[STAFF WORKING DRAFT]

JULY 18, 2014

113TH CONGRESS
2D SESSION

S. _____

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

_____

_____ introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

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

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''America COMPETES Reauthorization Act of 2014'' or ''America Creating Opportunities to Meaningfully Pro-

mote Excellence in Technology, Education, and Science Reauthorization Act of 2014''.

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

SEC. 2. DEFINITIONS.

In this Act:

(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term ''appropriate committees of Congress'' means the Committee on Commerce, Science, and Transportation of the Senate and the Com-

mittee on Science, Space, and Technology of the House of Representatives.

(2) STEM.—The term ''STEM'' has the meaning given the term in section 2 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621 note).

TITLE I—OFFICE OF SCIENCE AND TECHNOLOGY POLICY

SEC. 101. DEFINITION OF FEDERAL SCIENCE AGENCY.

In this title, the term ''Federal science agency'' has the meaning given the term in section 103 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6623).

SEC. 102. FEDERAL RESEARCH AND DEVELOPMENT FUNDING.

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

(1) investments in research and development activities have historically delivered significant benefits, including contributing to economic growth, workforce development, national security, and other priorities;

(2) maintaining U.S. economic competitiveness requires a robust research foundation, the promotion

of a scientifically literate workforce, and the effective commercialization of research products;

(3) many research and development initiatives, due to the long time periods required to achieve completion, can benefit from stable and predictable investments and from multi-year financial planning;

(4) the Federal science agencies should receive sustained and steady growth in funding for research and development activities, including basic research, across a wide range of disciplines, including physical and life sciences, mathematics, engineering, and social, behavioral, and economic sciences;

(5) to enhance and maintain the quality and credibility of Federal research and development funding decisions, the Federal science agencies should continue—

(A) to utilize competitive, merit-review processes in evaluating external proposals for research and development funding; and

(B) to solicit advice from independent scientific advisory boards and committees.

(b) DECLARATION OF POLICY.—Since scientific research and development activities constitute a national need, it is the policy of the United States that—

(1) in developing and implementing their research and development strategies, Federal agencies should encourage collaboration among industry, the Federal Government, academia, and other public and non-profit entities; and

(2) Federal research and development funding priorities should be guided by the scientific advisory committees and boards of the Federal science agencies.

SEC. 103. 5-YEAR STEM EDUCATION STRATEGIC PLAN.

(a) FINDINGS.—Congress makes the following findings:

(1) According to economic projections, the demand for STEM professionals in the United States will outpace availability over the next decade.

(2) Some critical industries already face the reduced availability of young STEM professionals.

(3) Increasing the number and diversity of students trained in STEM fields and retaining STEM professionals is critical to supporting U.S. competitiveness within a global economy.

(4) STEM literacy, a basic understanding of STEM concepts and principles, is critical to U.S. consumers' evaluation of scientific information and to informing national, local, and personal decisions

in a range of areas, including healthcare and criminal justice.

(5) In identifying priority investment areas, strategic objectives, proposed actions, and evaluation metrics, the Federal 5-year STEM education strategic plan required by section 101 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621) provides an important step toward optimizing Federal STEM education efforts.

(b) SENSE OF CONGRESS.—It is the sense of Congress that updates to the Federal 5-year STEM education strategic plan, actions to implement the plan and its updates, and the Federal STEM education investments should—

(1) support the development of a STEM workforce that is responsive to the needs of Federal, State, and local governments, and of industry and academia;

(2) leverage and incorporate the expertise of a broad range of STEM educators and beneficiaries, including—

(A) public and private sector employers that rely on an educated STEM workforce;

(B) institutions of higher education;

(C) non-profit STEM education groups and informal STEM education providers; and

(D) Federal, State, and local agencies involved in STEM education;

(3) consistently rely on evidence-based approaches in determining which Federal STEM programs should be maintained, expanded, reorganized, or cancelled;

(4) encourage student exposure to scientists and engineers by maintaining the role of Federal STEM agencies, such as the National Aeronautics and Space Administration, and STEM professionals in education and outreach activities; and

(5) support active, collaborative, and inquiry-based STEM learning approaches that develop creative thinking and critical analysis skills rather than solely emphasizing memorization.

(c) COMPETES REAUTHORIZATION AMENDMENTS.—Section 101 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621) is amended by adding at the end the following:

''(d) PUBLIC REVIEW AND COMMENT.—The Chair of the National Science and Technology Council Committee on STEM Education shall publish in the Federal Register notice of any pending draft updates to the 5-year STEM

education strategic plan and provide an opportunity for public comment on the draft updated plan. To encourage alignment between the plan and national STEM needs, the Chair shall encourage comment, in particular, from State and local educational agencies, informal education groups, nonprofit STEM education organizations, STEM-related industries, and institutions of higher education, including community colleges.

''(e) INFORMAL EDUCATION.—In updating and implementing the 5-year STEM education strategic plan, the National Science and Technology Council Committee on STEM Education shall develop guidance and best practices for Federal agencies on incorporating and encouraging informal STEM education efforts to support youth and public engagement in STEM fields.

''(f) STEM CAREER AWARENESS.—In updating and implementing the strategic plan, the National Science and Technology Council Committee on STEM Education shall consider Federal cross-agency efforts to improve awareness of STEM careers among K-12 students, including among underrepresented and rural populations.''.

(d) SENSE OF CONGRESS; STEM REORGANIZATION.—It is the sense of Congress that Federal STEM education programs benefit from the participation and leadership of the Federal science agencies and from the

involvement of scientists and engineers in the development and implementation of STEM curricula. Any reorganization of Federal STEM education programs that diminishes the participation of Federal science agency scientists or engineers, including in the awarding of STEM-related education grants, should be avoided.

SEC. 104. ADMINISTRATIVE BURDENS IN FEDERALLY-SPONSORED RESEARCH.

