

AMENDMENT NO.

CAL. NO.

[STAFF WORKING DRAFT]

December 17, 2010

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

IN THE SENATE OF THE UNITED STATES—111TH Cong., 2D Sess.

H.R. 5116, 111TH Congress, 2D Session

DECEMBER —, 2010

() Referred to the Committee on _____ and ordered to be printed

() Ordered to lie on the table and to be printed

INTENDED to be proposed by Mr. ROCKEFELLER (for himself, Mrs. HUTCHISON, Mr. ALEXANDER, and Mr BINGAMAN)

Viz: Strike all after the enacting clause and insert the following:

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”.

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

- Sec. 1. Short title; table of contents.
- Sec. 2. Definitions.
- Sec. 3. Budgetary impact statement.

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. Assessment of impediments to space science and engineering work-
force development for minority and under-represented groups
at NASA.
- Sec. 204. International Space Station’s contribution to national competitiveness
enhancement.
- Sec. 205. Study of potential commercial orbital platform.
- Sec. 206. 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. Academic technology transfer and commercialization of university research.
- 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.
- Sec. 526. Broader impacts review criterion.
- Sec. 527. Twenty-first century graduate education.

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

H.R. 5116 Amdt.

- Sec. 801. Government Accountability Office review.
- Sec. 802. Salary restrictions.
- Sec. 803. Additional research authorities of the FCC.

TITLE IX—DEPARTMENT OF ENERGY

- Sec. 901. Science, engineering, and mathematics education programs.
- Sec. 902. Energy research programs.
- Sec. 903. Basic research.
- Sec. 904. Advanced Research Project Agency-Energy.

TITLE X—EDUCATION

- Sec. 1001. References
- Sec. 1002. Repeals and conforming amendments.
- Sec. 1003. Authorizations of appropriations and matching requirement.

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
5 Technology Policy.

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

9 **SEC. 3. BUDGETARY IMPACT STATEMENT.**

10 The budgetary effects of this Act, for the purpose of
11 complying with the Statutory Pay-As-You-Go-Act of 2010,
12 shall be determined by reference to the latest statement
13 titled “Budgetary Effects of PAYGO Legislation” for this
14 Act, submitted for printing in the Congressional Record
15 by the Chairman of the Senate Budget Committee, pro-
16 vided that such statement has been submitted prior to the
17 vote on passage.

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

3 **SEC. 101. 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 Budg-
21 et;

22 (3) encourage the teaching of innovation and
23 entrepreneurship as part of STEM education activi-
24 ties;

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

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

7 (A) specify and prioritize annual and long-
8 term objectives;

9 (B) specify the common metrics that will
10 be used to assess progress toward achieving the
11 objectives;

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

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

20 (6) establish, periodically update, and maintain
21 an inventory of federally sponsored STEM education
22 programs and activities, including documentation of
23 assessments of the effectiveness of such programs
24 and activities and rates of participation by women,

1 underrepresented minorities, and persons in rural
2 areas in such programs and activities.

3 (b) RESPONSIBILITIES OF OSTP.—The Director
4 shall encourage and monitor the efforts of the partici-
5 pating agencies to ensure that the strategic plan under
6 subsection (b)(5) is developed and executed effectively and
7 that the objectives of the strategic plan are met.

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

12 (1) a description of the STEM education pro-
13 grams and activities for the previous and current fis-
14 cal years, and the proposed programs and activities
15 under the President’s budget request, of each par-
16 ticipating Federal agency;

17 (2) the levels of funding for each participating
18 Federal agency for the programs and activities de-
19 scribed under paragraph (1) for the previous fiscal
20 year and under the President’s budget request;

21 (3) an evaluation of the levels of duplication
22 and fragmentation of the programs and activities de-
23 scribed under paragraph (1)

24 (4) except for the initial annual report, a de-
25 scription of the progress made in carrying out the

1 implementation plan, including a description of the
2 outcome of any program assessments completed in
3 the previous year, and any changes made to that
4 plan since the previous annual report; and

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

15 **SEC. 102. COORDINATION OF ADVANCED MANUFACTURING**
16 **RESEARCH AND DEVELOPMENT.**

17 (a) INTERAGENCY COMMITTEE.—The Director shall
18 establish or designate a Committee on Technology under
19 the National Science and Technology Council. The Com-
20 mittee shall be responsible for planning and coordinating
21 Federal programs and activities in advanced manufac-
22 turing research and development.

23 (b) RESPONSIBILITIES OF COMMITTEE.—The Com-
24 mittee shall—

1 (1) coordinate the advanced manufacturing re-
2 search and development programs and activities of
3 the Federal agencies;

4 (2) establish goals and priorities for advanced
5 manufacturing research and development that will
6 strengthen United States manufacturing;

7 (3) work with industry organizations, Federal
8 agencies, and Federally Funded Research and Devel-
9 opment Centers not represented on the Committee,
10 to identify and reduce regulatory, logistical, and fis-
11 cal barriers within the Federal government and
12 State governments that inhibit United States manu-
13 facturing;

14 (4) facilitate the transfer of intellectual prop-
15 erty and technology based on federally supported
16 university research into commercialization and man-
17 ufacturing;

18 (5) identify technological, market, or business
19 challenges that may best be addressed by public-pri-
20 vate partnerships, and are likely to attract both par-
21 ticipation and primary funding from industry;

22 (6) encourage the formation of public-private
23 partnerships to respond to those challenges for tran-
24 sition to United States manufacturing; and

1 (7) develop, and update every 5 years, a stra-
2 tegic plan to guide Federal programs and activities
3 in support of advanced manufacturing research and
4 development, which shall—

5 (A) specify and prioritize near-term and
6 long-term research and development objectives,
7 the anticipated time frame for achieving the ob-
8 jectives, and the metrics for use in assessing
9 progress toward the objectives;

10 (B) specify the role of each Federal agency
11 in carrying out or sponsoring research and de-
12 velopment to meet the objectives of the stra-
13 tegic plan;

14 (C) describe how the Federal agencies and
15 Federally Funded Research and Development
16 Centers supporting advanced manufacturing re-
17 search and development will foster the transfer
18 of research and development results into new
19 manufacturing technologies and United States
20 based manufacturing of new products and proc-
21 esses for the benefit of society to ensure na-
22 tional, energy, and economic security;

23 (D) describe how Federal agencies and
24 Federally Funded Research and Development
25 Centers supporting advanced manufacturing re-

1 search and development will strengthen all lev-
2 els of manufacturing education and training
3 programs to ensure an adequate, well-trained
4 workforce;

5 (E) describe how the Federal agencies and
6 Federally Funded Research and Development
7 Centers supporting advanced manufacturing re-
8 search and development will assist small- and
9 medium-sized manufacturers in developing and
10 implementing new products and processes; and

11 (F) take into consideration the rec-
12 ommendations of a wide range of stakeholders,
13 including representatives from diverse manufac-
14 turing companies, academia, and other relevant
15 organizations and institutions.

16 (c) REPORT.—Not later than 1 year after the date
17 of enactment of this Act, the Director shall transmit the
18 strategic plan developed under subsection (b)(7) to the
19 Senate Committee on Commerce, Science, and Transpor-
20 tation, and the House of Representatives Committee on
21 Science and Technology, and shall transmit subsequent
22 updates to those committees as appropriate.

23 **SEC. 103. INTERAGENCY PUBLIC ACCESS COMMITTEE.**

24 (a) ESTABLISHMENT.—The Director shall establish a
25 working group under the National Science and Technology

1 Council with the responsibility to coordinate Federal
2 science agency research and policies related to the dissemi-
3 nation and long-term stewardship of the results of unclas-
4 sified research, including digital data and peer-reviewed
5 scholarly publications, supported wholly, or in part, by
6 funding from the Federal science agencies.

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

8 (1) identify the specific objectives and public in-
9 terests that need to be addressed by any policies co-
10 ordinated under (a);

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

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

23 (4) coordinate Federal science agency programs
24 and activities that support research and education
25 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) take into consideration the role that sci-
2 entific publishers play in the peer review process in
3 ensuring the integrity of the record of scientific re-
4 search, including the investments and added value
5 that they make; and

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

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

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

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

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

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

24 (3) the impact the policies described under (a)
25 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. 104. 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. 105. PRIZE COMPETITIONS.**

20 (a) **IN GENERAL.**—The Stevenson-Wydler Tech-
21 nology Innovation Act of 1980 (15 U.S.C. 3701 et seq.)
22 is amended by adding at 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 “(l) 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. No provision in this
3 section permits obligation or payment of funds in
4 violation of section 1341 of title 31, United States
5 Code.

6 “(3) AMOUNT OF PRIZE.—

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

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

16 “(i) notice of the increase is provided
17 in the same manner as the initial notice of
18 the prize; and

19 “(ii) the funds needed to pay out the
20 announced amount of the increase have
21 been appropriated or committed in writing
22 by a private source.

23 “(4) LIMITATION ON AMOUNT.—

24 “(A) NOTICE TO CONGRESS.—No prize
25 competition under this section may offer a prize

1 in an amount greater than \$50,000,000 unless
2 30 days have elapsed after written notice has
3 been transmitted to the Committee on Com-
4 merce, Science, and Transportation of the Sen-
5 ate and the Committee on Science and Tech-
6 nology of the House of Representatives.

7 “(B) APPROVAL OF HEAD OF AGENCY.—
8 No prize competition under this section may re-
9 sult in the award of more than \$1,000,000 in
10 cash prizes without the approval of the head of
11 an agency.

12 “(n) GENERAL SERVICE ADMINISTRATION ASSIST-
13 ANCE.—Not later than 180 days after the date of the en-
14 actment of the America COMPETES Reauthorization Act
15 of 2010, the General Services Administration shall provide
16 government wide services to share best practices and assist
17 agencies in developing guidelines for issuing prize competi-
18 tions. The General Services Administration shall develop
19 a contract vehicle to provide agencies access to relevant
20 products and services, including technical assistance in
21 structuring and conducting prize competitions to take
22 maximum benefit of the marketplace as they identify and
23 pursue prize competitions to further the policy objectives
24 of the Federal Government.

25 “(o) COMPLIANCE WITH EXISTING LAW.—

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

7 “(2) OTHER PRIZE AUTHORITY.— Nothing in
8 this section affects the prize authority authorized by
9 any other provision of law.

10 “(p) ANNUAL REPORT.—

11 “(1) IN GENERAL.—Not later than March 1 of
12 each year, the Director shall submit to the Com-
13 mittee on Commerce, Science, and Transportation of
14 the Senate and the Committee on Science and Tech-
15 nology of the House of Representatives a report on
16 the activities carried out during the preceding fiscal
17 year under the authority in subsection (b).

18 “(2) INFORMATION INCLUDED.—The report for
19 a fiscal year under this subsection shall include, for
20 each prize competition under subsection (b), the fol-
21 lowing:

22 “(A) PROPOSED GOALS.—A description of
23 the proposed goals of each prize competition.

24 “(B) PREFERABLE METHOD.—An analysis
25 of why the utilization of the authority in sub-

1 section (b) was the preferable method of achiev-
2 ing the goals described in subparagraph (A) as
3 opposed to other authorities available to the
4 agency, such as contracts, grants, and coopera-
5 tive agreements.

6 “(C) AMOUNT OF CASH PRIZES.—The total
7 amount of cash prizes awarded for each prize
8 competition, including a description of amount
9 of private funds contributed to the program, the
10 sources of such funds, and the manner in which
11 the amounts of cash prizes awarded and
12 claimed were allocated among the accounts of
13 the agency for recording as obligations and ex-
14 penditures.

15 “(D) SOLICITATIONS AND EVALUATION OF
16 SUBMISSIONS.—The methods used for the solie-
17 cation and evaluation of submissions under
18 each prize competition, together with an assess-
19 ment of the effectiveness of such methods and
20 lessons learned for future prize competitions.

21 “(E) RESOURCES.—A description of the
22 resources, including personnel and funding,
23 used in the execution of each prize competition
24 together with a detailed description of the ac-
25 tivities for which such resources were used and

1 an accounting of how funding for execution was
2 allocated among the accounts of the agency for
3 recording as obligations and expenditures.

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

7 (b) REPEAL OF SPACE ACT LIMITATION.—Section
8 314(a) of the National Aeronautics and Space Act of 1958
9 (42 U.S.C. 2459f-1 is amended by striking “The Adminis-
10 tration may carry out a program to award prizes only in
11 conformity with this section.”.

12 **TITLE II—NATIONAL AERO-**
13 **NAUTICS AND SPACE ADMIN-**
14 **ISTRATION**

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

17 It is the sense of Congress that a renewed emphasis
18 on technology development would enhance current mission
19 capabilities and enable future missions, while encouraging
20 NASA, private industry, and academia to spur innovation.
21 NASA’s Innovative Partnership Program is a valuable
22 mechanism to accelerate technology maturation and en-
23 courage the transfer of technology into the private sector.

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

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

7 (b) EDUCATIONAL PROGRAM GOALS.—NASA shall
8 develop and maintain educational programs—

9 (1) to carry out and support research based
10 programs and activities designed to increase student
11 interest and participation in STEM, including stu-
12 dents from minority and underrepresented groups;

13 (2) to improve public literacy in STEM;

14 (3) that employ proven strategies and methods
15 for improving student learning and teaching in
16 STEM;

17 (4) to provide curriculum support materials and
18 other resources that—

19 (A) are designed to be integrated with
20 comprehensive STEM education;

21 (B) are aligned with national science edu-
22 cation standards;

23 (C) promote the adoption and implementa-
24 tion of high-quality education practices that
25 build toward college and career-readiness; and

1 (5) to create and support opportunities for en-
2 hanced and ongoing professional development for
3 teachers using best practices that improve the
4 STEM content and knowledge of the teachers, in-
5 cluding through programs linking STEM teachers
6 with STEM educators at the higher education level.

7 **SEC. 203. ASSESSMENT OF IMPEDIMENTS TO SPACE**
8 **SCIENCE AND ENGINEERING WORKFORCE**
9 **DEVELOPMENT FOR MINORITY AND UNDER-**
10 **REPRESENTED GROUPS AT NASA.**

11 (a) ASSESSMENT.—The Administrator shall enter
12 into an arrangement for an independent assessment of any
13 impediments to space science and engineering workforce
14 development for minority and underrepresented groups at
15 NASA, including recommendations on—

16 (1) measures to address such impediments;

17 (2) opportunities for augmenting the impact of
18 space science and engineering workforce development
19 activities and for expanding proven, effective pro-
20 grams; and

21 (3) best practices and lessons learned, as identi-
22 fied through the assessment, to help maximize the
23 effectiveness of existing and future programs to in-
24 crease the participation of minority and underrep-

1 resented groups in the space science and engineering
2 workforce at NASA.

3 (b) REPORT.—A report on the assessment carried out
4 under subsection (a) shall be transmitted to the House
5 of Representatives Committee on Science and Technology
6 and the Senate Committee on Commerce, Science, and
7 Transportation not later than 15 months after the date
8 of enactment of this Act.

9 (c) IMPLEMENTATION.—To the extent practicable,
10 the Administrator shall take all necessary steps to address
11 any impediments identified in the assessment.

12 (d) DATE CHANGE.—SECTION 8905A(D)(6)(B) OF
13 TITLE 5 IS AMENDED BY STRIKING “2010.” AND INSERT-
14 ING “2011.”.

15 **SEC. 204. INTERNATIONAL SPACE STATION'S CONTRIBU-**
16 **TION TO NATIONAL COMPETITIVENESS EN-**
17 **HANCEMENT.**

18 (a) SENSE OF CONGRESS.—It is the sense of the Con-
19 gress that the International Space Station represents a
20 valuable and unique national asset which can be utilized
21 to increase educational opportunities and scientific and
22 technological innovation which will enhance the Nation's
23 economic security and competitiveness in the global tech-
24 nology fields of endeavor. If the period for active utiliza-
25 tion of the International Space Station is extended to at

1 least the year 2020, the potential for such opportunities
2 and innovation would be increased. Efforts should be
3 made to fully realize that potential.

4 (b) EVALUATION AND ASSESSMENT OF NASA'S
5 INTERAGENCY CONTRIBUTION.—Pursuant to the author-
6 ity provided in title II of the America COMPETES Act
7 (Public Law 110–69), the Administrator shall evaluate
8 and, where possible, expand efforts to maximize NASA's
9 contribution to interagency efforts to enhance science,
10 technology, engineering, and mathematics education capa-
11 bilities, and to enhance the Nation's technological excel-
12 lence and global competitiveness. The Administrator shall
13 identify these enhancements in the annual reports re-
14 quired by section 2001(e) of that Act (42 U.S.C.
15 16611a(e)).

