13       *vides to the Nation's manufacturers and their supply*  
14       *chains.*

15           *(6) Broadening the competitiveness grant pro-*  
16       *gram under section 25(f) of the National Institute of*  
17       *Standards and Technology Act (15 U.S.C. 278k(f))*  
18       *could help develop and diffuse knowledge necessary to*  
19       *capture a large portion of the estimated \$100 billion*  
20       *or more in energy savings if buildings in the United*  
21       *States met the level and quality of energy efficiency*  
22       *now found in buildings in certain other countries.*

23           *(7) It is therefore in the national interest to ex-*  
24       *pand the capabilities of the Hollings Manufacturing*

1       *Extension Partnership to be supportive of the con-*  
 2       *struction and green energy industries.*

3   **SEC. 703. NATIONAL INSTITUTE OF STANDARDS AND TECH-**  
 4       **NOLOGY COMPETITIVE GRANT PROGRAM.**

5       (a) *IN GENERAL.*—Section 25(f)(3) of the National In-  
 6       stitute of Standards and Technology Act (15 U.S.C.  
 7       278k(f)(3)) is amended—

8               (1) *by striking “to develop” in the first sentence*  
 9       *and inserting “to add capabilities to the MEP pro-*  
 10       *gram, including the development of”; and*

11              (2) *by striking the last sentence and inserting*  
 12       *“Centers may be reimbursed for costs incurred under*  
 13       *the program. These themes—*

14                       “(A) *shall be related to projects designed to*  
 15       *increase the viability both of traditional manu-*  
 16       *facturing sectors and other sectors, such as con-*  
 17       *struction, that increasingly rely on manufac-*  
 18       *turing through the use of manufactured compo-*  
 19       *nents and manufacturing techniques, including*  
 20       *supply chain integration and quality manage-*  
 21       *ment;*

22                       “(B) *shall be related to projects related to*  
 23       *the transfer of technology based on the techno-*  
 24       *logical needs of manufacturers and available*  
 25       *technologies from institutions of higher edu-*

1            *cation, laboratories, and other technology pro-*  
 2            *ducing entities; and*

3            *“(C) may extend beyond these traditional*  
 4            *areas to include projects related to construction*  
 5            *industry modernization.”.*

6            *(b) SELECTION.—Section 25(f)(5) of the National In-*  
 7            *stitute of Standards and Technology Act (15 U.S.C.*  
 8            *278k(f)(5)) is amended to read as follows:*

9            *“(5) SELECTION.—*

10            *“(A) IN GENERAL.—Awards under this sec-*  
 11            *tion shall be peer reviewed and competitively*  
 12            *awarded. The Director shall endeavor to select at*  
 13            *least one proposal in each of the 9 statistical di-*  
 14            *visions of the United States (as designated by the*  
 15            *Bureau of the Census). The Director shall select*  
 16            *proposals to receive awards that will—*

17            *“(i) create jobs or train newly hired*  
 18            *employees;*

19            *“(ii) promote technology transfer and*  
 20            *commercialization of environmentally fo-*  
 21            *cused materials, products, and processes;*

22            *“(iii) increase energy efficiency; and*

23            *“(iv) improve the competitiveness of*  
 24            *industries in the region in which the Center*  
 25            *or Centers are located.*

1                   “(B) *ADDITIONAL SELECTION CRITERIA.*—  
 2                   *The Director may select proposals to receive*  
 3                   *awards that will—*

4                   “(i) *encourage greater cooperation and*  
 5                   *foster partnerships in the region with simi-*  
 6                   *lar Federal, State, and locally funded pro-*  
 7                   *grams to encourage energy efficiency and*  
 8                   *building technology; and*

9                   “(ii) *collect data and analyze the increasing*  
 10                  *connection between manufactured products and*  
 11                  *manufacturing techniques, the future of construc-*  
 12                  *tion practices, and the emerging application of*  
 13                  *products from the green energy industries.”.*

14                  (c) *OTHER MODIFICATIONS.*—*Section 25(f) of the Na-*  
 15                  *tional Institute of Standards and Technology Act (15*  
 16                  *U.S.C. 278k(f)) is amended—*

17                  (1) *by adding at the end the following:*

18                  “(7) *DURATION.*—*Awards under this section*  
 19                  *shall last no longer than 3 years.*

20                  “(8) *ELIGIBLE PARTICIPANTS.*—*In addition to*  
 21                  *manufacturing firms eligible to participate in the*  
 22                  *Centers program, awards under this subsection may*  
 23                  *be used by the Centers to assist small- or medium-*  
 24                  *sized construction firms. Centers may be reimbursed*

1        *under the program for working with such eligible par-*  
 2        *ticipants.*

3            “(9) *AUTHORIZATION OF APPROPRIATIONS.—In*  
 4        *addition to any amounts otherwise authorized or ap-*  
 5        *propriated to carry out this section, there are author-*  
 6        *ized to be appropriated to the Secretary of Commerce*  
 7        *\$7,000,000 for each of the fiscal years 2011 through*  
 8        *2013 to carry out this subsection.”.*

9                            ***TITLE VIII—GENERAL***  
 10                           ***PROVISIONS***

11 ***SEC. 801. GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.***

12        *Not later than May 31, 2013, the Comptroller General*  
 13 *of the United States shall submit a report to the Senate*  
 14 *Committee on Commerce, Science, and Transportation and*  
 15 *the House of Representatives Committee on Science and*  
 16 *Technology that evaluates the status of the programs au-*  
 17 *thorized in this Act, including the extent to which such pro-*  
 18 *grams have been funded, implemented, and are contributing*  
 19 *to achieving the goals of the Act.*

20 ***SEC. 802. SALARY RESTRICTIONS.***

21        (a) *OBSCENE MATTER ON FEDERAL PROPERTY.—*  
 22 *None of the funds authorized under this Act may be used*  
 23 *to pay the salary of any individual who is convicted of vio-*  
 24 *lating section 1460 of title 18, United States Code.*

1       (b) *USE OF FEDERAL COMPUTERS FOR CHILD POR-*  
2 *NOGRAPHY OR EXPLOITATION OF MINORS.*—None of the  
3 *funds authorized under this Act may be used to pay the*  
4 *salary of any individual who is convicted of a violation*  
5 *of section 2252 of title 18, United States Code.*

6 **SEC. 803. ADDITIONAL RESEARCH AUTHORITIES OF THE**  
7 **FCC.**

8       *Title I of the Communications Act of 1934 (47 U.S.C.*  
9 *151 et seq.) is amended by adding at the end the following:*  
10 **“SEC. 12. ADDITIONAL RESEARCH AUTHORITIES OF THE**  
11 **FCC.**

12       *“In order to carry out the purposes of this Act, the*  
13 *Commission may—*

14               *“(1) undertake research and development work*  
15 *in connection with any matter in relation to which*  
16 *the Commission has jurisdiction; and*

17               *“(2) promote the carrying out of such research*  
18 *and development by others, or otherwise to arrange*  
19 *for such research and development to be carried out*  
20 *by others.”.*

Calendar No. 687

111<sup>TH</sup> CONGRESS  
2D Session

**S. 3605**

[Report No. 111-363]

# A BILL

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

DECEMBER 10, 2010

Reported with an amendment