(a) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy shall convene a subcommittee on research productivity under the Committee on Science of the National Science and Technology Council, consistent with the Committee's charter obligation to increase the productivity of Federally-sponsored research efforts.

(1) MEMBERSHIP.—The subcommittee shall consist, at a minimum, of representatives from the Department of Health and Human Services, the National Science Foundation, and the Office of Management and Budget.

(2) RECOMMENDATIONS.—The subcommittee shall develop and propose for adoption by the Federal science agencies, recommendations for reducing the costs and administrative burdens associated with competing for, completing, and reporting on Federal

research grants. The recommendations may include changes to the requirements, procedures, and documentation for—

(A) grant proposal submission, such as collecting information only if necessary for merit review;

(B) conflict of interest reporting;

(C) budget reports, such as by making the requirements commensurate to the size of the Federal grant awarded;

(D) annual progress reports, such as by making the requirements commensurate to the size of the Federal grant awarded and to the level of risk; and

(E) meeting the regulations established by the major Federal research agencies and the Office of Management and Budget, including those regulations relating to training, Institutional Review Boards, payroll certification, and budget auditing.

(b) RESPONSIBILITIES.—The subcommittee shall—

(1) compile and periodically update a list of all Federal regulations and requirements that apply to Federally-sponsored research and development activities research grants;

(2) evaluate the Federal regulations and requirements based on criteria such as the severity and likelihood of the risks addressed and the benefits to safety and research integrity relative to the costs imposed;

(3) based on the evaluation under paragraph (2), make recommendations for reducing any costs or administrative burden imposed by Federal regulations and requirements, including if appropriate—

(A) modifying, repealing, or creating specific exemptions to the Federal regulations or requirements; and

(B) harmonizing overlapping or redundant research regulations or requirements across Federal science agencies; and

(4) make recommendations for modifying, as appropriate, Federal regulations and requirements to improve technology transfer between academia and industry and to minimize potential regulatory roadblocks to research commercialization.

(c) CONSULTATION AND STAKEHOLDER INPUT.—In meeting the responsibilities under subsection (b), the subcommittee shall consult with the National Science Board and the President's Council of Advisors on Science and Technology. The subcommittee shall consider any com-

ments or recommendations from Federally-funded and non-Federally funded research organizations, including institutions of higher education.

(d) SUBCOMMITTEE REPORT.—Not later than 1 year after the date of enactment of this Act, the subcommittee shall report to the appropriate committees of Congress its recommendations under this section. The report shall include—

(1) a prioritized list of any regulations, requirements, procedures, or documentation proposed to be harmonized, streamlined, updated, added, or eliminated;

(2) a proposed plan, including a timeline, for implementing the recommended changes described in paragraph (1); and

(3) if necessary, any recommendations for legislative action.

SEC. 105. PRIZE COMPETITIONS.

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

(1) in subsection (c)—

(A) by striking ''may be one'' and inserting ''may consist of 1'';

(B) in paragraph (3), by striking ''competition'' each place it appears and inserting ''prize competition''; and

(C) in paragraph (4), by striking ''prizes'' and inserting ''prize competitions'';

(2) in subsection (f)—

(A) by striking ''the competition'' each place it appears and inserting ''the prize competition''; and

(B) in paragraph (4), by striking ''prize'' and inserting ''cash prize purse'';

(3) in subsection (g)—

(A) by striking ''win a prize'' and inserting ''win a cash prize purse''; and

(B) in paragraph (1), by striking ''competition'' and inserting ''prize competition'';

(4) in subsection (h), by striking ''competition'' each place it appears and inserting ''prize competition'';

(5) in subsection (i)—

(A) by striking ''competition'' each place it appears and inserting ''prize competition''; and

(B) by striking ''in amounts determined by the head of an agency'' and inserting ''in that amount''; and

(C) by inserting ''The head of an agency administering a prize competition shall determine the amount of liability insurance, which may be none or insignificant, required by participants in the prize competition.'' before ''Participants shall'';

(6) in subsection (j)—

(A) in paragraph (1), by striking ''competition'' and inserting ''prize competition'';

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

''(2) LICENSES.—To further the goals of a prize competition, the Federal Government may—

''(A) negotiate a license for the use of intellectual property developed by a registered participant in the prize competition; or

''(B) require a registered participant in the prize competition to provide an open source license to the public for the use of the registered participant's intellectual property.''; and

(C) by adding at the end the following:

''(3) ELECTRONIC CONSENT.—The Federal Government may obtain consent to the intellectual property and licensing terms of a prize competition

from participants during the online registration for the prize competition.'';

(7) in subsection (k)—

(A) in paragraph (1), by striking ''each competition'' each place it appears and inserting ''each prize competition'';

(B) by striking paragraph (3);

(C) by redesignating paragraph (2) as paragraph (3);

(D) by amending paragraph (3), as redesignated, to read as follows:

''(3) REQUIREMENTS.—A judge—

''(A) may not have personal or financial interests in, or be an employee, an officer, a director, or an agent of any entity that is a registered participant in a prize competition;

''(B) may not have a familial or financial relationship with an individual who is a registered participant; and

''(C) consistent with the guidelines established under paragraph (2), may—

''(i) be required to abide by a code of conduct or judging agreement; and

''(ii) be required to provide financial disclosures as are relevant to avoiding conflicts of interest.''; and

(E) by inserting after paragraph (1) the following:

''(2) GUIDELINES.—A head of an agency that carries out a prize competition under this section shall develop guidelines to ensure that the panel of judges appointed for the prize competition operates in a transparent manner, is free of potential conflicts of interest, and is fairly balanced as appropriate to the task. The guidelines may, but are not required to, necessitate each judge to be a special Government employee (as defined in section 202 of title 18, United States Code).'';

(8) in subsection (l), by striking ''an agreement with a private, nonprofit entity'' and inserting ''a contract, grant, cooperative agreement, or other agreement with a private sector for-profit, nonprofit, or State or local government entity'';