16 (c) REPORT TO THE CONGRESS.—Within 120 days
17 after the date of enactment of this Act, the Administrator
18 shall provide to the House of Representatives Committee
19 on Science and Technology and the Senate Committee on
20 Commerce, Science, and Transportation a report on the
21 assessment made pursuant to subsection (a). The report
22 shall include—

23 (1) a description of current and potential activi-
24 ties associated with utilization of the International
25 Space Station which are supportive of the goals of

1 educational excellence and innovation and competi-
2 tive enhancement established or reaffirmed by this
3 Act, including a summary of the goals supported,
4 the number of individuals or organizations partici-
5 pating in or benefiting from such activities, and a
6 summary of how such activities might be expanded
7 or improved upon;

8 (2) a description of government and private
9 partnerships which are, or may be, established to ef-
10 fectively utilize the capabilities represented by the
11 International Space Station to enhance United
12 States competitiveness, innovation and science, tech-
13 nology, engineering, and mathematics education; and

14 (3) a summary of proposed actions or activities
15 to be undertaken to ensure the maximum utilization
16 of the International Space Station to contribute to
17 fulfillment of the goals and objectives of this Act,
18 and the identification of any additional authority,
19 assets, or funding that would be required to support
20 such activities.

1 **SEC. 205. STUDY OF POTENTIAL COMMERCIAL ORBITAL**
2 **PLATFORM PROGRAM IMPACT ON SCIENCE,**
3 **TECHNOLOGY, ENGINEERING, AND MATHE-**
4 **MATICS.**

5 (a) IN GENERAL.—Section 1003 of the National Aer-
6 onautics and Space Administration Authorization Act of
7 2010 (42 U.S.C. 18421) is amended to read as follows:

8 **“SEC. 1003. STUDY OF POTENTIAL COMMERCIAL ORBITAL**
9 **PLATFORM PROGRAM IMPACT ON SCIENCE,**
10 **TECHNOLOGY, ENGINEERING, AND MATHE-**
11 **MATICS.**

12 “A fundamental and unique capability of NASA is
13 in stimulating science, technology, engineering, and math-
14 ematics education in the United States. In ensuring max-
15 imum use of that capability, the Administrator shall carry
16 out a study to—

17 “(1) identify the benefits of and lessons learned
18 from ongoing and previous NASA orbital student
19 programs including, at a minimum, the Get Away
20 Special (GAS) and Earth Knowledge Acquired by
21 Middle School Students (EarthKAM) programs, on
22 science, technology, engineering, and mathematics
23 education;

24 “(2) assess the potential impacts on science,
25 technology, engineering, and mathematics education
26 of a program that would facilitate the development

1 of scientific and educational payloads involving
2 United States students and educators and the flights
3 of those payloads on commercially available orbital
4 platforms, when available and operational, with the
5 goal of providing frequent and regular payload
6 launches;

7 “(3) identify NASA expertise, such as NASA
8 science, engineering, payload development, and pay-
9 load operations, that could be made available to fa-
10 cilitate a science, technology, engineering, and math-
11 ematics program using commercial orbital platforms;
12 and

13 “(4) identify the issues that would need to be
14 addressed before NASA could properly assess the
15 merits and feasibility of the program described in
16 paragraph (2).”.

17 (c) EFFECTIVE DATE.—The amendment made by
18 subsection (a) shall take effect on October 12, 2010.

19 **SEC. 206. DEFINITIONS.**

20 In this title:

21 (1) ADMINISTRATOR.—The term “Adminis-
22 trator” means the Administrator of NASA.

23 (2) NASA.—The term “NASA” means the Na-
24 tional Aeronautics and Space Administration.

1 **TITLE III—NATIONAL OCEANIC**
2 **AND ATMOSPHERIC ADMINIS-**
3 **TRATION**

4 **SEC. 301. OCEANIC AND ATMOSPHERIC RESEARCH AND DE-**
5 **VELOPMENT PROGRAM.**

6 Section 4001 of the America COMPETES Act (33
7 U.S.C. 893) is amended—

8 (1) by inserting “(a) IN GENERAL.—” before
9 “The Administrator”; and

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

11 “(b) OCEANIC AND ATMOSPHERIC RESEARCH AND
12 DEVELOPMENT PROGRAM.—The Administrator shall im-
13 plement programs and activities—

14 “(1) to identify emerging and innovative re-
15 search and development priorities to enhance United
16 States competitiveness, support development of new
17 economic opportunities based on NOAA research,
18 observations, monitoring modeling, and predictions
19 that sustain ecosystem services;

20 “(2) to promote United States leadership in
21 oceanic and atmospheric science and competitiveness
22 in the applied uses of such knowledge, including for
23 the development and expansion of economic opportu-
24 nities; and

1 “(3) to advance ocean, coastal, Great Lakes,
2 and atmospheric research and development, includ-
3 ing potentially transformational research, in collabo-
4 ration with other relevant Federal agencies, aca-
5 demic institutions, the private sector, and non-
6 governmental programs, consistent with NOAA’s
7 mission to understand, observe, and model the
8 Earth’s atmosphere and biosphere, including the
9 oceans, in an integrated manner.

10 “(c) REPORT.—No later than 12 months after the
11 date of enactment of the America COMPETES Reauthor-
12 ization Act of 2010, the Administrator, in consultation
13 with the National Science Foundation or other such agen-
14 cies with mature transformational research portfolios,
15 shall develop and submit a report to the Senate Committee
16 on Commerce, Science, and Transportation and the House
17 of Representatives Committee on Science and Technology
18 that describes NOAA’s strategy for enhancing trans-
19 formational research in its research and development port-
20 folio to increase United States competitiveness in oceanic
21 and atmospheric science and technology. The report
22 shall—

23 “(1) define ‘transformational research’;

24 “(2) identify emerging and innovative areas of
25 research and development where transformational

1 research has the potential to make significant and
2 revolutionary advancements in both understanding
3 and U.S. science leadership;

4 “(3) describe how transformational research
5 priorities are identified and appropriately balanced
6 in the context of NOAA’s broader research portfolio;

7 “(4) describe NOAA’s plan for developing a
8 competitive peer review and priority-setting process,
9 funding mechanisms, performance and evaluation
10 measures, and transition-to-operation guidelines for
11 transformational research; and

12 “(5) describe partnerships with other agencies
13 involved in transformational research.”.

14 **SEC. 302. OCEANIC AND ATMOSPHERIC SCIENCE EDU-**
15 **CATION PROGRAMS.**

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

18 (1) by striking “the agency.” in subsection (a)
19 and inserting “agency, with consideration given to
20 the goal of promoting the participation of individuals
21 from underrepresented groups in STEM fields and
22 in promoting the acquisition and retention of highly
23 qualified and motivated young scientists to com-
24 plement and supplement workforce needs.”;

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

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

5 “(b) EDUCATIONAL PROGRAM GOALS.—The edu-
6 cation programs developed by NOAA shall, to the extent
7 applicable—

8 “(1) carry out and support research based pro-
9 grams and activities designed to increase student in-
10 terest and participation in STEM;

11 “(2) improve public literacy in STEM;

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

14 “(4) provide curriculum support materials and
15 other resources that—

16 “(A) are designed to be integrated with
17 comprehensive STEM education;

18 “(B) are aligned with national science edu-
19 cation standards; and

20 “(C) promote the adoption and implemen-
21 tation of high-quality education practices that
22 build toward college and career-readiness; and

23 “(5) create and support opportunities for en-
24 hanced and ongoing professional development for
25 teachers using best practices that improves the

1 STEM content and knowledge of the teachers, in-
2 cluding through programs linking STEM teachers
3 with STEM educators at the higher education
4 level.”;

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

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

8 “(e) STEM DEFINED.—In this section, the term
9 ‘STEM’ means the academic and professional disciplines
10 of science, technology, engineering, and mathematics.”.

11 **SEC. 303. WORKFORCE STUDY.**

12 (a) IN GENERAL.—The Secretary of Commerce, in
13 cooperation with the Secretary of Education, shall request
14 the National Academy of Sciences to conduct a study on
15 the scientific workforce in the areas of oceanic and atmos-
16 pheric research and development. The study shall inves-
17 tigate—

18 (1) whether there is a shortage in the number
19 of individuals with advanced degrees in oceanic and
20 atmospheric sciences who have the ability to conduct
21 high quality scientific research in physical and chem-
22 ical oceanography, meteorology, and atmospheric
23 modeling, and related fields, for government, non-
24 profit, and private sector entities;

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

4 (3) barriers to transitioning highly qualified
5 oceanic and atmospheric scientists into Federal civil
6 service scientist career tracks;

7 (4) what institutions of higher education, the
8 private sector, and the Congress could do to increase
9 the number of individuals with such post bacca-
10 laureate degrees;

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

14 (6) what actions the Federal government can
15 take to assist the transition of highly qualified sci-
16 entists into Federal career scientist positions and en-
17 sure that the experiences of retiring Federal sci-
18 entists are adequately documented and transferred
19 prior to retirement from Federal service.

20 (b) COORDINATION.—The Secretary of Commerce
21 and the Secretary of Education shall consult with the
22 heads of other Federal agencies and departments with oce-
23 anic and atmospheric expertise or authority in preparing
24 the specifications for the study.

1 (c) REPORT.—No later than 18 months after the date
2 of enactment of this Act, the Secretary of Commerce and
3 the Secretary of Education shall transmit a joint report
4 to each committee of Congress with jurisdiction over the
5 programs described in 4002(b) of the America COM-
6 PETES Act (33 U.S.C. 893a(b)), as amended by section
7 302 of this Act, detailing the findings and recommenda-
8 tions of the study and setting forth a prioritized plan to
9 implement the recommendations.

10 (d) PROGRAM AND PLAN.—The Administrator of the
11 National Oceanic and Atmospheric Administration shall
12 evaluate the National Academy of Sciences study and de-
13 velop a workforce program and plan to institutionalize the
14 Administration’s Federal science career pathways and ad-
15 dress aging workforce issues. The program and plan shall
16 be developed in consultation with the Administration’s co-
17 operative institutes and other academic partners to iden-
18 tify and implement programs and mechanisms to ensure
19 that—

20 (1) sufficient highly qualified scientists are able
21 to transition into Federal career scientist positions
22 in the Administration’s laboratories and programs;
23 and

1 (2) the technical and management experiences
2 of senior employees are documented and transferred
3 before 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
13 appropriated to the Secretary of Commerce
14 \$918,900,000 for the National Institute of Stand-
15 ards and Technology for fiscal year 2011.

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

18 (A) \$584,500,000 shall be authorized for
19 scientific and technical research and services
20 laboratory activities;

21 (B) \$124,800,000 shall be authorized for
22 the construction and maintenance of facilities;
23 and

1 (C) \$209,600,000 shall be authorized for
2 industrial technology services activities, of
3 which—

4 (i) \$141,100,000 shall be authorized
5 for the Manufacturing Extension Partner-
6 ship program under sections 25 and 26 of
7 such Act (15 U.S.C. 278k and 278l), of
8 which not more than \$5,000,000 shall be
9 for the competitive grant program under
10 section 25(f) of such Act; and

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

16 (b) FISCAL YEAR 2012.—

17 (1) IN GENERAL.—There are authorized to be
18 appropriated to the Secretary of Commerce
19 \$970,800,000 for the National Institute of Stand-
20 ards and Technology for fiscal year 2012.

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

23 (A) \$661,100,000 shall be authorized for
24 scientific and technical research and services
25 laboratory activities;

1 (B) \$84,900,000 shall be authorized for
2 the construction and maintenance of facilities;
3 and

4 (C) \$224,800,000 shall be authorized for
5 industrial technology services activities, of
6 which—

7 (i) \$155,100,000 shall be authorized
8 for the Manufacturing Extension Partner-
9 ship program under sections 25 and 26 of
10 such Act (15 U.S.C. 278k and 278l), of
11 which not more than \$5,000,000 shall be
12 for the competitive grant program under
13 section 25(f) of such Act; and

14 (ii) \$10,300,000 shall be authorized
15 for the Malcolm Baldrige National Quality
16 Award program under section 17 of the
17 Stevenson-Wydler Technology Innovation
18 Act of 1980 (15 U.S.C. 3711a).

19 (c) FISCAL YEAR 2013.—

20 (1) IN GENERAL.—There are authorized to be
21 appropriated to the Secretary of Commerce
22 \$1,039,709,000 for the National Institute of Stand-
23 ards and Technology for fiscal year 2013.

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

1 (A) \$676,700,000 shall be authorized for
2 scientific and technical research and services
3 laboratory activities;

4 (B) \$121,300,000 shall be authorized for
5 the construction and maintenance of facilities;
6 and

7 (C) \$241,709,000 shall be authorized for
8 industrial technology services activities, of
9 which—

10 (i) \$165,100,000 shall be authorized
11 for the Manufacturing Extension Partner-
12 ship program under sections 25 and 26 of
13 such Act (15 U.S.C. 278k and 278l), of
14 which not more than \$5,000,000 shall be
15 for the competitive grant program under
16 section 25(f) of such Act; and

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

1 **SEC. 403. UNDER SECRETARY OF COMMERCE FOR STAND-**
2 **ARDS AND TECHNOLOGY.**

3 (a) ESTABLISHMENT.—The National Institute of
4 Standards and Technology Act is amended by inserting
5 after section 3 the following:

6 **“SEC. 4. UNDER SECRETARY OF COMMERCE FOR STAND-**
7 **ARDS AND TECHNOLOGY.**

8 “(a) ESTABLISHMENT.—There shall be in the De-
9 partment of Commerce an Under Secretary of Commerce
10 for Standards and Technology (in this section referred to
11 as the ‘Under Secretary’).

12 “(b) APPOINTMENT.—The Under Secretary shall be
13 appointed by the President by and with the advice and
14 consent of the Senate.

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

19 “(d) DUTIES.—The Under Secretary shall serve as
20 the Director of the Institute and shall perform such duties
21 as required of the Director by the Secretary under this
22 Act or by law.

23 “(e) APPLICABILITY.—The individual serving as the
24 Director of the Institute on the date of enactment of the
25 National Institute of Standards and Technology Author-
26 ization Act of 2010 shall also serve as the Under Secretary

1 until such time as a successor is appointed under sub-
2 section (b).”.

3 (b) CONFORMING AMENDMENTS.—

4 (1) TITLE 5, UNITED STATES CODE.—

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

9 “Under Secretary of Commerce for Standards
10 and Technology, who also serves as Director of the
11 National Institute of Standards and Technology.”.

12 (B) LEVEL IV.—Section 5315 of title 5,
13 United States Code, is amended by striking
14 “Director, National Institute of Standards and
15 Technology, Department of Commerce.”.

16 (2) NATIONAL INSTITUTE OF STANDARDS AND
17 TECHNOLOGY ACT.—Section 5 of the National Insti-
18 tute of Standards and Technology Act (15 U.S.C.
19 274) is amended by striking the first, fifth, and
20 sixth sentences.

21 **SEC. 404. MANUFACTURING EXTENSION PARTNERSHIP.**

22 (a) COMMUNITY COLLEGE SUPPORT.—Section 25(a)
23 of the National Institute of Standards and Technology Act
24 (15 U.S.C. 278k(a)) is amended—

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

3 (2) by striking “Institute.” in paragraph (5)
4 and inserting “Institute; and”; and

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

6 “(6) providing to community colleges informa-
7 tion about the job skills needed in small- and me-
8 dium-sized manufacturing businesses in the regions
9 they serve.”.

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

13 “(g) INNOVATIVE SERVICES INITIATIVE.—

14 “(1) ESTABLISHMENT.—The Director shall es-
15 tablish, within the Centers program under this sec-
16 tion, an innovative services initiative to assist small-
17 and medium-sized manufacturers in—

18 “(A) reducing their energy usage, green-
19 house gas emissions, and environmental waste
20 to improve profitability;

21 “(B) accelerating the domestic commer-
22 cialization of new product technologies, includ-
23 ing components for renewable energy and en-
24 ergy efficiency systems; and

1 “(C) identification of and diversification to
2 new markets, including support for
3 transitioning to the production of components
4 for renewable energy and energy efficiency sys-
5 tems.

6 “(2) MARKET DEMAND.—The Director may not
7 undertake any activity to accelerate the domestic
8 commercialization of a new product technology
9 under this subsection unless an analysis of market
10 demand for the new product technology has been
11 conducted.”.

12 (c) REPORTS.—Section 25 of such Act (15 U.S.C.
13 278k), as amended by subsection (b), is further amended
14 by adding at the end the following:

15 “(h) REPORTS.—

16 “(1) IN GENERAL.—In submitting the 3-year
17 programmatic planning document and annual up-
18 dates under section 23, the Director shall include an
19 assessment of the Director’s governance of the pro-
20 gram established under this section.

21 “(2) CRITERIA.—In conducting the assessment,
22 the Director shall use the criteria established pursu-
23 ant to the Malcolm Baldrige National Quality Award
24 under section 17(d)(1)(C) of the Stevenson-Wydler

1 Technology Innovation Act of 1980 (15 U.S.C.
2 3711a(d)(1)(C)).”.

3 (d) HOLLINGS MANUFACTURING EXTENSION PART-
4 NERSHIP PROGRAM COST-SHARING.—Section 25(c) of
5 such Act (15 U.S.C. 278k(e)) is amended by adding at
6 the end the following:

7 “(7) Not later than 90 days after the date of
8 enactment of the National Institute of Standards
9 and Technology Authorization Act of 2010, the
10 Comptroller General shall submit to Congress a re-
11 port on the cost share requirements under the pro-
12 gram. The report shall—

13 “(A) discuss various cost share structures,
14 including the cost share structure in place prior
15 to such date of enactment, and the effect of
16 such cost share structures on individual Centers
17 and the overall program; and

18 “(B) include recommendations for how
19 best to structure the cost share requirement to
20 provide for the long-term sustainability of the
21 program.”.