(9) in subsection (m)—

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

''(1) IN GENERAL.—In carrying out a prize competition under this section, including providing

financial support for the design and administration of a prize competition or for funding a cash prize purse, the head of an agency—

''(A) may use funds appropriated by Congress;

''(B) may request and accept funds from other Federal agencies or from private sector for-profit or nonprofit entities or State or local government agencies for such purposes; and

''(C) may not give special consideration to any agency or entity in return for such a donation.'';

(B) in paragraph (2), by striking ''prize awards'' and inserting ''cash prize purses'';

(C) in paragraph (3)—

(i) in subparagraph (A)—

(I) by striking ''No prize'' and inserting ''No prize competition'';

(II) by striking ''the prize'' and inserting ''the cash prize purse''; and

(III) by striking ''private source'' and inserting ''non-Federal source''; and

(ii) in subparagraph (B)—

(I) by striking ''a prize'' and inserting ''a cash prize purse'';

(II) by striking ''the prize'' and inserting ''the prize competition''; and

(III) by striking ''private source'' and inserting ''non-Federal source''; and

(D) in paragraph (4)—

(i) in subparagraph (A), by striking ''a prize'' and inserting ''a cash prize purse''; and

(ii) in subparagraph (B), by striking ''the award of more than $1,000,000 in cash prizes'' and inserting ''the award of more than $1,000,000 in cash prize purses'';

(10) in subsection (o), by striking ''a prize under this section'' and inserting ''a prize competition or cash prize purse under this section'';

(11) in subsection (p)—

(A) in the heading, by striking ''ANNUAL'' and inserting ''BIENNIAL'';

(B) in paragraph (1)—

(i) by striking ''Not later than March 1 of each year,'' and inserting ''Not later

than 2 years after the date of enactment of the America COMPETES Reauthorization Act of 2014, and biennially thereafter,''; and

(ii) by striking ''the preceding fiscal year'' and inserting ''the preceding 2 fiscal years''; and

(C) in paragraph (2)—

(i) by striking ''for a fiscal year'';

(ii) in subparagraph (C)—

(I) in the heading, by striking ''CASH PRIZES'' and inserting ''CASH PRIZE PURSES''; and

(II) by striking ''cash prizes'' each place it appears and inserting ''cash prize purses'';

(iii) by redesignating subparagraph (F) as subparagraph (G); and

(iv) by inserting after subparagraph (E) the following:

''(F) LIABILITY.—The amount of liability insurance required by registered participants in each prize competition and, if the amount is either none or insignificant, an explanation for that determination.''.

SEC. 106. REPEAL OF SPACE ACT LIMITATION ON PRIZE COMPETITIONS.

Section 20144(a) of title 51, United States Code, is amended by striking ''The Administration may carry out a program to award prizes only in conformity with this section.''.

SEC. 107. COORDINATED FEDERAL SCIENCE AGENCY POLICY FOR CAREGIVERS.

(a) FINDINGS.—Congress makes the following findings:

(1) Family responsibilities have been identified as a driver in reducing the number of students, including minorities, who complete postsecondary degrees.

(2) In particular, starting a family has been identified as a prominent factor in reducing the number of women advancing in academic careers in the sciences.

(3) According to the Council of Economic Advisors, workplace policies that permit greater flexibility, including for activities related to family care, can improve worker retention and increase productivity.

(4) To support family caregivers, several Federal agencies have adopted family-responsive policies,

most notably through programs such as the National Science Foundation's Career-Life Balance Initiative.

(5) Improved coordination among Federal science agencies and those entities that receive Federal funding can ensure the consistency of family-responsive policies.

(b) POLICY EVALUATION.—Not later than 180 days after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall evaluate ongoing Federal science agency programs and policies regarding career-life balance, workplace flexibility, and family-responsive initiatives.

(c) GUIDANCE.—Not later than 1 year after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall provide guidance to Federal science agencies to establish policies that—

(1) as appropriate, consider the needs of scientific, engineering, and technical personnel, including postdoctoral fellows, who—

(A) receive Federal funding through intramural or extramural research awards; and

(B) have family caregiving responsibilities; and

(2) based on the evaluation in subsection (b), build on proven best practices, taking into consideration—

(A) flexibility in the initiation of approved research awards;

(B) no-cost extensions or suspensions of research grants to permit for caregiving activities;

(C) grant supplements to sustain research activities during absences related to family caregiving;

(D) communications and training efforts related to family-responsive initiatives; and

(E) evaluating the impact of programs and policies on the recruitment and retention of STEM professionals; and

(d) EXTERNAL INPUT.—The Director of the Office of Science and Technology Policy, in developing guidance under this section, shall consider input from entities receiving Federal research and development funding as well as from professional societies and other organizations involved in supporting women in the sciences, as appropriate.

(e) CONSISTENCY IN POLICY.—The Director of the Office of Science and Technology Policy, in developing

guidance under this section, shall encourage the Federal science agencies and entities receiving Federal research and development funding to adopt proven, consistent, and complementary policies, programs, and best practices regarding career-life balance, workplace flexibility, and family-responsive initiatives.

TITLE II—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

SEC. 201. DEFINITIONS.

In this title:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the National Aeronautics and Space Administration.

(2) NASA.—The term ''NASA'' means the National Aeronautics and Space Administration.

SEC. 202. NASA EDUCATION PROGRAMS.

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

(1) NASA is well-positioned to leverage its workforce and facilities, together with the excitement induced by space exploration, in providing students and educators with authentic STEM experiences;

(2) whereas the Nation's STEM programs have traditionally focused on mathematics and the

sciences, NASA's aeronautics and space exploration mission allows it a unique ability to engage students in engineering and technology development; and

(3) NASA's education and outreach programs have made a significant contribution to the Nation's K-12 education efforts.