22 “(8) If consistent with the recommendations in
23 the report transmitted to Congress under paragraph
24 (7), the Secretary shall alter the cost structure re-
25 quirements specified under paragraph (3)(B) and

1 (5) provided that the modification does not increase
2 the cost share structure in place before the date of
3 enactment of the America COMPETES Reauthor-
4 ization Act of 2010, or allow the Secretary to pro-
5 vide a Center more than 50 percent of the costs in-
6 curred by that Center.”.

7 (e) ADVISORY BOARD.—Section 25(e)(4) of such Act
8 (15 U.S.C. 278k(e)(4)) is amended to read as follows:

9 “(4) FEDERAL ADVISORY COMMITTEE ACT AP-
10 PPLICABILITY.—

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

16 “(B) EXCEPTION.—Section 14 of the Fed-
17 eral Advisory Committee Act shall not apply to
18 the MEP Advisory Board.’.

19 (f) DESIGNATION OF PROGRAM.—

20 (1) IN GENERAL.—Section 25 of the National
21 Institute of Standards and Technology Act (15
22 U.S.C. 278k), as amended by subsection (c), is fur-
23 ther amended by adding at the end the following:

24 “(i) DESIGNATION.—

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

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

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

19 (3) TECHNICAL AMENDMENTS.—

20 (A) Section 25(a) of the National Institute
21 of Standards and Technology Act (15 U.S.C.
22 278k(a)) is amended in the matter preceding
23 paragraph (1) by striking “Regional Centers for
24 the Transfer of Manufacturing Technology”

1 and inserting “regional centers for the transfer
2 of manufacturing technology”.

3 (B) Section 25 of such Act (15 U.S.C.
4 278k), as amended by subsection (f), is further
5 amended by adding at the end the following:

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

12 (h) EVALUATION OF OBSTACLES UNIQUE TO SMALL
13 MANUFACTURERS.—Section 25 of such Act (15 U.S.C.
14 278k), as amended by subsection (g), is further amended
15 by adding at the end the following:

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

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

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

23 “(3) facilitate improved communication between
24 the Centers to assist such manufacturers in imple-

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

5 (3) incorporate and build upon existing reports
6 and studies on improving emergency communica-
7 tions.

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

15 **SEC. 406. BROADENING PARTICIPATION.**

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

20 “(c) UNDERREPRESENTED MINORITIES.—In evalu-
21 ating applications for fellowships under this section, the
22 Director shall give consideration to the goal of promoting
23 the participation of underrepresented minorities in re-
24 search areas supported by the Institute.”.

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

8 (c) TEACHER DEVELOPMENT.—Section 19A(c) of
9 such Act (15 U.S.C. 278g–2a(c)) is amended by adding
10 at the end the following: “The Director shall give special
11 consideration to an application from a teacher from a
12 high-need school, as defined in section 200 of the Higher
13 Education 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
21 1.5 percent of the”.

22 (c) COMMERCE, SCIENCE, AND TECHNOLOGY FEL-
23 LOWSHIP PROGRAM.—Section 5163(d) of the Omnibus
24 Trade and Competition Act of 1988 (15 U.S.C. 1533) is
25 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,
7 including high performance green building stand-
8 ards, and the creation of an information infrastruc-
9 ture to communicate sustainability information
10 about suppliers; and

11 (3) to move buildings toward becoming high
12 performance green buildings, including improving
13 energy performance, service life, and indoor air qual-
14 ity of new and retrofitted buildings through vali-
15 dated measurement data.

16 **SEC. 409. DEFINITIONS.**

17 In this title:

18 (1) **DIRECTOR.**—The term “Director” means
19 the Director of the National Institute of Standards
20 and Technology.

21 (2) **FEDERAL AGENCY.**—The term “Federal
22 agency” has the meaning given such term in section
23 4 of the Stevenson-Wydler Technology Innovation
24 Act of 1980 (15 U.S.C. 3703).

25 (3) **HIGH PERFORMANCE GREEN BUILDING.**—
26 The 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**
7 **PROGRAMS**
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
16 the Director of the National Science Foundation.

17 (2) **EPSCoR.**—The term “EPSCoR” means
18 the Experimental Program to Stimulate Competitive
19 Research.

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

1 meaning given such term in section 101(a) of the
2 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

3 (5) STATE.—The term “State” means one of
4 the several States, the District of Columbia, the
5 Commonwealth of Puerto Rico, the Virgin Islands,
6 Guam, American Samoa, the Commonwealth of the
7 Northern Mariana Islands, or any other territory or
8 possession of the United States.

9 (6) UNITED STATES.—The term “United
10 States” means the several States, the District of Co-
11 lumbia, the Commonwealth of Puerto Rico, the Vir-
12 gin Islands, Guam, American Samoa, the Common-
13 wealth of the Northern Mariana Islands, and any
14 other territory or 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
18 appropriated to the Foundation \$7,424,400,000 for
19 fiscal year 2011.

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

22 (A) \$5,974,782,000 shall be made avail-
23 able to carry research and related activities;

24 (B) \$937,850,000 shall be made available
25 for education and human resources;

1 (C) \$164,744,000 shall be made available
2 for major research equipment and facilities con-
3 struction;

4 (D) \$327,503,000 shall be made available
5 for agency operations and award management;

6 (E) \$4,803,000 shall be made available for
7 the Office of the National Science Board; and

8 (F) \$14,718,000 shall be made available
9 for the Office of Inspector General.

10 (b) FISCAL YEAR 2012.—

11 (1) IN GENERAL.—There are authorized to be
12 appropriated to the Foundation \$7,800,000,000 for
13 fiscal year 2012.

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

16 (A) \$6,234,281,000 shall be made avail-
17 able to carry research and related activities;

18 (B) \$978,959,000 shall be made available
19 for education and human resources;

20 (C) \$225,544,000 shall be made available
21 for major research equipment and facilities con-
22 struction;

23 (D) \$341,676,000 shall be made available
24 for agency operations and award management;

1 (E) \$4,808,000 shall be made available for
2 the Office of the National Science Board; and

3 (F) \$14,732,000 shall be made available
4 for the Office of Inspector General.

5 (c) FISCAL YEAR 2013.—

6 (1) IN GENERAL.—There are authorized to be
7 appropriated to the Foundation \$8,300,000,000 for
8 fiscal year 2013.

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

11 (A) \$6,637,849,000 shall be made avail-
12 able to carry research and related activities;

13 (B) \$1,041,762,000 shall be made avail-
14 able for education and human resources;

15 (C) \$236,764,000 shall be made available
16 for major research equipment and facilities con-
17 struction;

18 (D) \$363,670,000 shall be made available
19 for agency operations and award management;

20 (E) \$4,906,000 shall be made available for
21 the Office of the National Science Board; and

22 (F) \$15,049,000 shall be made available
23 for 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
6 more than 5”.

7 (b) NATIONAL SCIENCE BOARD REPORTS.—Section
8 4(j)(2) of the National Science Foundation Act of 1950
9 (42 U.S.C. 1863(j)(2)) is amended by inserting “within
10 the authority of the Foundation (or otherwise as requested
11 by the Congress or the President)” after “individual policy
12 matters”.

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

17 (1) by striking “The Board” and inserting “To
18 ensure transparency of the Board’s entire decision-
19 making process, including deliberations on Board
20 business occurring within its various subdivisions,
21 the Board”; and

22 (2) by adding at the end the following: “The
23 preceding requirement will apply to meetings of the
24 full Board, whenever a quorum is present; and to
25 meetings of its subdivisions, whenever a quorum of
26 the subdivision is present.”.

1 **SEC. 505. NATIONAL CENTER FOR SCIENCE AND ENGINEER-**
2 **ING STATISTICS.**

3 (a) ESTABLISHMENT.—There is established within
4 the Foundation a National Center for Science and Engi-
5 neering Statistics that shall serve as a central Federal
6 clearinghouse for the collection, interpretation, analysis,
7 and dissemination of objective data on science, engineer-
8 ing, technology, 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 dis-
12 seminate statistical data related to the science and
13 engineering enterprise in the United States and
14 other nations that is relevant and useful to practi-
15 tioners, researchers, policymakers, and the public,
16 including 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
26 of the Center; and

1 (2) manufacturing and construction machines
2 and equipment, including robotics, automation, and
3 other intelligent systems;

4 (3) manufacturing enterprise systems;

5 (4) advanced sensing and control techniques;

6 (5) materials processing; and

7 (6) information technologies for manufacturing,
8 including predictive and real-time models and sim-
9 ulations, and virtual manufacturing.

10 (b) **MANUFACTURING EDUCATION.**—In order to help
11 ensure a well-trained manufacturing workforce, the Direc-
12 tor shall award grants to strengthen and expand scientific
13 and technical education and training in advanced manu-
14 facturing, including through the Foundation’s Advanced
15 Technological Education program.

16 **SEC. 507. NATIONAL SCIENCE BOARD REPORT ON MID-**
17 **SCALE INSTRUMENTATION.**

18 (a) **MID-SCALE RESEARCH INSTRUMENTATION**
19 **NEEDS.**—The National Science Board shall evaluate the
20 needs, across all disciplines supported by the Foundation,
21 for mid-scale research instrumentation that falls between
22 the instruments funded by the Major Research Instrumen-
23 tation program and the very large projects funded by the
24 Major Research Equipment and Facilities Construction
25 program.

1 (b) REPORT ON MID-SCALE RESEARCH INSTRUMENTEN-
2 TATION PROGRAM.—Not later than 1 year after the date
3 of enactment of this Act, the National Science Board shall
4 submit to Congress a report on mid-scale research instru-
5 mentation at the Foundation. At a minimum, this report
6 shall include—

7 (1) the findings from the Board’s evaluation of
8 instrumentation needs required under subsection (a),
9 including a description of differences across dis-
10 ciplines and Foundation research directorates;

11 (2) a recommendation or recommendations re-
12 garding how the Foundation should set priorities for
13 mid-scale instrumentation across disciplines and
14 Foundation research directorates;

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

21 (4) a recommendation or recommendations re-
22 garding the need for and appropriateness of a new,
23 Foundation-wide program or initiative in support of
24 mid-scale instrumentation, including any rec-
25 ommendations regarding the administration of and

1 budget for such a program or initiative and the ap-
2 propriate scope of instruments to be funded under
3 such a program or initiative; and

4 (5) any recommendation or recommendations
5 regarding other options for supporting mid-scale re-
6 search instrumentation at the Foundation.

7 **SEC. 508. PARTNERSHIPS FOR INNOVATION.**

8 (a) IN GENERAL.—The Director shall carry out a
9 program to award merit-reviewed, competitive grants to
10 institutions of higher education to establish and to expand
11 partnerships that promote innovation and increase the im-
12 pact of research by developing tools and resources to con-
13 nect new scientific discoveries to practical uses.

14 (b) PARTNERSHIPS.—

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

18 (A) includes at least one private sector en-
19 tity; and

20 (B) may include other institutions of high-
21 er education, public sector institutions, private
22 sector entities, and nonprofit organizations.

23 (2) PRIORITY.—In selecting grant recipients
24 under this section, the Director shall give priority to

1 partnerships that include one or more institutions of
2 higher education and at least one of the following:

3 (A) A minority serving institution.

4 (B) A primarily undergraduate institution.

5 (C) A 2-year institution of higher edu-
6 cation.

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

9 (1) to increase the impact of the most prom-
10 ising research at the institution or institutions of
11 higher education that are members of the partner-
12 ship through knowledge transfer or commercializa-
13 tion;

14 (2) to increase the engagement of faculty and
15 students across multiple disciplines and depart-
16 ments, including faculty and students in schools of
17 business and other appropriate non-STEM fields
18 and disciplines in knowledge transfer activities;

19 (3) to enhance education and mentoring of stu-
20 dents and faculty in innovation and entrepreneur-
21 ship through networks, courses, and development of
22 best practices and curricula;

23 (4) to strengthen the culture of the institution
24 or institutions of higher education to undertake and

1 participate in activities related to innovation and
2 leading to economic or social impact;

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

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

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

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

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

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

22 (e) LIMITATION.—No funds provided under this sec-
23 tion may be used to construct or renovate a building or
24 structure.

1 **SEC. 509. SUSTAINABLE CHEMISTRY BASIC RESEARCH.**

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

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

14 (2) grants to fund collaborative research part-
15 nerships among universities, industry, and nonprofit
16 organizations;

17 (3) symposia, forums, and conferences to in-
18 crease outreach, collaboration, and dissemination of
19 green chemistry advances and practices; and

20 (4) education, training, and retraining of under-
21 graduate and graduate students and professional
22 chemists and chemical engineers, including through
23 partnerships with industry, in green chemistry
24 science and engineering.

25 **SEC. 510. GRADUATE STUDENT SUPPORT.**

26 (a) FINDING.—The Congress finds that—

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

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

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

21 (c) SUPPORT FOR GRADUATE STUDENT RESEARCH
22 FROM THE RESEARCH ACCOUNT.—For each of the fiscal
23 years 2011 through 2013, at least 50 percent of the total
24 Foundation funds allocated to the Integrative Graduate
25 Education and Research Traineeship program and the

1 Graduate Research Fellowship program shall come from
2 funds appropriated for Research and Related Activities.

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

6 (1) by inserting “(a) IN GENERAL.—” before
7 “The Foundation is authorized”; and

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

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

16 **SEC. 511. ROBERT NOYCE TEACHER SCHOLARSHIP PRO-**
17 **GRAM.**

18 (a) MATCHING REQUIREMENT.—Section 10A(h)(1)
19 of the National Science Foundation Authorization Act of
20 2002 (42 U.S.C. 1862n-1a(h)(1)) is amended to read as
21 follows:

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

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

5 “(B) in the case of grants in an amount of
6 \$1,500,000 or more, an amount equal to at
7 least 50 percent of the amount of the grant, at
8 least one half of which shall be in cash.”.

9 (b) **RETIRING STEM PROFESSIONALS.**—Section
10 10A(a)(2)(A) of the National Science Foundation Author-
11 ization Act of 2002 (42 U.S.C. 1862n-1a(a)(2)(A)) is
12 amended by inserting “including retiring professionals in
13 those fields,” after “mathematics professionals,”.

14 **SEC. 512 UNDERGRADUATE BROADENING PARTICIPATION**
15 **PROGRAM.**

16 The Foundation shall continue to support the His-
17 torically Black Colleges and Universities Undergraduate
18 Program, the Louis Stokes Alliances for Minority Partici-
19 pation program, the Tribal Colleges and Universities Pro-
20 gram, and Hispanic-serving institutions as separate pro-
21 grams.

22 **SEC. 513. RESEARCH EXPERIENCES FOR HIGH SCHOOL**
23 **STUDENTS.**

24 The Director shall permit specialized STEM high
25 schools conducting research to participate in major data

1 collection initiatives from universities, corporations, or
2 government labs under a research grant from the Founda-
3 tion, as part of the research proposal.

4 **SEC. 514. RESEARCH EXPERIENCES FOR UNDERGRADU-**
5 **ATES.**

6 (a) RESEARCH SITES.—The Director shall award
7 grants, on a merit-reviewed, competitive basis, to institu-
8 tions of higher education, nonprofit organizations, or con-
9 sortia of such institutions and organizations, for sites des-
10 ignated by the Director to provide research experiences for
11 6 or more undergraduate STEM students for sites des-
12 ignated at primarily undergraduate institutions of higher
13 education and 10 or more undergraduate STEM students
14 for all other sites, with consideration given to the goal of
15 promoting the participation of individuals identified in sec-
16 tion 33 or 34 of the Science and Engineering Equal Op-
17 portunities Act (42 U.S.C. 1885a or 1885b). The Director
18 shall ensure that—

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

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

1 (3) the awards support a variety of projects, in-
2 cluding independent investigator-led projects, inter-
3 disciplinary projects, and multi-institutional projects
4 (including virtual projects);

5 (4) students participating in each program
6 funded have mentors, including during the academic
7 year to the extent practicable, to help connect the
8 students' research experiences to the overall aca-
9 demic course of study and to help students achieve
10 success in courses of study leading to a bacca-
11 laureate degree in a STEM field;

12 (5) mentors and students are supported with
13 appropriate salary or stipends; and

14 (6) student participants are tracked, for em-
15 ployment and continued matriculation in STEM
16 fields, through receipt of the undergraduate degree
17 and for at least 3 years thereafter.

18 (b) INCLUSION OF UNDERGRADUATES IN STANDARD
19 RESEARCH GRANTS.—The Director shall require that
20 every recipient of a research grant from the Foundation
21 proposing to include 1 or more students enrolled in certifi-
22 cate, associate, or baccalaureate degree programs in car-
23 rying out the research under the grant shall request sup-
24 port, including stipend support, for such undergraduate
25 students as part of the research proposal itself rather than

1 as a supplement to the research proposal, unless such un-
2 dergraduate participation was not foreseeable at the time
3 of the original proposal.

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

5 (a) IN GENERAL.—The Director may award grants,
6 on a competitive, merit-reviewed basis, to institutions of
7 higher education, or consortia thereof, to establish or ex-
8 pand partnerships with local or regional private sector en-
9 tities, for the purpose of providing undergraduate students
10 with integrated internship experiences that connect private
11 sector internship experiences with the students' STEM
12 coursework. The partnerships may also include industry
13 or professional associations.

14 (b) INTERNSHIP PROGRAM.— The grants awarded
15 under section (a) may include internship programs in the
16 manufacturing sector.

17 (c) USE OF GRANT FUNDS.—Grants under this sec-
18 tion may be used—

19 (1) to develop and implement hands-on learning
20 opportunities;

21 (2) to develop curricula and instructional mate-
22 rials related to industry, including the manufac-
23 turing sector;

24 (3) to perform outreach to secondary schools;

1 (4) to develop mentorship programs for stu-
2 dents with partner organizations; and

3 (5) to conduct activities to support awareness of
4 career opportunities and skill requirements.

5 (d) PRIORITY.—In awarding grants under this sec-
6 tion, the Director shall give priority to institutions of high-
7 er education or consortia thereof that demonstrate signifi-
8 cant outreach to and coordination with local or regional
9 private sector entities and Regional Centers for the Trans-
10 fer of Manufacturing Technology established by section
11 25(a) of the National Institute of Standards and Tech-
12 nology Act (15 U.S.C. 278k(a)) in developing academic
13 courses designed to provide students with the skills or cer-
14 tifications necessary for employment in local or regional
15 companies.

16 (c) OUTREACH TO RURAL COMMUNITIES.—The
17 Foundation shall conduct outreach to institutions of high-
18 er education and private sector entities in rural areas to
19 encourage those entities to participate in partnerships
20 under this section.

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

24 (e) RESTRICTION.—No Federal funds provided under
25 this section may be used—

1 (1) for the purpose of providing stipends or
2 compensation to students for private sector intern-
3 ships unless private sector entities match 75 percent
4 of such funding; or

5 (2) as payment or reimbursement to private
6 sector entities, except for institutions of higher edu-
7 cation.

8 (f) REPORT.—Not less than 3 years after the date
9 of enactment of this Act, the Director shall submit a re-
10 port to Congress on the number and total value of awards
11 made under this section, the number of students affected
12 by those awards, any evidence of the effect of those awards
13 on workforce preparation and jobs placement for partici-
14 pating students, and an economic and ethnic breakdown
15 of the participating students.

16 **SEC. 516. CYBER-ENABLED LEARNING FOR NATIONAL**
17 **CHALLENGES.**

18 The Director shall, in consultation with appropriate
19 Federal agencies, identify ways to use cyber-enabled learn-
20 ing to create an innovative STEM workforce and to help
21 retrain and retain our existing STEM workforce to ad-
22 dress national challenges, including national security and
23 competitiveness, and use technology to enhance or supple-
24 ment laboratory based learning.

1 **SEC. 517. EXPERIMENTAL PROGRAM TO STIMULATE COM-**
2 **PETITIVE RESEARCH.**

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

4 (1) The National Science Foundation Act of
5 1950 stated, “it shall be an objective of the Founda-
6 tion to strengthen research and education in the
7 sciences and engineering, including independent re-
8 search by individuals, throughout the United States,
9 and to avoid undue concentration of such research
10 and education,”;

11 (2) National Science Foundation funding re-
12 mains highly concentrated, with 27 States and 2 ju-
13 risdictions, taken together, receiving only about 10
14 percent of all NSF research funding; each of these
15 States received only a fraction of one percent of
16 Foundation’s research dollars each year;

17 (3) the Nation requires the talent, expertise,
18 and research capabilities of all States in order to
19 prepare sufficient numbers of scientists and engi-
20 neers, remain globally competitive and support eco-
21 nomic development.

22 (b) CONTINUATION OF PROGRAM.—The Director
23 shall continue to carry out EPSCoR, with the objective
24 of helping the eligible States to develop the research infra-
25 structure that will make them more competitive for Foun-
26 dation and other Federal research funding. The program

1 shall continue to increase as the National Science Founda-
2 tion funding increases.

3 (c) CONGRESSIONAL REPORTS.—The Director shall
4 report to the appropriate committees of Congress on an
5 annual basis, using the most recent available data—

6 (1) the total amount made available, by State,
7 under EPSCoR;

8 (2) the amount of co-funding made available to
9 EPSCoR States;

10 (3) the total amount of National Science Foun-
11 dation funding made available to all institutions and
12 entities within EPSCoR States; and

13 (4) efforts and accomplishments to more fully
14 integrate the 29 EPSCoR jurisdictions in major ac-
15 tivities and initiatives of the Foundation.

16 (d) COORDINATION OF EPSCoR AND SIMILAR FED-
17 ERAL PROGRAMS.—

18 (1) ANOTHER FINDING.—The Congress finds
19 that a number of Federal agencies have programs,
20 such as Experimental Programs to Stimulate Com-
21 petitive Research and the National Institutes of
22 Health Institutional Development Award program,
23 designed to increase the capacity for and quality of
24 science and technology research and training at aca-
25 demic institutions in States that historically have re-

1 ceived relatively little Federal research and develop-
2 ment funding.

3 (2) COORDINATION REQUIRED.—The EPSCoR
4 Interagency Coordinating Committee, chaired by the
5 National Science Foundation, shall—

6 (A) coordinate EPSCoR and Federal
7 EPSCoR-like programs to maximize the impact
8 of Federal support for building competitive re-
9 search infrastructure, and in order to achieve
10 an integrated Federal effort;

11 (B) coordinate agency objectives with State
12 and institutional goals, to obtain continued non-
13 Federal support of science and technology re-
14 search and training;

15 (C) develop metrics to assess gains in aca-
16 demic research quality and competitiveness, and
17 in science and technology human resource de-
18 velopment;

19 (D) conduct a cross-agency evaluation of
20 EPSCoR and other Federal EPSCoR-like pro-
21 grams and accomplishments, including manage-
22 ment, investment, and metric-measuring strate-
23 gies implemented by the different agencies
24 aimed to increase the number of new investiga-
25 tors receiving peer-reviewed funding, broaden

1 participation, and empower knowledge genera-
2 tion, dissemination, application, and national
3 research and development competitiveness;

4 (E) coordinate the development and imple-
5 mentation of new, novel workshops, outreach
6 activities, and follow-up mentoring activities
7 among EPSCoR or EPSCoR-like programs for
8 colleges and universities in EPSCoR States and
9 territories in order to increase the number of
10 proposals submitted and successfully funded
11 and to enhance statewide coordination of
12 EPSCoR and Federal EPSCoR-like programs;

13 (F) coordinate the development of new, in-
14 novative solicitations and programs to facilitate
15 collaborations, partnerships, and mentoring ac-
16 tivities among faculty at all levels in non-
17 EPSCoR and EPSCoR States and jurisdictions;

18 (G) conduct an evaluation of the roles, re-
19 sponsibilities and degree of autonomy that pro-
20 gram officers or managers (or the equivalent
21 position) have in executing EPSCoR programs
22 at the different Federal agencies and the im-
23 pacts these differences have on the number of
24 EPSCoR State and jurisdiction faculty partici-
25 pating in the peer review process and the per-

1 centage of successful awards by individual
2 EPSCoR State jurisdiction and individual re-
3 searcher; and

4 (H) conduct a survey of colleges and uni-
5 versity faculty at all levels regarding their
6 knowledge and understanding of EPSCoR, and
7 their level of interaction with and knowledge
8 about their respective State or Jurisdictional
9 EPSCoR Committee.

10 (3) MEETINGS AND REPORTS.—The Committee
11 shall meet at least twice each fiscal year and shall
12 submit an annual report to the appropriate commit-
13 tees of Congress describing progress made in car-
14 rying out paragraph (2).

15 (e) FEDERAL AGENCY REPORTS.—Each Federal
16 agency that administers an EPSCoR or Federal EPSCoR-
17 like program shall submit to the OSTP as part of its Fed-
18 eral budget submission—

19 (1) a description of the program strategy and
20 objectives;

21 (2) a description of the awards made in the pre-
22 vious year, including—

23 (A) the percentage of reviewers and num-
24 ber of new reviewers from EPSCoR States;

1 (B) the percentage of new investigators
2 from EPSCoR States;

3 (C) the number of programs or large col-
4 laborator awards involving a partnership of or-
5 ganizations and institutions from EPSCoR and
6 non-EPSCoR States; and

7 (3) an analysis of the gains in academic re-
8 search quality and competitiveness, and in science
9 and technology human resource development,
10 achieved by the program in the last year.

11 (f) NATIONAL ACADEMY OF SCIENCES STUDY.—

12 (1) IN GENERAL.—The Director shall contract
13 with the National Academy of Sciences to conduct a
14 study on all Federal agencies that administer an Ex-
15 perimental Program to Stimulate Competitive Re-
16 search or a program similar to the Experimental
17 Program to Stimulate Competitive Research.

18 (2) MATTERS TO BE ADDRESSED.—The study
19 conducted under paragraph (1) shall include the fol-
20 lowing:

21 (A) A delineation of the policies of each
22 Federal agency with respect to the awarding of
23 grants to EPSCoR States.

24 (B) The effectiveness of each program.

1 (C) Recommendations for improvements
2 for each agency to achieve EPSCoR goals.

3 (D) An assessment of the effectiveness of
4 EPSCoR States in using awards to develop
5 science and engineering research and education,
6 and science and engineering infrastructure
7 within their States.

8 (E) Such other issues that address the ef-
9 fectiveness of EPSCoR as the National Acad-
10 emy of Sciences considers appropriate.

11 **SEC. 518. SENSE OF THE CONGRESS REGARDING THE**
12 **SCIENCE, TECHNOLOGY, ENGINEERING, AND**
13 **MATHEMATICS TALENT EXPANSION PRO-**
14 **GRAM.**

15 It is the sense of the Congress that—

16 (1) the Science, Technology, Engineering, and
17 Mathematics Talent Expansion Program established
18 by the National Science Foundation Authorization
19 Act of 2002 continues to be an effective program to
20 increase the number of students, who are citizens or
21 permanent residents of the United States, receiving
22 associate or baccalaureate degrees in established or
23 emerging fields within science, technology, engineer-
24 ing, and mathematics, and its authorization con-
25 tinues;

1 (2) the strategies employed continue to
2 strengthen mentoring and tutoring between faculty
3 and students and provide students with information
4 and exposure to potential career pathways in
5 science, technology, engineering, and mathematics
6 areas;

7 (3) this highly competitive program awarded
8 145 Program implementation awards and 12 re-
9 search projects in the first 6 years of operations;
10 and

11 (4) the Science, Technology, Engineering, and
12 Mathematics Talent Expansion Program should con-
13 tinue to be supported by the National Science Foun-
14 dation.

15 **SEC. 519. SENSE OF THE CONGRESS REGARDING THE NA-**
16 **TIONAL SCIENCE FOUNDATION'S CONTRIBU-**
17 **TIONS TO BASIC RESEARCH AND EDUCATION.**

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

19 (1) the National Science Foundation is an inde-
20 pendent Federal agency created by Congress in 1950
21 to, among other things, promote the progress of
22 science, to advance the national health, prosperity,
23 and welfare, and to secure the national defense;

24 (2) the Foundation is the funding source for
25 approximately 20 percent of all federally supported

1 basic research conducted by America's colleges and
2 universities, and is the major source of Federal
3 backing for mathematics, computer science and
4 other sciences;

5 (3) the America COMPETES Act of 2007
6 helped rejuvenate our focus on increasing basic re-
7 search investment in the physical sciences, strength-
8 ening educational opportunities in the science, tech-
9 nology, engineering, and mathematics fields and de-
10 veloping a robust innovation infrastructure; and

11 (4) reauthorization of the America COM-
12 PETES Act should continue a robust investment in
13 basic research and education and preserve the es-
14 sence of the original Act by increasing the invest-
15 ment focus on science, technology, engineering, and
16 mathematics basic research and education as a na-
17 tional priority.

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

20 (1) the National Science Foundation is the fin-
21 est scientific foundation in the world, and is a vital
22 agency that must support basic research needed to
23 advance the United States into the 21st century;

24 (2) the National Science Foundation should
25 focus Federal research and development resources

1 primarily in the areas of science, technology, engi-
2 neering, and mathematics basic research and edu-
3 cation; and

4 (3) the National Science Foundation should
5 strive to ensure that federally-supported research is
6 of the finest quality, is ground breaking, and an-
7 swers questions or solves problems that are of ut-
8 most importance to society at large.

9 **SEC. 520. ACADEMIC TECHNOLOGY TRANSFER AND COM-**
10 **MERCIALIZATION OF UNIVERSITY RE-**
11 **SEARCH.**

12 (a) IN GENERAL.—Any institution of higher edu-
13 cation (as such term is defined in section 101(A) of the
14 Higher Education Act of 1965 (20 U.S.C. 1001(a))) that
15 receives National Science Foundation research support
16 and has received at least \$25,000,000 in total Federal re-
17 search grants in the most recent fiscal year shall keep,
18 maintain, and report annually to the National Science
19 Foundation the universal record locator for a public
20 website that contains information concerning its general
21 approach to and mechanisms for transfer of technology
22 and the commercialization of research results, including—

23 (1) contact information for individuals and uni-
24 versity offices responsible for technology transfer
25 and commercialization;

1 or improve metrics for measuring the potential impact-on-
2 society, including—

3 (1) the potential for commercial applications of
4 research studies funded in whole or in part by
5 grants of financial assistance from the Foundation
6 or other 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
10 new intellectual property and the success of commer-
11 cial 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
17 study required by subsection (a), the Director shall submit
18 a report to the Senate Committee on Commerce, Science,
19 and Transportation and the House of Representatives
20 Committee on Science and Technology setting forth the
21 Director'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
25 may utilize funds appropriated to carry out grants to insti-

1 tutions of higher education (as such term is defined in
2 section 101(a) of the Higher Education Act of 1965 (20
3 U.S.C. 1001(a))) to provide financial support for post-
4 graduate research in fields with potential commercial ap-
5 plications to match, in whole or in part, any private sector
6 grant of financial assistance to any post-doctoral program
7 in such a 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 agen-
14 cies, including the Department of Energy's Office of
15 Science, to ensure that joint investments may be
16 made 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
20 by the National Science and Technology Council re-
21 garding such facilities and opportunities for partner-
22 ship with other agencies in the design and construc-
23 tion of 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
5 support a national research agenda in key areas affected
6 by the increased use of public and private cloud com-
7 puting, including—

8 (1) new approaches, techniques, technologies,
9 and 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
24 sensitive or proprietary information in global-scale
25 cloud 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 re-
7 lated 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
25 of the National Science Foundation.

1 (c) REPORT.—The Director shall provide an annual
2 report for not less than 5 consecutive years to Congress
3 on the outcomes of National Science Foundation invest-
4 ments in cloud computing research, recommendations for
5 research focus and program improvements, or other re-
6 lated recommendations. The reports, including any interim
7 findings or recommendations, shall be made publicly avail-
8 able on the website of the National Science Foundation.

9 (d) NIST SUPPORT.—The Director of the National
10 Institute 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
19 support a program to award grants on a competitive,
20 merit-reviewed basis to tribal colleges and universities (as
21 defined in section 316 of the Higher Education Act of
22 1965 (20 U.S.C. 1059c), including institutions described
23 in section 317 of such Act (20 U.S.C. 1059d), to enhance
24 the quality of undergraduate STEM education at such in-
25 stitutions and to increase the retention and graduation

1 rates of Native American students pursuing associate's or
2 baccalaureate degrees 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
11 (a), as determined by the Director.

12 (c) INSTRUMENTATION.—Funding provided under
13 this section may be used for laboratory equipment and ma-
14 terials.

15 **SEC. 526. BROADER IMPACTS REVIEW CRITERION.**

16 (a) GOALS.—The Foundation shall apply a Broader
17 Impacts Review Criterion to achieve the following goals:

18 (1) Increased economic competitiveness of the
19 United States.

20 (2) Development of a globally competitive
21 STEM workforce.

22 (3) Increased participation of women and
23 underrepresented minorities in STEM.

24 (4) Increased partnerships between academia
25 and industry.

1 (5) Improved pre-K–12 STEM education and
2 teacher development.

3 (6) Improved undergraduate STEM education.

4 (7) Increased public scientific literacy.

5 (8) Increased national security.