(b) IN GENERAL.—The Administrator shall continue to provide education and outreach activities, including opportunities for experiential learning, designed to improve interest and proficiency among students and educators in mathematics and the sciences, as well as in engineering and technology development. Before finalizing any reorganization of NASA education programs, the Administrator shall consider the long-term research and workforce needs of each mission directorate.

(c) METRICS.—The Administrator shall ensure that NASA education programs have measurable objectives and milestones, as well as clear, documented metrics for evaluating program outcomes. The Administrator, for each NASA education program or portfolio of similar programs, shall—

(1) encourage the collection of quantitative data as relevant to the measurable objectives and milestones; and

(2) ensure that program or portfolio evaluations focus on educational outcomes rather than just on inputs, activities completed, or the number of participants.

(d) BEST PRACTICES.—The Administrator or the Administrator's designee shall ensure—

(1) through participation in the National Science and Technology Council Committee on STEM Education, that—

(A) best practices developed through NASA education programs, including proven methods in areas such as engineering education and outreach to underrepresented groups, are considered in the development, updating, and implementation of the Federal 5-year STEM education plan; and

(B) NASA education programs reflect best practices and educational research developed within other Federal agencies; and

(2) NASA leverages its limited education resources by collaborating with external organizations in adapting or replicating successful NASA STEM education efforts.

SEC. 203. EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH.

The Administrator shall continue to conduct the Experimental Program to Stimulate Competitive Research (EPSCoR) in order to enhance research competitiveness of States and jurisdictions historically underserved by Federal research and development funding.

SEC. 204. FOUNDATIONAL ENGINEERING.

(a) FINDINGS.—Congress makes the following findings:

(1) The Nation's basic research and foundational engineering activities support innovation and can provide novel and transformative solutions to complex problems.

(2) NASA investments in basic research, foundational engineering, and technology development have advanced the NASA mission, including through supporting materials design, modeling, and manufacturing.

(3) NASA investments in basic research, foundational engineering, and the development of early-stage technologies remain critical to NASA's long term mission.

(b) REAFFIRMATION OF POLICY.—Congress reaffirms its support, as articulated in section 20102 of title 51, United States Code, for NASA's efforts to expand un-

derstanding in the aeronautical and space sciences and to identify long-term opportunities relevant to operating in the atmosphere and in space. Congress further affirms the importance of technology development in supporting national leadership in these areas.

(c) FOUNDATIONAL ENGINEERING CAPABILITY.—The Administrator shall ensure that NASA maintains a core capability to identify and support activities related to foundational engineering. The purpose of this capability shall be—

(1) to forecast NASA's future capability needs, including those needs not directly related to current missions;

(2) to develop or identify potentially transformative technology concepts relevant to achieving the needs under paragraph (1);

(3) to determine and implement an agency-wide strategy, that may include increasing research capacity and coordinating with external partners, for supporting research in foundational engineering; and

(4) to support translating basic scientific research into new technology development.

TITLE III—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEC. 301. NOAA EDUCATION PROGRAMS.

Section 4002 of the America COMPETES Act of 2007 (33 U.S.C. 893a) is amended—

(1) by redesignating subsections (d) and (e) as subsections (e) and (f); and

(2) by adding after section (c) the following:

''(d) METRICS.—In executing the NOAA science education plan under subsection (c), the Administrator shall maintain a comprehensive system for evaluating the outcomes and impacts of the agency's educational programs and activities. In so doing, the Administrator shall ensure that NOAA education programs have measurable objectives and milestones as well clear, documented metrics for evaluating program outcomes. For each NOAA education program or portfolio of similar programs, the Administrator shall further—

''(1) encourage the collection of quantitative data as relevant to the measurable objectives and milestones; and

''(2) ensure that program or portfolio evaluations focus on educational outcomes rather than just

on inputs, activities completed, or the number of participants.''.

TITLE IV—NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

SEC. 401. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2015.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $912,672,000 for the National Institute of Standards and Technology for fiscal year 2015.

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

(A) $697,872,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $58,800,000 shall be authorized for the construction and maintenance of facilities; and

(C) $156,000,000 shall be authorized for industrial technology services activities, of which $141,000,000 shall be authorized for the Hollings Manufacturing Extension Partnership program under section 25 and 26 of the Na-

tional Institute of Standards and Technology Act (15 U.S.C. 278k and 278l).

(b) FISCAL YEAR 2016.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $973,659,000 for the National Institute of Standards and Technology for fiscal year 2016.

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

(A) $748,119,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $61,740,000 shall be authorized for the construction and maintenance of facilities; and

(C) $163,800,000 shall be authorized for industrial technology services activities, of which $148,050,000 shall be authorized for the Hollings Manufacturing Extension Partnership program under section 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k and 278l).

(c) FISCAL YEAR 2017.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce

$1,038,800,000 for the National Institute of Standards and Technology for fiscal year 2017.

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

(A) $801,983,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $64,827,000 shall be authorized for the construction and maintenance of facilities; and

(C) $171,990,000 shall be authorized for industrial technology services activities, of which $155,453,000 shall be authorized for the Hollings Manufacturing Extension Partnership program under section 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k and 278l).

(d) FISCAL YEAR 2018.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,108,384,000 for the National Institute of Standards and Technology for fiscal year 2018.

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

(A) $859,726,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $68,068,000 shall be authorized for the construction and maintenance of facilities; and

(C) $180,590,000 shall be authorized for industrial technology services activities, of which $163,225,000 shall be authorized for the Hollings Manufacturing Extension Partnership program under section 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k and 278l).

(e) FISCAL YEAR 2019.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,182,717,000 for the National Institute of Standards and Technology for fiscal year 2019.

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

(A) $921,626,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $71,472,000 shall be authorized for the construction and maintenance of facilities; and

(C) $189,619,000 shall be authorized for industrial technology services activities, of which $171,386,000 shall be authorized for the Hollings Manufacturing Extension Partnership program under section 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k and 278l).