6 (b) POLICY.—Not later than 6 months after the date
7 of enactment of this Act, the Director shall develop and
8 implement a policy for the Broader Impacts Review Cri-
9 terion that—

10 (1) provides for educating professional staff at
11 the Foundation, merit review panels, and applicants
12 for Foundation research grants on the policy devel-
13 oped under this subsection;

14 (2) clarifies that the activities of grant recipi-
15 ents undertaken to satisfy the Broader Impacts Re-
16 view Criterion shall—

17 (A) to the extent practicable employ proven
18 strategies and models and draw on existing pro-
19 grams and activities; and

20 (B) when novel approaches are justified,
21 build on the most current research results;

22 (3) allows for some portion of funds allocated to
23 broader impacts under a research grant to be used
24 for assessment and evaluation of the broader im-
25 pacts activity;

1 (4) encourages institutions of higher education
2 and other nonprofit education or research organiza-
3 tions to develop and provide, either as individual in-
4 stitutions or in partnerships thereof, appropriate
5 training and programs to assist Foundation-funded
6 principal investigators at their institutions in achiev-
7 ing the goals of the Broader Impacts Review Cri-
8 terion as described in subsection (a); and

9 (5) requires principal investigators applying for
10 Foundation research grants to provide evidence of
11 institutional support for the portion of the investiga-
12 tor's proposal designed to satisfy the Broader Im-
13 pacts Review Criterion, including evidence of rel-
14 evant training, programs, and other institutional re-
15 sources available to the investigator from either their
16 home institution or organization or another institu-
17 tion or organization with relevant expertise.

18 **SEC. 527. TWENTY-FIRST CENTURY GRADUATE EDUCATION.**

19 (a) IN GENERAL.—The Director shall award grants,
20 on a competitive, merit-reviewed basis, to institutions of
21 higher education to implement or expand research-based
22 reforms in master's and doctoral level STEM education
23 that emphasize preparation for diverse careers utilizing
24 STEM degrees, including at diverse types of institutions

1 of higher education, in industry, and at government agen-
2 cies and research laboratories.

3 (b) USES OF FUNDS.—Activities supported by grants
4 under this section may include—

5 (1) creation of multidisciplinary or interdiscipli-
6 nary courses or programs for the purpose of im-
7 proved student instruction and research in STEM;

8 (2) expansion of graduate STEM research op-
9 portunities to include interdisciplinary research op-
10 portunities and research opportunities in industry,
11 at Federal laboratories, and at international re-
12 search institutions or research sites;

13 (3) development and implementation of future
14 faculty training programs focused on improved in-
15 struction, mentoring, assessment of student learn-
16 ing, and support of undergraduate STEM students;

17 (4) support and training for graduate students
18 to participate in instructional activities beyond the
19 traditional teaching assistantship, and especially as
20 part of ongoing educational reform efforts, including
21 at pre-K–12 schools, and primarily undergraduate
22 institutions;

23 (5) creation, improvement, or expansion of in-
24 novative graduate programs such as science master’s
25 degree programs;

1 (6) development and implementation of semi-
2 nars, workshops, and other professional development
3 activities that increase the ability of graduate stu-
4 dents to engage in innovation, technology transfer,
5 and entrepreneurship;

6 (7) development and implementation of semi-
7 nars, workshops, and other professional development
8 activities that increase the ability of graduate stu-
9 dents to effectively communicate their research find-
10 ings to technical audiences outside of their own dis-
11 cipline and to nontechnical audiences;

12 (8) expansion of successful STEM reform ef-
13 forts beyond a single academic unit to other STEM
14 academic units within an institution or to com-
15 parable academic units at other institutions; and

16 (9) research on teaching and learning of STEM
17 at the graduate level related to the proposed reform
18 effort, including assessment and evaluation of the
19 proposed reform activities and research on scalability
20 and sustainability of approaches to reform.

21 (c) PARTNERSHIP.—An institution of higher edu-
22 cation may partner with one or more other nonprofit edu-
23 cation or research organizations, including scientific and
24 engineering societies, for the purposes of carrying out the
25 activities authorized under this section.

1 (d) SELECTION PROCESS.—

2 (1) APPLICATIONS.—An institution of higher
3 education seeking a grant under this section shall
4 submit an application to the Director at such time,
5 in such manner, and containing such information as
6 the Director may require. The application shall in-
7 clude, at a minimum—

8 (A) a description of the proposed reform
9 effort;

10 (B) in the case of applications that propose
11 an expansion of a previously implemented re-
12 form effort at the applicant’s institution or at
13 other institutions, a description of the pre-
14 viously implemented reform effort;

15 (C) evidence of institutional support for,
16 and commitment to, the proposed reform effort,
17 including long-term commitment to implement
18 successful strategies from the current reform
19 effort beyond the academic unit or units in-
20 cluded in the grant proposal or to disseminate
21 successful strategies to other institutions; and

22 (D) a description of the plans for assess-
23 ment and evaluation of the grant proposed re-
24 form activities.

1 (2) REVIEW OF APPLICATIONS.—In selecting
2 grant recipients under this section, the Director
3 shall consider at a minimum—

4 (A) the likelihood of success in under-
5 taking the proposed effort at the institution
6 submitting the application, including the extent
7 to which the faculty, staff, and administrators
8 of the institution are committed to making the
9 proposed institutional reform a priority of the
10 participating academic unit or units;

11 (B) the degree to which the proposed re-
12 form will contribute to change in institutional
13 culture and policy such that a greater value is
14 placed on preparing graduate students for di-
15 verse careers utilizing STEM degrees;

16 (C) the likelihood that the institution will
17 sustain or expand the reform beyond the period
18 of the grant; and

19 (D) the degree to which scholarly assess-
20 ment and evaluation plans are included in the
21 design of the reform effort.

1 **SUBTITLE B—STEM-TRAINING**
2 **GRANT PROGRAM**

3 **SEC. 551. PURPOSE.**

4 The purpose of this subtitle is to replicate and imple-
5 ment programs at institutions of higher education that
6 provide integrated courses of study in science, technology,
7 engineering, or mathematics, and teacher education, that
8 lead to a baccalaureate degree in science, technology, engi-
9 neering, or mathematics with concurrent teacher certifi-
10 cation.

11 **SEC. 552. PROGRAM REQUIREMENTS.**

12 The Director shall replicate and implement under-
13 graduate degree programs under this subtitle that—

14 (1) are designed to recruit and prepare students
15 who pursue a baccalaureate degree in science, tech-
16 nology, engineering, or mathematics to become cer-
17 tified as elementary and secondary teachers;

18 (2) require the education department (or its
19 equivalent) and the departments or division respon-
20 sible for preparation of science, technology, engineer-
21 ing, and mathematics majors at an institution of
22 higher education to collaborate in establishing and
23 implementing the program at that institution;

24 (3) require students participating in the pro-
25 gram to enter the program through a field-based

1 course and to continue to complete field-based
2 courses supervised by master teachers throughout
3 the program;

4 (4) hire sufficient teachers so that the ratio of
5 students to master teachers in the program does not
6 exceed 100 to 1;

7 (5) include instruction in the use of scientif-
8 ically-based instructional materials and methods, as-
9 sessments, pedagogical content knowledge (including
10 the interaction between mathematics and science),
11 the use of instructional technology, and how to in-
12 corporate State and local standards into the class-
13 room curriculum;

14 (6) restrict to students participating in the pro-
15 gram those courses that are specifically designed for
16 the needs of teachers of science, technology, engi-
17 neering, and mathematics; and

18 (7) require students participating in the pro-
19 gram to successfully complete a final evaluation of
20 their teaching proficiency, based on their classroom
21 teaching performance, conducted by multiple trained
22 observers, and a portfolio of their accomplishments.

1 **SEC. 553. GRANT PROGRAM.**

2 (a) IN GENERAL.—The Director shall establish a
3 grant program to support programs at institutions of
4 higher education to carry out the purpose of this subtitle.

5 (b) GEOGRAPHICAL CONSIDERATIONS.—In the ad-
6 ministration of this subtitle, the Director shall take such
7 steps as may be necessary to ensure that grants are equi-
8 tably distributed across all regions of the United States,
9 taking into account population density and other geo-
10 graphic and demographic considerations.

11 (c) AMOUNT OF GRANT.—Subject to the require-
12 ments of subsection (d), the Director may award grants
13 annually on a competitive basis to institutions of higher
14 education in the amount of \$2,000,000, per institution of
15 which—

16 (1) \$1,500,000 shall be used—

17 (A) to design, implement, and evaluate a
18 program that meets the requirements of section
19 552;

20 (B) to employ master teachers at the insti-
21 tution to oversee field experiences;

22 (C) to provide a stipend to mentor teachers
23 participating in the program; and

24 (D) to support curriculum development
25 and implementation strategies for science, tech-

1 nology, engineering, and mathematics content
2 courses taught through the program; and

3 (2) up to \$500,000 shall be set aside by the
4 grantee for technical support and evaluation services
5 from the institution whose programs will be rep-
6 licated.

7 (d) ELIGIBILITY.—To be eligible to apply for a grant
8 under this section, an institution of higher education
9 shall—

10 (1) include former secondary school science,
11 technology, engineering, or mathematics master
12 teachers as faculty in its science department for this
13 program;

14 (2) grant terminal degrees in science, tech-
15 nology, engineering, and mathematics; and

16 (3) have a process to be used in establishing
17 partnerships with local educational agencies for
18 placement of participating students in their field ex-
19 periences, including a process for identifying mentor
20 teachers working in local schools to supervise class-
21 room field experiences in cooperation with univer-
22 sity-based master teachers;

23 (4) maintain policies allowing flexible entry to
24 the program throughout the undergraduate
25 coursework;

1 (5) require that master teachers employed by
2 the institution will supervise field experiences of stu-
3 dents in the program;

4 (6) require that the program complies with
5 State certification or licensing requirements and the
6 requirements under section 9101(23) of the Elemen-
7 tary and Secondary Education Act of 1965 (20
8 U.S.C. 7801(23)) for highly qualified teachers;

9 (7) develop during the course of the grant a
10 plan for long-term support and assessment of its
11 graduates, which shall include—

12 (A) induction support for graduates in
13 their first one to two years of teaching;

14 (B) systems to determine the teaching sta-
15 tus of graduates and thereby determine reten-
16 tion rates; and

17 (C) methods to analyze the achievement of
18 students taught by graduates, and methods to
19 analyze classroom practices of graduates; and

20 (8) be able upon completion of the grant at the
21 end of 5 years to fund essential program costs, in-
22 cluding salaries of master teachers and other nec-
23 essary personnel, from recurring university budgets.

24 (e) APPLICATION REQUIREMENTS.—An institution of
25 higher education seeking a grant under the program shall

1 submit an application to the Director in such form, at
2 such time, and containing such information and assur-
3 ances as the Director may require, including—

4 (1) a description of the current rate at which
5 individuals majoring in science, technology, engineer-
6 ing, and mathematics become certified as elementary
7 and secondary teachers;

8 (2) a description for the institution's plan for
9 increasing the numbers of students enrolled in and
10 graduating from the program supported under this
11 subtitle;

12 (3) a description of the institution's capacity to
13 develop a program in which individuals majoring in
14 science, technology, engineering, and mathematics
15 can become certified as elementary and secondary
16 teachers;

17 (4) identification of the organizational unit
18 within the department or division of arts and
19 sciences or the science department at the institution
20 that will adopt teacher certification for elementary
21 and secondary teachers as its primary mission;

22 (5) identification of core faculty within the de-
23 partment or division of arts and sciences or the
24 science department at the institution to champion
25 teacher preparation in their departments by teaching

1 courses dedicated to preparing future elementary
2 and secondary school teachers, helping create new
3 degree plans, advising prospective students within
4 their major, and assisting as needed with program
5 administration;

6 (6) identification of core faculty in the edu-
7 cation department or its equivalent at the institution
8 to champion teacher preparation by creating and
9 teaching courses specific to the preparation of
10 science, technology, engineering, and mathematics
11 and working closely with colleagues in the depart-
12 ment or division of arts and sciences or the science
13 department; and

14 (7) a description of involving practical, field-
15 based experience in teaching and degree plans ena-
16 bling students to graduate in 4 years with a major
17 in science, technology, engineering, or mathematics
18 and elementary or secondary school teacher certifi-
19 cation.

20 (f) MATCHING REQUIREMENT.—An institution of
21 higher education may not receive a grant under this sec-
22 tion unless it provides, from non-federal sources, to carry
23 out the activities supported by the grant, an amount that
24 is not less than—

1 (1) 35 percent of the amount of the grant for
2 the first fiscal year of the grant;

3 (2) 55 percent of the amount of the grant for
4 the second and third fiscal years of the grant; and

5 (3) 75 percent of the amount of the grant for
6 the fourth and fifth fiscal years of the grant.

7 (g) GUIDANCE.—Within 90 days after the date of en-
8 actment of this Act, the Director shall initiate a pro-
9 ceeding to promulgate guidance for the administration of
10 the grant program established under subsection (a).

11 **SEC. 554. GRANT OVERSIGHT AND ADMINISTRATION.**

12 (a) IN GENERAL.—The Director may execute a con-
13 tract for program oversight and fiscal management with
14 an organization at an institution of higher education, a
15 non-profit organization, or other entity that demonstrates
16 capacity for and experience in—

17 (1) replicating 1 or more similar programs at
18 regional or national levels;

19 (2) providing programmatic and technical im-
20 plementation assistance for the program;

21 (3) performing data collection and analysis to
22 ensure proper implementation and continuous pro-
23 gram improvement; and

1 (4) providing accountability for results by
2 measuring and monitoring achievement of pro-
3 grammatic milestones.

4 (b) OVERSIGHT RESPONSIBILITIES.—

5 (1) MANDATORY DUTIES.—If the Director exe-
6 cutes a contract under subsection (a) with an orga-
7 nization for program oversight and fiscal manage-
8 ment, the organization shall—

9 (A) ensure that a grant recipient faithfully
10 replicates and implements the program or pro-
11 grams for which the grant is awarded;

12 (B) ensure that grant funds are used for
13 the purposes authorized and that a grant recipi-
14 ent has a system in place to track and account
15 for all Federal grant funds provided;

16 (C) provide technical assistance to grant
17 recipients;

18 (D) collect and analyze data and report to
19 the Director annually on the effects of the pro-
20 gram on—

21 (i) the progress of participating stu-
22 dents in achieving teaching competence
23 and teaching certification;

24 (ii) the participation of students in
25 the program by major, compared with local

1 and State needs on secondary teachers by
2 discipline; and

3 (iii) the participation of students in
4 the program by demographic subgroup;

5 (E) collect and analyze data and report to
6 the Director annually on the effects of the pro-
7 gram on the academic achievement of elemen-
8 tary and secondary school students taught by
9 graduates of programs funded by grants under
10 this subtitle; and

11 (F) submit an annual report to the Direc-
12 tor demonstrating compliance with the require-
13 ments of subparagraphs (A) through (E).

14 (2) DISCRETIONARY DUTIES.—At the request of
15 the Director, the organization under contract under
16 subsection (a) may assist the Director in evaluating
17 grant applications.

18 (c) REPORTS TO CONGRESS.—The Director shall
19 submit a copy of the annual report required by subsection
20 (b)(1)(F) to the Senate Committee on Commerce, Science,
21 and Transportation, the Senate Committee on Health,
22 Education, Labor, and Pensions, the House of Represent-
23 atives Committee on Science and Technology, and the
24 House of Representatives Committee on Education and
25 Labor.

1 **SEC. 555. DEFINITIONS.**

2 In this subtitle:

3 (1) **FIELD-BASED COURSE.**—The term “field-
4 based course” means a course of instruction offered
5 by an institution of higher education that includes a
6 requirement that students teach a minimum of 3 les-
7 sons or sequences of lessons to elementary or sec-
8 ondary students.

9 (2) **INSTITUTION OF HIGHER EDUCATION.**—The
10 term “institution of higher education” has the
11 meaning given that term by section 101 of the High-
12 er Education Act of 1965 (20 U.S.C. 1001).

13 (3) **MASTER TEACHER.**—The term “master
14 teacher” means an individual—

15 (A) who has been awarded a master’s or
16 doctoral degree by an institution of higher edu-
17 cation;

18 (B) whose graduate coursework included
19 courses in mathematics, science, computer
20 science, or engineering;

21 (C) who has at least 3 years teaching expe-
22 rience in K-12 settings; and

23 (D) whose teaching has been recognized
24 for exceptional accomplishments in educating
25 students, or is demonstrated to have resulted in
26 improved student achievement.

1 (4) MENTOR TEACHER.—The term “mentor
2 teacher” means an elementary or secondary school
3 classroom teacher who assists with the training of
4 students participating in a field-based course.

5 (5) DIRECTOR.—The term “Director” means
6 the Director of the National Science Foundation.

7 **SEC. 556. AUTHORIZATION OF APPROPRIATIONS.**

8 There are authorized to be appropriated to the Direc-
9 tor to carry out this subtitle \$10,000,000 for each of fiscal
10 years 2011 through 2013.

11 **TITLE VI—INNOVATION**

12 **SEC. 601. OFFICE OF INNOVATION AND ENTREPRENEUR-**
13 **SHIP.**

14 The Stevenson-Wydler Technology Innovation Act of
15 1980 (15 U.S.C. 3701 et seq.), as amended by section 106
16 of this Act, is amended by adding at the end the following:

17 **“SEC. 25. OFFICE OF INNOVATION AND ENTREPRENEUR-**
18 **SHIP.**

19 “(a) IN GENERAL.—The Secretary shall establish an
20 Office of Innovation and Entrepreneurship to foster inno-
21 vation and the commercialization of new technologies,
22 products, processes, and services with the goal of pro-
23 moting productivity and economic growth in the United
24 States.

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

3 “(1) developing policies to accelerate innovation
4 and advance the commercialization of research and
5 development, including federally funded research and
6 development;

7 “(2) identifying existing barriers to innovation
8 and commercialization, including access to capital
9 and other resources, and ways to overcome those
10 barriers, particularly in States participating in the
11 Experimental Program to Stimulate Competitive Re-
12 search;

13 “(3) providing access to relevant data, research,
14 and technical assistance on innovation and commer-
15 cialization;

16 “(4) strengthening collaboration on and coordi-
17 nation of policies relating to innovation and commer-
18 cialization, including those focused on the needs of
19 small businesses and rural communities, within the
20 Department of Commerce, between the Department
21 of Commerce and other Federal agencies, and be-
22 tween the Department of Commerce and appropriate
23 State government agencies and institutions, as ap-
24 propriate; and

1 “(2) to manufacture an innovative technology
2 product or an integral component of such a product;
3 or

4 “(3) to commercialize an innovative product,
5 process, or idea that was developed by research
6 funded in whole or in part by a grant from the Fed-
7 eral government.

8 “(c) ELIGIBLE BORROWER.—A loan guarantee may
9 be made under the program only for a borrower who is
10 a small- or medium-sized manufacturer, as determined by
11 the Secretary under the criteria established pursuant to
12 subsection (l).

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

17 “(e) LIMITATIONS ON LOAN GUARANTEE.—No loan
18 guarantee shall be made unless the Secretary determines
19 that—

20 “(1) there is a reasonable prospect of repay-
21 ment of the principal and interest on the obligation
22 by the borrower;

23 “(2) the amount of the obligation (when com-
24 bined with amounts available to the borrower from
25 other sources) is sufficient to carry out the project;

1 “(3) the obligation is not subordinate to other
2 financing;

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

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

10 “(A) 30 years; or

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

14 “(f) DEFAULTS.—

15 “(1) PAYMENT BY SECRETARY.—

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

22 “(B) PAYMENT REQUIRED.—Within such
23 period as may be specified in the loan guar-
24 antee or related agreements, the Secretary shall
25 pay to the holder of the loan guarantee the un-

1 paid interest on and unpaid principal of the ob-
2 ligation as to which the borrower has defaulted,
3 unless the Secretary finds that there was no de-
4 fault by the borrower in the payment of interest
5 or principal or that the default has been rem-
6 edied.

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

12 “(2) SUBROGATION.—

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

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

24 “(ii) to permit the borrower, pursuant
25 to an agreement with the Secretary, to

1 continue to pursue the purposes of the
2 project if the Secretary determines that
3 such an agreement is in the public interest.

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

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

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

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

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

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

24 “(i) FEES.—

1 “(1) IN GENERAL.—The Secretary shall charge
2 and collect fees for loan guarantees in amounts the
3 Secretary determines are sufficient to cover applica-
4 ble administrative expenses.

5 “(2) AVAILABILITY.—Fees collected under this
6 subsection shall—

7 “(A) be deposited by the Secretary into the
8 Treasury of the United States; and

9 “(B) remain available until expended, sub-
10 ject to such other conditions as are contained in
11 annual appropriations Acts.

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

15 “(j) RECORDS.—

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

23 “(2) ACCESS.—The Secretary and the Comp-
24 troller General of the United States, or their duly
25 authorized representatives, shall have access to

1 records and other pertinent documents for the pur-
2 pose of conducting an audit.

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

7 “(l) REGULATIONS.—The Secretary shall issue final
8 regulations before making any loan guarantees under the
9 program. The regulations shall include—

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

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

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

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

1 “(3) policies and procedures for selecting and
2 monitoring lenders and loan performance; and

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

5 “(m) AUDIT.—

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

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

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

21 “(n) REPORT TO CONGRESS.—Concurrent with the
22 submission to Congress of the President’s annual budget
23 request in each year after the date of enactment of the
24 America COMPETES Reauthorization Act of 2010, the
25 Secretary shall transmit to the Committee on Science and

1 Technology of the House of Representatives and the Com-
2 mittee on Commerce, Science, and Transportation of the
3 Senate a report containing a summary of all activities car-
4 ried out under this section.

5 “(o) COORDINATION AND NONDUPLICATION.—To the
6 maximum extent practicable, the Secretary shall ensure
7 that the activities carried out under this section are co-
8 ordinated with, and do not duplicate the efforts of, other
9 loan guarantee programs within the Federal Government.

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

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

23 “(r) SENSE OF CONGRESS.—It is the sense of Con-
24 gress that no loan guarantee shall be made under this sec-
25 tion unless the borrower agrees to use a federally-approved

1 electronic employment eligibility verification system to
2 verify the employment eligibility of—

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

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

9 “(s) DEFINITIONS.—In this section:

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

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

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

24 “(4) LOAN GUARANTEE.—The term ‘loan guar-
25 antee’ has the meaning given such term in section

1 502 of the Federal Credit Reform Act of 1990 (2
2 U.S.C. 661a). The term includes a loan guarantee
3 commitment (as defined in section 502 of such Act
4 (2 U.S.C. 661a)).

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

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

11 “(t) AUTHORIZATION OF APPROPRIATIONS.—There
12 are authorized to be appropriated \$20,000,000 for each
13 of fiscal years 2011 through 2013 to provide the cost of
14 loan guarantees under this section.”.

15 **SEC. 603. REGIONAL INNOVATION PROGRAM.**

16 The Stevenson-Wydler Technology Innovation Act of
17 1980 (15 U.S.C. 3701 et seq.), as amended by section
18 602, is further amended by adding at the end thereof the
19 following:

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

21 “(a) ESTABLISHMENT.—The Secretary shall estab-
22 lish a regional innovation program to encourage and sup-
23 port the development of regional innovation strategies, in-
24 cluding regional innovation clusters and science and re-
25 search parks.

1 (b) CLUSTER GRANTS.—

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

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

11 “(A) Feasibility studies.

12 “(B) Planning activities.

13 “(C) Technical assistance.

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

17 “(E) Attracting additional participants to
18 a regional innovation cluster.

19 “(F) Facilitating market development of
20 products and services developed by a regional
21 innovation cluster, including through dem-
22 onstration, deployment, technology transfer,
23 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 or research
17 park, a Federal laboratory, or an economic
18 development organization or similar entity;
19 and

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

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

25 “(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 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) SCIENCE AND RESEARCH PARK DEVELOPMENT
6 GRANTS.—

7 “(1) IN GENERAL.—As part of the program es-
8 tablished under subsection (a), the Secretary may
9 award grants for the development of feasibility stud-
10 ies and plans for the construction of new science
11 parks or the renovation or expansion of existing
12 science parks.

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

16 “(3) AWARD.—

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

20 “(B) GEOGRAPHIC DISPERSION.— In con-
21 ducting a competitive process, the Secretary
22 shall consider the need to avoid undue geo-
23 graphic concentration among any one category
24 of States based on their predominant rural or

1 urban character as indicated by population den-
2 sity.

3 “(C) SELECTION CRITERIA.—The Sec-
4 retary shall publish the criteria to be utilized in
5 any competition for the selection of recipients of
6 grants under this subsection, which shall in-
7 clude requirements relating to the—

8 “(i) effect the science park will have
9 on regional economic growth and develop-
10 ment;

11 “(ii) number of jobs to be created at
12 the science park and the surrounding re-
13 gional community each year during its first
14 3 years;

15 “(iii) funding to be required to con-
16 struct, renovate or expand the science park
17 during its first 3 years;

18 “(iv) amount and type of financing
19 and access to capital available to the appli-
20 cant;

21 “(v) types of businesses and research
22 entities expected in the science park and
23 surrounding regional community;

1 “(vi) letters of intent by businesses
2 and research entities to locate in the
3 science park;

4 “(vii) capability to attract a well
5 trained workforce to the science park;

6 “(viii) the management of the science
7 park during its first 5 years;

8 “(ix) expected financial risks in the
9 construction and operation of the science
10 park and the risk mitigation strategy;

11 “(x) physical infrastructure available
12 to the science park, including roads, utili-
13 ties, and telecommunications;

14 “(xi) utilization of energy-efficient
15 building technology including nationally
16 recognized green building design practices,
17 renewable energy, cogeneration, and other
18 methods that increase energy efficiency
19 and conservation;

20 “(xii) consideration to the trans-
21 formation of military bases affected by the
22 base realignment and closure process or
23 the redevelopment of existing buildings,
24 structures, or brownfield sites that are
25 abandoned, idled, or underused into single

1 or multiple building facilities for science
2 and technology companies and institutions;
3 “(xiii) ability to collaborate with other
4 science parks throughout the world;
5 “(xiv) consideration of sustainable de-
6 velopment practices and the quality of life
7 at the science park; and
8 “(xv) other such criteria as the Sec-
9 retary shall prescribe.

10 “(4) ALLOCATION CONSTRAINTS.—The Sec-
11 retary may not allocate less than one-third of the
12 total grant funding allocated under this section for
13 any fiscal year to grants under subsection (b) or this
14 subsection without written notification to the Senate
15 Committee on Commerce, Science, and Transpor-
16 tation and the House of Representatives Committees
17 on Science and Technology and on Energy and Com-
18 merce.

19 “(d) LOAN GUARANTEES FOR SCIENCE PARK INFRA-
20 STRUCTURE.—

21 “(1) IN GENERAL.—Subject to paragraph (2),
22 the Secretary may guarantee up to 80 percent of the
23 loan amount for projects for the construction or ex-
24 pansion, including renovation and modernization, of
25 science park infrastructure.

1 “(2) LIMITATIONS ON GUARANTEE AMOUNTS.—

2 The maximum amount of loan principal guaranteed
3 under this subsection may not exceed—

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

6 “(B) \$300,000,000 with respect to all
7 projects.

8 “(3) SELECTION OF GUARANTEE RECIPI-

9 ENTS.—The Secretary shall select recipients of loan
10 guarantees under this subsection based upon the
11 ability of the recipient to collateralize the loan
12 amount through bonds, equity, property, and such
13 other things of values as the Secretary shall deem
14 necessary. Recipients of grants under subsection (c)
15 are not eligible for a loan guarantee during the pe-
16 riod of the grant. To the extent that the Secretary
17 determines it to be feasible, the Secretary may select
18 recipients of guarantee assistance in accord with a
19 competitive process that takes into account the fac-
20 tors set out in subsection (c)(3)(C) of this section.

21 “(4) TERMS AND CONDITIONS FOR LOAN GUAR-
22 ANTEES.—The loans guaranteed under this sub-
23 section shall be subject to such terms and conditions
24 as the Secretary may prescribe, except that—

1 “(A) the final maturity of such loans made
2 or guaranteed may not exceed the lesser of—

3 “(i) 30 years; or

4 “(ii) 90 percent of the useful life of
5 any physical asset to be financed by the
6 loan;

7 “(B) a loan guaranteed under this sub-
8 section may not be subordinated to another
9 debt contracted by the borrower or to any other
10 claims against the borrowers in the case of de-
11 fault;

12 “(C) a loan may not be guaranteed under
13 this subsection unless the Secretary determines
14 that the lender is responsible and that provision
15 is made for servicing the loan on reasonable
16 terms and in a manner that adequately protects
17 the financial interest of the United States;

18 “(D) a loan may not be guaranteed under
19 this subsection if—

20 “(i) the income from the loan is ex-
21 cluded from gross income for purposes of
22 chapter 1 of the Internal Revenue Code of
23 1986; or

24 “(ii) the guarantee provides signifi-
25 cant collateral or security, as determined

1 by the Secretary in coordination with the
2 Secretary of the Treasury, for other obliga-
3 tions the income from which is so excluded;

4 “(E) any guarantee provided under this
5 subsection shall be conclusive evidence that—

6 “(i) the guarantee has been properly
7 obtained;

8 “(ii) the underlying loan qualified for
9 the guarantee; and

10 “(iii) absent fraud or material mis-
11 representation by the holder, the guarantee
12 is presumed to be valid, legal, and enforce-
13 able;

14 “(F) the Secretary may not extend credit
15 assistance unless the Secretary has determined
16 that there is a reasonable assurance of repay-
17 ment; and

18 “(G) new loan guarantees may not be com-
19 mitted except to the extent that appropriations
20 of budget authority to cover their costs are
21 made in advance, as required under section 504
22 of the Federal Credit Reform Act of 1990 (2
23 U.S.C. 661e).

24 “(5) PAYMENT OF LOSSES.—

1 “(A) IN GENERAL.—If, as a result of a de-
2 fault by a borrower under a loan guaranteed
3 under this subsection, after the holder has
4 made such further collection efforts and insti-
5 tuted such enforcement proceedings as the Sec-
6 retary may require, the Secretary determines
7 that the holder has suffered a loss, the Sec-
8 retary shall pay to the holder the percentage of
9 the loss specified in the guarantee contract.
10 Upon making any such payment, the Secretary
11 shall be subrogated to all the rights of the re-
12 cipient of the payment. The Secretary shall be
13 entitled to recover from the borrower the
14 amount of any payments made pursuant to any
15 guarantee entered into under this section.

16 “(B) ENFORCEMENT OF RIGHTS.—The At-
17 torney General shall take such action as may be
18 appropriate to enforce any right accruing to the
19 United States as a result of the issuance of any
20 guarantee under this section.

21 “(C) FORBEARANCE.—Nothing in this sec-
22 tion may be construed to preclude any forbear-
23 ance for the benefit of the borrower which may
24 be agreed upon by the parties to the guaranteed
25 loan and approved by the Secretary, if budget

1 authority for any resulting subsidy costs (as de-
2 fined in section 502(5) of the Federal Credit
3 Reform Act of 1990) is available.

4 “(6) EVALUATION OF CREDIT RISK.—

5 “(A) The Secretary shall periodically as-
6 sess the credit risk of new and existing direct
7 loans or guaranteed loans.

8 “(B) Not later than 2 years after the date
9 of the enactment of the America COMPETES
10 Reauthorization Act of 2010, the Comptroller
11 General of the United States shall—

12 “(i) conduct a review of the subsidy
13 estimates for the loan guarantees under
14 this section; and

15 “(ii) submit to Congress a report on
16 the review conducted under this paragraph.

17 “(7) TERMINATION.—A loan may not be guar-
18 anteed under this section after September 30, 2013.

19 “(8) AUTHORIZATION OF APPROPRIATIONS.—
20 There are authorized to be appropriated \$7,000,000
21 for each of fiscal years 2011 through 2013 for the
22 cost (as defined in section 502(5) of the Federal
23 Credit Reform Act of 1990) of guaranteeing
24 \$300,000,000 in loans under this section, such sums
25 to remain available until expended.

1 “(e) REGIONAL INNOVATION RESEARCH AND INFOR-
2 MATION PROGRAM.—

3 “(1) IN GENERAL.—As part of the program es-
4 tablished under subsection (a), the Secretary shall
5 establish a regional innovation research and infor-
6 mation program—

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

13 “(B) to provide technical assistance, in-
14 cluding through the development of technical
15 assistance guides, for the development and im-
16 plementation of regional innovation strategies
17 (including regional innovation clusters);

18 “(C) to support the development of rel-
19 evant metrics and measurement standards to
20 evaluate regional innovation strategies (includ-
21 ing regional innovation clusters), including the
22 extent to which such strategies stimulate inno-
23 vation, productivity, and economic development;
24 and

1 “(D) to collect and make available data on
2 regional innovation cluster activity in the
3 United States, including data on—

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

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

13 “(iii) supply chain product and service
14 flows within and between regional innova-
15 tion clusters.

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

20 “(3) DISSEMINATION OF INFORMATION.—Data
21 and analysis compiled by the Secretary under the
22 program established in this subsection shall be made
23 available to other Federal agencies, State and local
24 governments, and nonprofit and for-profit entities.

1 “(4) REGIONAL INNOVATION GRANT PRO-
2 GRAM.—The Secretary shall incorporate data and
3 analysis relating to any grant under subsection (b)
4 or (c) and any loan guarantee under subsection (d)
5 into the program established under this subsection.

6 “(f) INTERAGENCY COORDINATION.—

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

13 “(2) COLLABORATION.—

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

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

23 “(g) EVALUATION.—

24 “(1) IN GENERAL.—Not later than 3 years
25 after the date of enactment of the America COM-

1 PETES Reauthorization Act of 2010, the Secretary
2 shall enter into a contract with an independent enti-
3 ty, such as the National Academy of Sciences, to
4 conduct an evaluation of the program established
5 under subsection (a).