SEC. 402. MANUFACTURING EXTENSION PARTNERSHIP.

(a) IN GENERAL.—Section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) is amended to read as follows:

"SEC. 25. HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.

''(a) ESTABLISHMENT.—

''(1) IN GENERAL.—The Secretary, through the Director and, if appropriate, through other officials, shall assist in creating and supporting of manufacturing extension centers for the transfer of manufacturing technology and the dissemination of best business practices.

''(2) AFFILIATION.—The Centers may be affiliated with any United States-based public or non-

profit institution or organization, or group thereof, that applies for and is awarded financial assistance under this section.

''(3) OBJECTIVE.—The objective of the Hollings Manufacturing Extension Partnership is to enhance productivity, competitiveness, and technological performance in U.S. manufacturing through—

''(A) the demonstration of manufacturing technologies and techniques, including automated manufacturing systems and other advanced production technologies, based on research or development efforts at the Institute;

''(B) the transfer of technologies and techniques under subparagraph (A) to manufacturing companies throughout the United States;

''(C) the participation of individuals from industry, universities, State governments, other Federal agencies, and, when appropriate, the Institute in cooperative technology transfer activities;

''(D) efforts to make new manufacturing technologies and processes usable by United States-based small- and medium-sized manufacturing companies;

"(E) the active dissemination to industrial firms, including small- and medium-sized manufacturing companies, of scientific, engineering, technical, and management information about manufacturing;

"(F) the use, if appropriate, of the expertise and capabilities of Federal laboratories;

"(G) the provision to community colleges of information regarding the job skills needed in U.S.-based small- and medium-sized manufacturing companies in the regions the community colleges serve;

"(H) assisting Federal agencies in achieving their domestic preference requirements under chapter 83 of title 41, United States Code, and similar laws, by identifying small- and medium-sized manufacturing companies throughout the United States and providing those companies with technical assistance in meeting Federal procurement and acquisition requirements.

"(b) FINANCIAL ASSISTANCE.—

"(1) IN GENERAL.—The Secretary may provide financial assistance to any Center, except the Secretary may not provide to a Center more than 50

percent of the capital and annual operating and maintenance funds required to create and maintain the Center.

''(2) REGULATIONS.—The Secretary shall promulgate regulations to implement this section and review and update the regulations at least once every 5 years to comply with any applicable change in law that affects the policy or program goals under this section.

''(3) PUBLICATION OF PROCEDURES.—

''(A) IN GENERAL.—The Secretary shall publish in the Federal Register a draft description of the program establishing the Centers, including—

''(i) a description of the program;

''(ii) the procedures to be followed by an applicant for financial assistance;

''(iii) the criteria for determining if an applicant is qualified for financial assistance;

''(iv) the criteria, including the requirements under paragraph (4) and the merit review under paragraph (5), for choosing each recipient of financial assist-

ance under this section from among the qualified applicants; and

"(v) the maximum support levels expected to be available to the Centers.

"(B) FINAL DESCRIPTION.—The Secretary shall publish a final description of the program after the expiration of a 30-day comment period.

"(4) APPLICATION ELIGIBILITY AND REQUIREMENTS.—

"(A) IN GENERAL.—Any public or nonprofit institution, or group thereof, or consortia of public or nonprofit institutions, including entities existing on August 23, 1988, may submit to the Secretary an application for financial assistance under this subsection, in accordance with the procedures established by the Secretary and published in the Federal Register under paragraph (3).

"(B) COST SHARING.—Each applicant shall provide adequate assurances that non-Federal assets obtained from the applicant and the applicant's partnering organizations will be used as a funding source to meet not less than 50 percent of the costs incurred. In this sub-

paragraph, the term 'costs incurred' means the costs incurred in connection with the activities undertaken to improve the management, productivity, competitiveness, and technological performance of small- and medium-sized manufacturing companies.

''(C) PARTNERING ORGANIZATIONS.—In meeting the 50 percent requirement under subparagraph (B), a Center may enter into 1 or more agreements with 1 or more partnering organizations, such as private industry, universities, and State governments, to accomplish programmatic objectives and access new and existing resources that will further the impact of the Federal investment made on behalf of small- and medium-sized manufacturing companies.

''(D) LEGAL RIGHTS.—An applicant shall also submit a proposal for the allocation of the legal rights associated with any invention which may result from the proposed Center's activities.

''(5) MERIT REVIEW OF APPLICATIONS.—The Secretary shall subject each application under this subsection to merit review. In making a decision

whether to approve an application and provide financial assistance under this subsection, the Secretary shall consider, at a minimum—

"(A) the merits of the application, particularly those portions of the application regarding technology transfer, training and education, and adaptation of manufacturing technologies to the needs of particular industrial sectors;

"(B) the quality of service to be provided;

"(C) the geographical diversity and extent of service area; and

"(D) the percentage of funding and amount of in-kind commitment from other sources.

"(6) CENTER EVALUATION.—

"(A) IN GENERAL.—Each Center that receives financial assistance under this subsection shall be evaluated during its third year of operation by an evaluation panel appointed by the Secretary.

"(B) COMPOSITION.—Each evaluation panel shall be composed of independent experts, none of whom shall be connected with the involved Center, and Federal officials.

''(C) CHAIR.—An official of the Institute shall chair the evaluation panel.

''(D) EVALUATION PROCEDURE.—Each evaluation panel shall measure the involved Center's performance against the objectives specified in subparagraph (A).

''(E) POSITIVE EVALUATION.—If the evaluation is positive, the Secretary may provide continued funding for Center operation and maintenance.

''(F) NEGATIVE EVALUATION.—

''(i) PROBATION.—The Secretary shall not provide funding for a Center's operation or maintenance beyond its third year unless the evaluation is positive. If a Center does not receive a positive evaluation, the evaluation panel shall notify the Center of deficiencies in its performance and the Center shall be placed on probation for 1 year.