6 “(2) REQUIREMENTS.—The evaluation shall in-
7 clude—

8 “(A) whether the program is achieving its
9 goals;

10 “(B) any recommendations for how the
11 program may be improved; and

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

14 “(h) DEFINITIONS.—In this section:

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

19 “(A) are engaged in or with a particular
20 industry sector;

21 “(B) have active channels for business
22 transactions and communication;

23 “(C) share specialized infrastructure, labor
24 markets, and services; and

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

4 “(2) SCIENCE PARK.—The term ‘Science park’
5 means a property-based venture, which has—

6 “(A) master-planned property and build-
7 ings designed primarily for private-public re-
8 search and development activities, high tech-
9 nology and science-based companies, and re-
10 search and development support services;

11 “(B) a contractual or operational relation-
12 ship with one or more science- or research-re-
13 lated institution of higher education or govern-
14 mental or non-profit research laboratories;

15 “(C) a primary mission to promote re-
16 search and development through industry part-
17 nerships, assisting in the growth of new ven-
18 tures and promoting innovation-driven economic
19 development;

20 “(D) a role in facilitating the transfer of
21 technology and business skills between research-
22 ers and industry teams; and

23 “(E) a role in promoting technology-led
24 economic development for the community or re-
25 gion in which the science park is located. A

1 science park may be owned by a governmental
2 or not-for-profit entity, but it may enter into
3 partnerships or joint ventures with for-profit
4 entities for development or management of spe-
5 cific components of the park.

6 “(3) 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 “(i) AUTHORIZATION OF APPROPRIATIONS.—Except
13 as provided in subsection (d)(8), there are authorized to
14 be appropriated \$100,000,000 for each of fiscal years
15 2011 through 2013 to carry out this section (other than
16 for loan guarantees under subsection (d)).”.

17 **SEC. 604. STUDY ON ECONOMIC COMPETITIVENESS AND IN-**
18 **NOVATIVE CAPACITY OF UNITED STATES AND**
19 **DEVELOPMENT OF NATIONAL ECONOMIC**
20 **COMPETITIVENESS STRATEGY.**

21 (a) STUDY.—

22 (1) IN GENERAL.—Not later than 1 year after
23 the date of the enactment of this Act, the Secretary
24 of Commerce shall complete a comprehensive study

1 of the economic competitiveness and innovative ca-
2 pacity of the United States.

3 (2) MATTERS COVERED.—The study required
4 by paragraph (1) shall include the following:

5 (A) An analysis of the United States econ-
6 omy and innovation infrastructure.

7 (B) An assessment of the following:

8 (i) The current competitive and inno-
9 vation performance of the United States
10 economy relative to other countries that
11 compete economically with the United
12 States.

13 (ii) Economic competitiveness and do-
14 mestic innovation in the current business
15 climate, including tax and Federal regu-
16 latory policy.

17 (iii) The business climate of the
18 United States and those of other countries
19 that compete economically with the United
20 States.

21 (iv) Regional issues that influence the
22 economic competitiveness and innovation
23 capacity of the United States, including—

1 (I) the roles of State and local
2 governments and institutions of high-
3 er education; and

4 (II) regional factors that con-
5 tribute positively to innovation.

6 (v) The effectiveness of the Federal
7 Government in supporting and promoting
8 economic competitiveness and innovation,
9 including any duplicative efforts of, or
10 gaps in coverage between, Federal agencies
11 and departments.

12 (vi) Barriers to competitiveness in
13 newly emerging business or technology sec-
14 tors, factors influencing underperforming
15 economic sectors, unique issues facing
16 small and medium enterprises, and bar-
17 riers to the development and evolution of
18 start-ups, firms, and industries.

19 (vii) The effects of domestic and
20 international trade policy on the competi-
21 tiveness of the United States and the
22 United States economy.

23 (viii) United States export promotion
24 and export finance programs relative to ex-
25 port promotion and export finance pro-

1 grams of other countries that compete eco-
2 nomically with the United States, including
3 Canada, France, Germany, Italy, Japan,
4 Korea, and the United Kingdom, with not-
5 ing of export promotion and export finance
6 programs carried out by such countries
7 that are not analogous to any programs
8 carried out by the United States.

9 (ix) The effectiveness of current poli-
10 cies and programs affecting exports, in-
11 cluding an assessment of Federal trade re-
12 strictions and State and Federal export
13 promotion activities.

14 (x) The effectiveness of the Federal
15 Government and Federally funded research
16 and development centers in supporting and
17 promoting technology commercialization
18 and technology transfer.

19 (xi) Domestic and international intel-
20 lectual property policies and practices.

21 (xii) Manufacturing capacity, logistics,
22 and supply chain dynamics of major export
23 sectors, including access to a skilled work-
24 force, physical infrastructure, and
25 broadband network infrastructure.

1 (xiii) Federal and State policies relat-
2 ing to science, technology, and education
3 and other relevant Federal and State poli-
4 cies designed to promote commercial inno-
5 vation, including immigration policies.

6 (C) Development of recommendations on
7 the following:

8 (i) How the United States should in-
9 vest in human capital.

10 (ii) How the United States should fa-
11 cilitate entrepreneurship and innovation.

12 (iii) How best to develop opportunities
13 for locally and regionally driven innovation
14 by providing Federal support.

15 (iv) How best to strengthen the eco-
16 nomic infrastructure and industrial base of
17 the United States.

18 (v) How to improve the international
19 competitiveness of the United States.

20 (3) CONSULTATION.—

21 (A) IN GENERAL.—The study required by
22 paragraph (1) shall be conducted in consulta-
23 tion with the National Economic Council of the
24 Office of Policy Development, such Federal
25 agencies as the Secretary considers appropriate,

1 and the Innovation Advisory Board established
2 under subparagraph (B). The Secretary shall
3 also establish a process for obtaining comments
4 from the public.

5 (B) INNOVATION ADVISORY BOARD.—

6 (i) IN GENERAL.—The Secretary shall
7 establish an Innovation Advisory Board for
8 purposes of obtaining advice with respect
9 to the conduct of the study required by
10 paragraph (1).

11 (ii) COMPOSITION.—The Advisory
12 Board established under clause (i) shall be
13 comprised of 15 members, appointed by
14 the Secretary—

15 (I) who shall represent all major
16 industry sectors;

17 (II) a majority of whom should
18 be from private industry, including
19 large and small firms, representing
20 advanced technology sectors and more
21 traditional sectors that use tech-
22 nology; and

23 (III) who may include economic
24 or innovation policy experts, State and
25 local government officials active in

1 technology-based economic develop-
2 ment, and representatives from higher
3 education.

4 (iii) EXEMPTION FROM FACa.—The
5 Federal Advisory Committee Act (5 U.S.C.
6 App.) shall not apply to the advisory board
7 established under clause (i).

8 (b) STRATEGY.—

9 (1) IN GENERAL.—Not later than 1 year after
10 the completion of the study required by subsection
11 (a), the Secretary shall develop, based on the study
12 required by subsection (a)(1), a national 10-year
13 strategy to strengthen the innovative and competi-
14 tive capacity of the Federal Government, State and
15 local governments, United States institutions of
16 higher education, and the private sector of the
17 United States.

18 (2) ELEMENTS.—The strategy required by
19 paragraph (1) shall include the following:

20 (A) Actions to be taken by individual Fed-
21 eral agencies and departments to improve com-
22 petitiveness.

23 (B) Proposed legislative actions for consid-
24 eration by Congress.

1 (C) Annual goals and milestones for the
2 10-year period of the strategy.

3 (D) A plan for monitoring the progress of
4 the Federal Government with respect to improv-
5 ing conditions for innovation and the competi-
6 tiveness of the United States.

7 (c) REPORT.—

8 (1) IN GENERAL.—Upon the completion of the
9 strategy required by subsection (b), the Secretary of
10 Commerce shall submit to Congress and the Presi-
11 dent a report on the study conducted under sub-
12 section (a) and the strategy developed under sub-
13 section (b).

14 (2) ELEMENTS.—The report required by para-
15 graph (1) shall include the following:

16 (A) The findings of the Secretary with re-
17 spect to the study conducted under subsection
18 (a).

19 (B) The strategy required by subsection
20 (b).

21 **SEC. 605. PROMOTING USE OF HIGH-END COMPUTING SIM-**
22 **ULATION AND MODELING BY SMALL- AND ME-**
23 **DIUM-SIZED MANUFACTURERS.**

24 (a) FINDINGS.—Congress finds that—

1 (1) the utilization of high-end computing sim-
2 ulation and modeling by large-scale government con-
3 tractors and Federal research entities has resulted
4 in substantial improvements in the development of
5 advanced manufacturing technologies; and

6 (2) such simulation and modeling would also
7 benefit small- and medium-sized manufacturers in
8 the United States if such manufacturers were to de-
9 ploy such simulation and modeling throughout their
10 manufacturing chains.

11 (b) **POLICY.**—It is the policy of the United States to
12 take all effective measures practicable to ensure that Fed-
13 eral programs and policies encourage and contribute to the
14 use of high-end computing simulation and modeling in the
15 United States manufacturing sector.

16 (c) **STUDY.**—

17 (1) **IN GENERAL.**—Not later than 30 days after
18 the date of the enactment of this Act, the Secretary
19 of Commerce, in consultation with the Secretary of
20 Energy and the Director of the Office of Science and
21 Technology Policy, shall carry out, through an inter-
22 agency consulting process, a study of the barriers to
23 the use of high-end computing simulation and mod-
24 eling by small- and medium-sized manufacturers in
25 the United States.

1 (2) FACTORS.—In carrying out the study re-
2 quired by paragraph (1), the Secretary of Com-
3 merce, in consultation with the Secretary of Energy
4 and the Director of the Office of Science and Tech-
5 nology Policy, shall consider the following:

6 (A) The access of small- and medium-sized
7 manufacturers in the United States to high-per-
8 formance computing facilities and resources.

9 (B) The availability of software and other
10 applications tailored to meet the needs of such
11 manufacturers.

12 (C) Whether such manufacturers employ
13 or have access to individuals with appropriate
14 expertise for the use of such facilities and re-
15 sources.

16 (D) Whether such manufacturers have ac-
17 cess to training to develop such expertise.

18 (E) The availability of tools and other
19 methods to such manufacturers to understand
20 and manage the costs and risks associated with
21 transitioning to the use of such facilities and
22 resources.

23 (3) REPORT.—Not later than 270 days after
24 the commencement of the study required by para-
25 graph (1), the Secretary of Commerce shall, in con-

1 sultation with the Secretary of Energy and the Di-
2 rector of the Office of Science and Technology Pol-
3 icy, submit to Congress a report on such study.
4 Such report shall include such recommendations for
5 such legislative or administrative action as the Sec-
6 retary of Commerce considers appropriate in light of
7 the study to increase the utilization of high-end com-
8 puting simulation and modeling by small- and me-
9 dium-sized manufacturers in the United States.

10 (d) AUTHORIZATION OF DEMONSTRATION AND PILOT
11 PROGRAMS.—As part of the study required by subsection
12 (c)(1), the Secretary of Commerce, the Secretary of En-
13 ergy, and the Director of the Office of Science and Tech-
14 nology Policy may carry out such demonstration or pilot
15 programs as either Secretary or the Director considers ap-
16 propriate to gather experiential data to evaluate the feasi-
17 bility and advisability of a specific program or policy ini-
18 tiative to reduce barriers to the utilization of high-end
19 computer modeling and simulation by small- and medium-
20 sized manufacturers in the United States.

21 **TITLE VII—NIST GREEN JOBS**

22 **SEC. 701. SHORT TITLE.**

23 This title may be cited as the “NIST Grants for En-
24 ergy Efficiency, New Job Opportunities, and Business So-

1 lutions Act of 2010” or the “NIST GREEN JOBS Act
2 of 2010”.

3 **SEC. 702. FINDINGS.**

4 Congress finds the following:

5 (1) Over its 20-year existence, the Hollings
6 Manufacturing Extension Partnership has proven its
7 value to manufacturers as demonstrated by the re-
8 sulting impact on jobs and the economies of all 50
9 States and the Nation as a whole.

10 (2) The Hollings Manufacturing Extension
11 Partnership has helped thousands of companies rein-
12 vest in themselves through process improvement and
13 business growth initiatives leading to more sales,
14 new markets, and the adoption of technology to de-
15 liver new products and services.

16 (3) Manufacturing is an increasingly important
17 part of the construction sector as the industry moves
18 to the use of more components and factory built sub-
19 assemblies.

20 (4) Construction practices must become more
21 efficient and precise if the United States is to con-
22 struct and renovate its building stock to reduce re-
23 lated carbon emissions to levels that are consistent
24 with combating global warming.

1 (5) Many companies involved in construction
2 are small, without access to innovative manufac-
3 turing techniques, and could benefit from the type of
4 training and business analysis activities that the
5 Hollings Manufacturing Extension Partnership rou-
6 tinely provides to the Nation's manufacturers and
7 their supply chains.

8 (6) Broadening the competitiveness grant pro-
9 gram under section 25(f) of the National Institute
10 of Standards and Technology Act (15 U.S.C.
11 278k(f)) could help develop and diffuse knowledge
12 necessary to capture a large portion of the estimated
13 \$100 billion or more in energy savings if buildings
14 in the United States met the level and quality of en-
15 ergy efficiency now found in buildings in certain
16 other countries.

17 (7) It is therefore in the national interest to ex-
18 pand the capabilities of the Hollings Manufacturing
19 Extension Partnership to be supportive of the con-
20 struction and green energy industries.

21 **SEC. 703. NATIONAL INSTITUTE OF STANDARDS AND TECH-**
22 **NOLOGY COMPETITIVE GRANT PROGRAM.**

23 (a) IN GENERAL.—Section 25(f)(3) of the National
24 Institute of Standards and Technology Act (15 U.S.C.
25 278k(f)(3)) is amended—

1 (1) by striking “to develop” in the first sen-
2 tence and inserting “to add capabilities to the MEP
3 program, including the development of”; and

4 (2) by striking the last sentence and inserting
5 “Centers may be reimbursed for costs incurred
6 under the program. These themes—

7 “(A) shall be related to projects designed
8 to increase the viability both of traditional man-
9 ufacturing sectors and other sectors, such as
10 construction, that increasingly rely on manufac-
11 turing through the use of manufactured compo-
12 nents and manufacturing techniques, including
13 supply chain integration and quality manage-
14 ment;

15 “(B) shall be related to projects related to
16 the transfer of technology based on the techno-
17 logical needs of manufacturers and available
18 technologies from institutions of higher edu-
19 cation, laboratories, and other technology pro-
20 ducing entities; and

21 “(C) may extend beyond these traditional
22 areas to include projects related to construction
23 industry modernization.”.

1 (b) SELECTION.—Section 25(f)(5) of the National In-
2 stitute of Standards and Technology Act (15 U.S.C.
3 278k(f)(5)) is amended to read as follows:

4 “(5) SELECTION.—

5 “(A) IN GENERAL.—Awards under this
6 section shall be peer reviewed and competitively
7 awarded. The Director shall endeavor to select
8 at least one proposal in each of the 9 statistical
9 divisions of the United States (as designated by
10 the Bureau of the Census). The Director shall
11 select proposals to receive awards that will—

12 “(i) create jobs or train newly hired
13 employees;

14 “(ii) promote technology transfer and
15 commercialization of environmentally fo-
16 cused materials, products, and processes;

17 “(iii) increase energy efficiency; and

18 “(iv) improve the competitiveness of
19 industries in the region in which the Cen-
20 ter or Centers are located.

21 “(B) ADDITIONAL SELECTION CRITERIA.—

22 The Director may select proposals to receive
23 awards that will—

24 “(i) encourage greater cooperation
25 and foster partnerships in the region with

1 similar Federal, State, and locally funded
2 programs to encourage energy efficiency
3 and building technology; and

4 “(ii) collect data and analyze the increas-
5 ing connection between manufactured products
6 and manufacturing techniques, the future of
7 construction practices, and the emerging appli-
8 cation of products from the green energy indus-
9 tries.”.

10 (c) OTHER MODIFICATIONS.—Section 25(f) of the
11 National Institute of Standards and Technology Act (15
12 U.S.C. 278k(f)) is amended—

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

14 “(7) DURATION.—Awards under this section
15 shall last no longer than 3 years.

16 “(8) ELIGIBLE PARTICIPANTS.—In addition to
17 manufacturing firms eligible to participate in the
18 Centers program, awards under this subsection may
19 be used by the Centers to assist small- or medium-
20 sized construction firms. Centers may be reimbursed
21 under the program for working with such eligible
22 participants.

23 “(9) AUTHORIZATION OF APPROPRIATIONS.—In
24 addition to any amounts otherwise authorized or ap-
25 propriated to carry out this section, there are au-

1 thorized to be appropriated to the Secretary of Com-
2 merce \$7,000,000 for each of the fiscal years 2011
3 through 2013 to carry out this subsection.”.

4 **TITLE VIII—GENERAL**
5 **PROVISIONS**

6 **SEC. 801. GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.**

7 Not later than May 31, 2013, the Comptroller Gen-
8 eral of the United States shall submit a report to the Sen-
9 ate Committee on Commerce, Science, and Transportation
10 and the House of Representatives Committee on Science
11 and Technology that evaluates the status of the programs
12 authorized in this Act, including the extent to which such
13 programs have been funded, implemented, and are con-
14 tributing to achieving the goals of the Act.

15 **SEC. 802. SALARY RESTRICTIONS.**

16 (a) **OBSCENE MATTER ON FEDERAL PROPERTY.**—
17 None of the funds authorized under this Act may be used
18 to pay the salary of any individual who is convicted of vio-
19 lating section 1460 of title 18, United States Code.

20 (b) **USE OF FEDERAL COMPUTERS FOR CHILD POR-**
21 **NOGRAPHY OR EXPLOITATION OF MINORS.**—None of the
22 funds authorized under this Act may be used to pay the
23 salary of any individual who is convicted of a violation of
24 section 2252 of title 18, United States Code.

1 **SEC. 803. ADDITIONAL RESEARCH AUTHORITIES OF THE**
2 **FCC.**

3 Title I of the Communications Act of 1934 (47
4 U.S.C. 151 et seq.) is amended by adding at the end the
5 following:

6 **“SEC. 12. ADDITIONAL RESEARCH AUTHORITIES OF THE**
7 **FCC.**

8 “In order to carry out the purposes of this Act, the
9 Commission may—

10 “(1) undertake research and development work
11 in connection with any matter in relation to which
12 the Commission has jurisdiction; and

13 “(2) promote the carrying out of such research
14 and development by others, or otherwise to arrange
15 for such research and development to be carried out
16 by others.”.

17 **TITLE IX—DEPARTMENT OF**
18 **ENERGY**

19 **SEC. 901. SCIENCE, ENGINEERING, AND MATHEMATICS**
20 **EDUCATION PROGRAMS.**

21 (a) IN GENERAL.—Sections 3171, 3175, and 3191
22 of the Department of Energy Science Education Enhance-
23 ment Act (42 U.S.C. 7381h, 7381j, 7381p) are repealed.

24 (b) AUTHORIZATION OF APPROPRIATIONS FOR SUM-
25 MER INSTITUTES.—Section 3185(f) of the Department of

1 Energy Science Education Enhancement Act (42 U.S.C.

2 7381n(f)) is amended—

3 (1) in paragraph (2), by striking “and” at the
4 end;

5 (2) in paragraph (3), by striking the period at
6 the end and inserting “; and”; and

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

8 “(4) \$25,000,000 for each of fiscal years 2011
9 through 2013.”.

10 (c) CONFORMING AMENDMENTS.—

11 (1) Subpart B of the Department of Energy
12 Science Education Enhancement Act (42 U.S.C.
13 7381g et seq.) is amended by striking chapters 1, 2,
14 and 5 (42 U.S.C. 7381h, 7381j, 7381p).

15 (2) Section 3195 of the Department of Energy
16 Science Education Enhancement Act (42 U.S.C.
17 7381r) is amended by striking “chapters 1, 3, and
18 4” each place it appears and inserting “chapters 3
19 and 4”.

20 **SEC. 902. ENERGY RESEARCH PROGRAMS.**

21 (a) NUCLEAR SCIENCE TALENT PROGRAM.—Section
22 5004(f) of the America COMPETES Act (42 U.S.C.
23 16532(f)) is amended—

24 (1) in paragraph (1)—

1 (A) in subparagraph (B), by striking
2 “and” at the end;

3 (B) in subparagraph (C), by striking the
4 period at the end and inserting a semicolon;
5 and

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

7 “(D) \$9,800,000 for fiscal year 2011;

8 “(E) \$10,100,000 for fiscal year 2012; and

9 “(F) \$10,400,000 for fiscal year 2013.”;

10 and

11 (2) in paragraph (2)—

12 (A) in subparagraph (B), by striking
13 “and” at the end;

14 (B) in subparagraph (C), by striking the
15 period at the end and inserting a semicolon;
16 and

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

18 “(D) \$8,240,000 for fiscal year 2011;

19 “(E) \$8,500,000 for fiscal year 2012; and

20 “(F) \$8,750,000 for fiscal year 2103.”.

21 (b) HYDROCARBON SYSTEMS SCIENCE TALENT PRO-
22 GRAM.—Section 5005 of the America COMPETES Act
23 (42 U.S.C. 16533) is amended—

24 (1) in subsection (b)(2)—

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

3 (B) in subparagraph (I), by striking the
4 period at the end and inserting “; and”; and

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

6 “(J) hydrocarbon spill response and reme-
7 diation.”; and

8 (2) in subsection (f)(1)—

9 (A) in subparagraph (B), by striking
10 “and”;

11 (B) in subparagraph (C), by striking the
12 period at the end and inserting a semicolon;
13 and

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

15 “(D) \$9,800,000 for fiscal year 2011;

16 “(E) \$10,000,000 for fiscal year 2012; and

17 “(F) \$10,400,000 for fiscal year 2103.”.

18 (c) EARLY CAREER AWARDS.—Section 5006(h) of
19 the America COMPETES Act (42 U.S.C. 16534(h)) is
20 amended by striking “2010” and inserting “2013”.

21 (d) PROTECTING AMERICA’S COMPETITIVE EDGE
22 (PACE) GRADUATE FELLOWSHIP PROGRAM.—Section
23 5009(f) of the America COMPETES Act (42 U.S.C.
24 16536(f)) is amended—

1 (1) in paragraph (2), by striking “and” at the
2 end;

3 (2) in paragraph (3), by striking the period at
4 the end and inserting a semicolon; and

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

6 “(4) \$20,600,000 for fiscal year 2011;

7 “(5) \$21,200,000 for fiscal year 2012; and

8 “(6) \$21,900,000 for fiscal year 2013.”.

9 (e) DISTINGUISHED SCIENTIST PROGRAM.—Section
10 5011(j) of the America COMPETES Act (42 U.S.C.
11 16537(j)) is amended—

12 (1) in paragraph (2), by striking “and” at the
13 end;

14 (2) in paragraph (3), by striking the period at
15 the end and inserting a semicolon; and

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

17 “(4) \$31,000,000 for fiscal year 2011;

18 “(5) \$32,000,000 for fiscal year 2012; and

19 “(6) \$33,000,000 for fiscal year 2013.”.

20 **SEC. 903. BASIC RESEARCH.**

21 Section 971(b) of the Energy Policy Act of 2005 (42
22 U.S.C. 16311(b)) is amended—

23 (1) in paragraph (3), by striking “and” at the
24 end;

1 (2) in paragraph (4), by striking the period at
2 the end and inserting a semicolon; and

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

4 “(5) \$5,247,000,000 for fiscal year 2011;

5 “(6) \$5,614,000,000 for fiscal year 2012; and

6 “(7) \$6,007,000,000 for fiscal year 2013.”.

7 **SEC. 904. ADVANCED RESEARCH PROJECTS AGENCY-EN-**
8 **ERGY.**

9 Section 5012 of the America COMPETES Act (42
10 U.S.C. 16538) is amended—

11 (1) in subsection (a)(3), by striking “subsection
12 (m)(1)” and inserting “subsection (n)(1)”;

13 (2) in subsection (c)(2)(A), by inserting “and
14 applied” after “advances in fundamental”;

15 (3) in subsection (e)—

16 (A) in paragraph (3)—

17 (i) by striking subparagraph (C) and
18 inserting the following:

19 “(C) research and development of ad-
20 vanced manufacturing process and technologies
21 for the domestic manufacturing of novel energy
22 technologies; and”; and

23 (ii) in subparagraph (D), by striking
24 “and” after the semicolon at the end;

1 (B) in paragraph (4), by striking the pe-
2 riod at the end and inserting “; and”; and

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

4 “(5) pursuant to subsection (c)(2)(C)—

5 “(A) ensuring that applications for funding
6 disclose the extent of current and prior efforts,
7 including monetary investments as appropriate,
8 in pursuit of the technology area for which
9 funding is being requested;

10 “(B) adopting measures to ensure that, in
11 making awards, program managers adhere to
12 the purposes of subsection (c)(2)(C); and

13 “(C) providing as part of the annual report
14 required by subsection (h)(1) a summary of the
15 instances of and reasons for ARPA-E funding
16 projects in technology areas already being un-
17 dertaken by industry.”;

18 (4) by redesignating subsections (f) through
19 (m) as subsections (g) through (n), respectively;

20 (5) by inserting after subsection (e) the fol-
21 lowing:

22 “(f) AWARDS.—In carrying out this section, the Di-
23 rector may provide awards in the form of grants, con-
24 tracts, cooperative agreements, cash prizes, and other
25 transactions.”;

1 (6) in subsection (g) (as redesignated by para-
2 graph (4))—

3 (A) by redesignating paragraphs (1) and
4 (2) as paragraphs (2) and (3), respectively;

5 (B) by inserting before paragraph (2) (as
6 redesignated by subparagraph (A)) the fol-
7 lowing:

8 “(1) IN GENERAL.—The Director shall establish
9 and maintain within ARPA-E a staff with sufficient
10 qualifications and expertise to enable ARPA-E to
11 carry out the responsibilities of ARPA-E under this
12 section in conjunction with other operations of the
13 Department.”;

14 (C) in paragraph (2) (as redesignated by
15 subparagraph (A))—

16 (i) in the paragraph heading, by strik-
17 ing “PROGRAM MANAGERS” and insert-
18 ing”PROGRAM DIRECTORS”;

19 (ii) in subparagraph (A), by striking
20 “program managers for each of” and in-
21 serting “program directors for”;

22 (iii) in subparagraph (B)—

23 (I) in the matter preceding clause
24 (i), by striking “program manager”
25 and inserting “program director”;

1 (II) in clause (iv), by striking “,
2 with advice under subsection (j) as
3 appropriate,”;

4 (III) by redesignating clauses (v)
5 and (vi) as clauses (vi) and (viii), re-
6 spectively;

7 (IV) by inserting after clause (iv)
8 the following:

9 “(v) identifying innovative cost-shar-
10 ing arrangements for ARPA-E projects, in-
11 cluding through use of the authority pro-
12 vided under section 988(b)(3) of the En-
13 ergy Policy Act of 2005 (42 U.S.C.
14 16352(b)(3));”;

15 (V) in clause (vi) (as redesign-
16 nated by subclause (III)), by striking
17 “; and” and inserting a semicolon;
18 and

19 (VI) by inserting after clause (vi)
20 (as redesignated by subclause (III))
21 the following:

22 “(vii) identifying mechanisms for com-
23 mercial application of successful energy
24 technology development projects, including
25 through establishment of partnerships be-

1 tween awardees and commercial entities;
2 and”;

3 (iv) in subparagraph (C), by inserting
4 “not more than” after “shall be”; and
5 (D) in paragraph (3) (as redesignated by
6 subparagraph (A))—

7 (i) in subparagraph (A)—

8 (I) in clause (i), by striking
9 “and” after the semicolon at the end;
10 and

11 (II) by striking clause (ii) and in-
12 serting the following:

13 “(ii) fix the basic pay of such per-
14 sonnel at a rate to be determined by the
15 Director at rates not in excess of Level II
16 of the Executive Schedule (EX-II) without
17 regard to the civil service laws; and

18 “(iii) pay any employee appointed
19 under this subpart payments in addition to
20 basic pay, except that the total amount of
21 additional payments paid to an employee
22 under this subpart for any 12-month pe-
23 riod shall not exceed the least of the fol-
24 lowing amounts:

25 “(I) \$25,000.

1 “(II) The amount equal to 25
2 percent of the annual rate of basic
3 pay of the employee.

4 “(III) The amount of the limita-
5 tion that is applicable for a calendar
6 year under section 5307(a)(1) of title
7 5, United States Code.”;

8 (ii) in subparagraph (B), by striking
9 “not less than 70, and not more than
10 120,” and inserting “not more than 120”;
11 (7) in subsection (h)(2) (as redesignated by
12 paragraph (4))—

13 (A) by striking “2008” and inserting
14 “2010”; and

15 (B) by striking “2011” and
16 inserting “2013”;

17 (8) by striking subsection (j) (as redesignated
18 by paragraph (4)) and inserting the following:

19 “(j) FEDERAL DEMONSTRATION OF TECH-
20 NOLOGIES.—The Director shall seek opportunities to part-
21 ner with purchasing and procurement programs of Federal
22 agencies to demonstrate energy technologies resulting
23 from activities funded through ARPA-E.”;

24 (9) in subsection (l) (as redesignated by para-
25 graph (4))—

1 (A) in paragraph (1), by striking “4
2 years” and inserting “6 years”; and

3 (B) in paragraph (2)(B), by inserting “,
4 and the manner in which those lessons may
5 apply to the operation of other programs of the
6 Department” after “ARPA-E”; and

7 (10) in subsection (n) (as redesignated by para-
8 graph (4))—

9 (A) in paragraph (2)—

10 (i) in subparagraph (A), by striking
11 “and” after the semicolon at the end;

12 (ii) in subparagraph (B), by striking
13 the period at the end and inserting a semi-
14 colon; and

15 (iii) by adding at the end the fol-
16 lowing:

17 “(C) \$300,000,000 for fiscal year 2011;

18 “(D) \$306,000,000 for fiscal year 2012;

19 and

20 “(E) \$312,000,000 for fiscal year 2013.”;

21 (B) by striking paragraph (4);

22 (C) by redesignating paragraph (5) as
23 paragraph (4); and

24 (D) in paragraph (4)(B) (as redesignated
25 by subparagraph (C))—

1 (i) by striking” 2.5 percent” and in-
2 serting “5 percent”; and

3 (ii) by inserting “, consistent with the
4 goal described in subsection (e)(2)(D) and
5 within the responsibilities of program di-
6 rectors described in subsection
7 (g)(2)(B)(vii)” after “outreach activities”.

8 **TITLE X—EDUCATION**

9 **SEC. 1001. REFERENCES.**

10 Except as otherwise expressly provided, wherever in
11 this title an amendment or repeal is expressed in terms
12 of an amendment to, or repeal of, a section or other provi-
13 sion, the reference shall be considered to be made to a
14 section or other provision of the America COMPETES Act
15 (Public Law 110–69).

16 **SEC. 1002. REPEALS AND CONFORMING AMENDMENTS.**

17 (a) REPEALS.—The following provisions of the Act
18 are repealed:

19 (1) Section 6001 (20 U.S.C. 9801).

20 (2) Part III of subtitle A of title VI (20 U.S.C.
21 9841).

22 (3) Subtitle B of title VI (20 U.S.C. 9851 et
23 seq.)

24 (4) Subtitle C of title VI (20 U.S.C. 9861 et
25 seq.).

1 (5) Subtitle E of title VI (20 U.S.C. 9881 et
2 seq.).

3 (b) CONFORMING AMENDMENTS.—The Act is amend-
4 ed—

5 (1) by redesignating section 6002 (20 U.S.C.
6 9802) as section 6001;

7 (2) by redesignating subtitle D of title VI (20
8 U.S.C. 9871) as subtitle B of title VI; and

9 (3) by redesignating section 6401 (20 U.S.C.
10 9871) as section 6201.

11 SEC.1003. AUTHORIZATIONS OF
12 APPROPRIATIONS AND MATCHING
13 REQUIREMENT.

14 (a) TEACHERS FOR A COMPETITIVE TOMORROW.—
15 Section 6116 (20 U.S.C. 9816) is amended to read as fol-
16 lows:

17 **“SEC. 6116. AUTHORIZATION OF APPROPRIATIONS.**

18 “There are authorized to be appropriated to carry out
19 this part \$4,000,000 for each of fiscal years 2011 through
20 2013, of which—

21 “(1) \$2,000,000 shall be available to carry out
22 section 6113 for each of fiscal years 2011 through
23 2013; and

1 “(2) \$2,000,000 shall be available to carry out
2 section 6114 for each of fiscal years 2011 through
3 2013.”.

4 (b) ADVANCED PLACEMENT AND INTERNATIONAL
5 BACCALAUREATE PROGRAMS AND MATCHING REQUIRE-
6 MENT.—Section 6123 (20 U.S.C. 9833) is amended—

7 (1) in subsection (h)(1)—

8 (A) by striking “100” and inserting “50”;

9 and

10 (B) by striking “200” and inserting

11 “100”; and

12 (2) by striking subsection (l) and inserting the
13 following:

14 “(l) AUTHORIZATION OF APPROPRIATIONS.—There
15 are authorized to be appropriated to carry out this section
16 \$75,000,000 for each of fiscal years 2011 through 2013.”.

17 (c) ALIGNMENT OF EDUCATION PROGRAMS.—Section
18 6201(j), as redesignated by section 1002(b)(3), is amend-
19 ed to read as follows:

20 “(j) AUTHORIZATION OF APPROPRIATIONS.—There
21 are authorized to be appropriated to carry out this section
22 \$120,000,000 for each of fiscal years 2011 and 2012.”.

○