''(ii) REEVALUATION.—The evaluation panel shall reevaluate a Center's performance following its probationary period. If the Center has not addressed the deficiencies identified by the evaluation panel

or shown a significant improvement in its performance, the Director may either conduct a competition to select a new operator for the Center or close the Center.

''(G) CONTINUATION OF FINANCIAL ASSISTANCE.—After the sixth year, a Center may receive continued financial assistance under this section only if it has received a positive evaluation through an independent review, under procedures established by the Institute. Such an independent review shall be required at least every 2 years after the sixth year of operation.

''(H) RECOMPETITION.—If a Center has received financial assistance for 10 years, the Director shall conduct a new competition to select an operator for the Center. Current center operators in good standing with the Institute shall be eligible to compete.

''(7) CENTER OVERSIGHT BOARDS.—

''(A) IN GENERAL.—Each Center that receives financial assistance under this section shall establish an oversight board that is broadly representative of regional stakeholders with a majority of board members drawn from local

small- and medium-sized manufacturing companies.

''(B) FINANCIAL MANAGEMENT.—Each oversight board under subparagraph (A) shall establish responsibility for the Center's financial management and designate a chief financial officer. External entities may advise on, but not exclusively manage, Center finances.

''(C) BYLAWS AND CONFLICT OF INTEREST.—Each oversight board under subparagraph (A) shall adopt and submit to the Director bylaws to govern the operation of the board, including a conflict of interest policy to ensure relevant relationships are disclosed and proper recusal procedures are in place.

''(D) LIMITATIONS.—Board members may not—

''(i) be current clients of the Center they serve;

''(ii) serve as a vendor or provide services to the Center; or

''(iii) serve on more than 1 Center's oversight board simultaneously.

''(8) PROTECTION OF CONFIDENTIAL INFORMATION.—The Secretary shall ensure that the following are not publically disclosed:

''(A) Confidential information on the business operations of—

''(i) any participant in a program under the Hollings Manufacturing Extension Partnership; or

''(ii) any client of a Center.

''(B) Trade secrets possessed by any client of a Center.

''(9) PATENT RIGHTS.—The provisions of chapter 18 of title 35, United States Code, shall apply, unless inconsistent with this section, to the promotion of technology from research by Centers under this section except for contracts for such specific technology extension or transfer services as may be specified by statute or by the Director.

''(c) ACCEPTANCE OF FUNDS.—

''(1) IN GENERAL.—— In addition to such sums as may be appropriated to the Secretary and Director to operate the Hollings Manufacturing Extension Partnership program, the Secretary and Director may accept, for the purpose of strengthening United States manufacturing, funds from other Federal de-

partments and agencies, and under section 2(c)(7) of this Act (15 U.S.C. 272(c)(7)) from the private sector.

''(2) ALLOCATION OF FUNDS.—

''(A) FEDERAL DEPARTMENTS OR AGENCIES.—The Director shall determine whether funds accepted from other Federal departments or agencies shall be counted in the calculation of the Federal share of capital and annual operating and maintenance costs under subsection (c).

''(B) PRIVATE SECTOR.—Funds accepted from the private sector under section 2 of this Act (15 U.S.C. 272(c)(7)), if allocated to a Center, shall not be considered in the calculation of the Federal share under subsection (c) of this section.

''(d) MANUFACTURING EXTENSION PARTNERSHIP ADVISORY BOARD.—

''(1) ESTABLISHMENT.—There is established within the Institute a Manufacturing Extension Partnership Advisory Board.

''(2) MEMBERSHIP.—

''(A) IN GENERAL.—The MEP Advisory Board shall consist of not fewer than 10 mem-

bers broadly representative of stakeholders, to be appointed by the Director. At least 2 members shall be employed by or be on a Center advisory board, and at least 5 other members shall be from United States small businesses in the manufacturing sector. No member shall be an employee of the Federal Government.

''(B) TERM.—Except as provided in subparagraph (C) or (D), the term of office of each member of the MEP Advisory Board shall be 3 years.

''(C) CLASSES.—The original members of the MEP Advisory Board shall be appointed to 3 classes. One class of 3 members shall have an initial term of 1 year, one class of 3 members shall have an initial term of 2 years, and one class of 4 members shall have an initial term of 3 years.

''(D) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which the member's predecessor was appointed shall be appointed for the remainder of such term.

''(E) SERVING CONSECUTIVE TERMS.—Any individual who has completed 2 consecutive full

terms of service on the MEP Advisory Board shall thereafter be ineligible for appointment during the 1-year period following the expiration of the second such term.

''(3) MEETINGS.—The MEP Advisory Board shall—

''(A) meet not less than biannually; and

''(B) provide to the Director—

''(i) advice on Hollings Manufacturing Extension Partnership programs, plans, and policies;

''(ii) assessments of the soundness of Hollings Manufacturing Extension Partnership plans and strategies; and

''(iii) assessments of current performance against Hollings Manufacturing Extension Partnership program plans.

''(4) FEDERAL ADVISORY COMMITTEE ACT.—

''(A) IN GENERAL.—In discharging its duties under this subsection, the MEP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act (5 U.S.C. App.).

''(B) EXCEPTION.—Section 14 of the Federal Advisory Committee Act (5 U.S.C. App.

14) shall not apply to the MEP Advisory Board.

''(5) REPORT.—The MEP Advisory Board shall transmit an annual report to the Secretary for transmittal to Congress not later than 30 days after the submission to Congress of the President's annual budget request in each year. In the annual report, the MEP Advisory Board shall—

''(A) address the status of the Hollings Manufacturing Extension Partnership program; and

''(B) comment on the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23 of this Act (15 U.S.C. 278i).

''(e) COMPETITIVE AWARDS PROGRAM.—

''(1) ESTABLISHMENT.—The Director shall establish, within the Hollings Manufacturing Extension Partnership program under this section and the program to provide technical assistance to State technology programs under section 26 of this Act (15 U.S.C. 278l), a program of competitive awards among participants described in paragraph (2) of

this subsection for the purpose described in paragraph (3) of this subsection.

''(2) PARTICIPANTS.—Participants receiving awards under this subsection shall be the Centers, or a consortium of such Centers.

''(3) PURPOSE.—The purpose of the program under this subsection shall be to add capabilities to the Hollings Manufacturing Extension Partnership program, including the development of projects to solve new or emerging manufacturing problems as determined by the Director, in consultation with the Director of the Hollings Manufacturing Extension Partnership program, the MEP Advisory Board, and representatives of small- and medium-sized manufacturing companies.

''(4) COMPETITIVE AWARDS THEMES.—The Director may identify 1 or more themes for the competitive awards under this subsection. The themes—

''(A) shall be related to projects designed to increase the viability both of traditional manufacturing sectors and other sectors, such as construction, that increasingly rely on manufacturing through the use of manufactured components and manufacturing techniques, including

supply chain integration and quality management;

''(B) shall be related to projects related to the transfer of technology based on the technological needs of manufacturers and available technologies from institutions of higher education, laboratories, and other technology producing entities;

''(C) may extend beyond these traditional areas to include projects related to construction industry modernization; and

''(D) may vary from year to year, depending on the needs of manufacturers and the success of previous competitions.

''(5) REIMBURSEMENTS.—The Centers may be reimbursed for costs incurred under the program under this subsection.

''(6) APPLICATIONS.—Applications for awards under this subsection shall be submitted in such manner and at such time, and contain such information as the Director shall require, in consultation with the MEP Advisory Board.

''(7) SELECTION.—

''(A) IN GENERAL.—Awards under this subsection shall be peer reviewed and competi-

tively awarded. The Director shall endeavor to have broad geographic diversity among selected proposals. The Director shall select proposals to receive awards that—

"(i) will create jobs or train newly hired employees;

"(ii) will promote technology transfer and commercialization of environmentally focused materials, products, and processes;

"(iii) will increase energy efficiency; and

"(iv) will improve the competitiveness of industries in the region in which the Center or Centers are located.

"(B) ADDITIONAL SELECTION CRITERIA.—The Director may select proposals to receive awards that—

"(i) in the region in which the Center or Centers are located, will encourage greater cooperation and foster partnerships with similar Federal, State, and locally funded programs to encourage energy efficiency and building technology; and

"(ii) will collect data and analyze the increasing connection between manufac-

tured products and manufacturing techniques, the future of construction practices, and the emerging application of products from the green energy industries.

''(8) PROGRAM CONTRIBUTION.—Recipients of awards under this subsection shall not be required to provide a matching contribution.

''(9) GLOBAL MARKETPLACE PROJECTS.—In selecting proposals to receive awards under this subsection, the Director, in consultation with the MEP Advisory Board and the Secretary of Commerce, may—

''(A) take into consideration whether an application has significant potential for enhancing the competitiveness of U.S.-based small- and medium-sized manufacturing companies in the global marketplace; and

''(B) give a preference to any application described under subparagraph (A) to the extent the Director considers appropriate, taking into account the purpose under paragraph (3).

''(10) DURATION.—Awards under this section shall last no longer than 3 years.

''(11) PERMISSIBLE USES.—

"(A) IN GENERAL.—A participant under paragraph (2) may use an award under this subsection to assist—

"(i) United States-based small- or medium-sized construction companies; and

"(ii) United States-based manufacturing companies eligible to participate in the Centers program under subsection (a).

"(B) REIMBURSEMENTS.—A participant under paragraph (2) may be reimbursed under the program under this subsection for the costs incurred in working with the companies described in subparagraph (A).

"(12) AUTHORIZATION OF APPROPRIATIONS.—In addition to any amounts otherwise authorized or appropriated to carry out this section, there are authorized to be appropriated to the Secretary of Commerce $10,000,000 for each of the fiscal years authorized in this Act.

"(f) INNOVATIVE SERVICES INITIATIVE.—

"(1) IN GENERAL.—The Director shall establish, within the Hollings Manufacturing Extension Partnership program under this section, an innovative services initiative to assist small- and medium-sized manufacturing companies in—

''(A) reducing their energy usage, greenhouse gas emissions, and environmental waste to improve profitability;

''(B) accelerating the domestic commercialization of new product technologies, including components for renewable energy and energy efficiency systems; and

''(C) identifying and diversifying to new markets, including support for transitioning to the production of components for renewable energy and energy efficiency systems.

''(g) REPORTS.—

''(1) IN GENERAL.—The Director shall include an assessment of the Director's governance of the program under this section in the programmatic planning document, and each annual update thereto, under section 23 of this Act (15 U.S.C. 278i).

''(2) CRITERIA.—— In conducting the assessment, the Director shall use the criteria for qualification for the Malcolm Baldrige National Quality Award under section 17(d)(1)(C) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3711a(d)(1)(C)).

''(h) DEFINITIONS.—In this section:

''(1) PROGRAM UNDER THIS SECTION.—The term 'program under this section' means the Hollings Manufacturing Extension Partnership program established by this section.

''(2) CENTER.—The term 'Center' means a Hollings Manufacturing Extension Center established under subsection (a).

''(3) MEP ADVISORY BOARD.—The term 'MEP Advisory Board' means the Manufacturing Extension Partnership Advisory Board established under subsection (e).

''(4) COMMUNITY COLLEGE.—The term 'community college' means an institution of higher education (as defined under section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)) at which the highest degree that is predominately awarded to students is an associate's degree.

''(i) EVALUATION OF OBSTACLES UNIQUE TO SMALL MANUFACTURERS.—The Director shall—

''(1) identify and evaluate obstacles that are unique to U.S.-based small-sized manufacturing companies and that prevent these companies from effectively competing in the global market;

''(2) implement a comprehensive plan to train the Centers to address the obstacles under paragraph (1); and

''(3) facilitate improved communication between the Centers to assist the companies described in paragraph (1) in implementing appropriate, targeted solutions to the obstacles under paragraph (1).''.

(b) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) ARMED FORCES; SUPPORT OF SCIENCE, MATHEMATICS, AND ENGINEERING EDUCATION.—Section 2199 of title 10, United States Code, is amended by striking ''means a regional center for the transfer of manufacturing technology referred to in section 25(a)'' and inserting ''means a center for the transfer of manufacturing technology and the dissemination of best business practices referred to in section 25''.

(2) ENTERPRISE INTEGRATION INITIATIVE.—Section 3(a) of the Enterprise Integration Act of 2002 (15 U.S.C. 278g-5(a)) is amended by inserting ''Hollings'' before ''Manufacturing Extension Partnership program''.

(3) ASSISTANCE TO STATE TECHNOLOGY PROGRAMS.—Section 26(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278g-

5(a)) is amended by striking ''the Centers program created under'' and inserting ''the Hollings Manufacturing Extension Partnership program under''.

SEC. 403. EDUCATION AND OUTREACH.

The National Institutes of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended—

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

(2) by striking section 19 (15 U.S.C. 278g-2);

(3) by striking section 19A (15 U.S.C. 278g-2a); and

(4) by inserting after section 17 (15 U.S.C. 278g) the following:

''SEC. 18. EDUCATION AND OUTREACH.

''(a) IN GENERAL.—The Director, in furthering the Institute's mission, is authorized to expend appropriated funds to support, promote, and coordinate education and outreach efforts to enhance the awareness and understanding of measurement sciences, standards, and technology among the general public, industry, and academia.

''(b) RESEARCH FELLOWSHIPS AND OTHER ASSISTANCE.—

''(1) IN GENERAL.—The Director is authorized to expend funds appropriated for activities of the Institute in any fiscal year, as the Director considers necessary, for awards of research fellowships and

other financial assistance and logistical assistance to—

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

''(B) United States citizens for research and technical activities of the Institute, including programs.

''(2) SELECTION.—The Director shall select recipients for fellowships and assistance based on the potential recipient's ability to complete the proposed work and on the relevance of the proposed work to the mission and programs of the Institute.

''(3) DEFINITIONS.—In this subsection:

''(A) INSTITUTION OF HIGHER EDUCATION.—The term 'institution of higher education' has the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

''(B) OTHER FINANCIAL AND LOGISTICAL ASSISTANCE.—The term 'other financial and logistical assistance' includes—

''(i) direct stipend awards; and

"(ii) notwithstanding section 1345 of title 31, United States Code or any other contrary provision of law, temporary housing and transportation to and from the Institute facilities.

"(c) MANUFACTURING FELLOWSHIP PROGRAM.—

"(1) ESTABLISHMENT.—To promote the development of a robust research community working at the leading edge of manufacturing sciences, the Director shall establish a program to award—

"(A) postdoctoral research fellowships at the Institute for research activities related to manufacturing sciences; and

"(B) senior research fellowships to established researchers in industry or at institutions of higher education who wish to pursue studies related to the manufacturing sciences at the Institute.

"(2) APPLICATIONS.—To be eligible for an award under this subsection, an individual shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

"(3) STIPEND LEVELS.—The Director shall provide stipends for postdoctoral research fellow-

ships at a level consistent with the National Institute of Standards and Technology Postdoctoral Research Fellowship Program, and senior research fellowships at levels consistent with support for a faculty member in a sabbatical position.

''(d) POST-DOCTORAL FELLOWSHIP PROGRAM.—The Director, in consultation with the National Academy of Sciences, shall establish and conduct a post-doctoral fellowship program. The post-doctoral fellowship program shall include not less than 20 new fellows per fiscal year.

''(e) TEACHER SCIENCE AND TECHNOLOGY ENHANCEMENT INSTITUTE PROGRAM.—

''(1) IN GENERAL.—The Director shall establish within the Institute a teacher science and technology enhancement program to provide for professional development of mathematics and science teachers of elementary, middle, and secondary schools (as those terms are defined by the Director), including helping to increase the teachers' understanding of science and the impacts of science on commerce.

''(2) FOCUS.—In carrying out the program under this subsection, the Director shall focus on the following areas:

''(A) Scientific measurements.

''(B) Tests and standards development.

''(C) Industrial competitiveness and quality.

''(D) Manufacturing.

''(E) Technology transfer.

''(F) Any other area of expertise of the Institute that the Director considers appropriate.

''(3) SELECTION.—The Director shall develop and issue procedures and selection criteria for participants in the program under this subsection. The Director shall give special consideration to an application from a teacher from a high-need school (as defined in section 200 of the Higher Education Act of 1965 (20 U.S.C. 1021)).

''(4) TIMING.—The program under this subsection shall be conducted on an annual basis during the period of time when a majority of elementary, middle, and secondary schools have not commenced a school year, such as the months of June, July, or August.

''(5) EQUIPMENT.—The program under this subsection shall—

''(A) provide for teachers' participation in activities at the laboratory facilities of the Institute; or

''(B) utilize other means of accomplishing the goals of the program , as the Director considers appropriate, such as the Internet, video conferencing and recording, and workshops and conferences.''.

SEC. 404. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY FOUNDATION.

(a) IN GENERAL.—The Secretary of Commerce, acting through the Director, may establish or enter into an agreement with a non-profit organization to establish a National Institute of Standards and Technology Foundation. The Foundation shall not be an agency or instrumentality of the United States Government.

(b) PURPOSE.—The purpose of the Foundation shall be to support the National Institute of Standards and Technology in its mission.

(c) ACTIVITIES.—Activities of the Foundation may include the solicitation and acceptance of funds—

(1) to support international metrology and standards engagement activities;

(2) to conduct education and outreach activities; and

(3) to offer direct support to NIST associates, including through activities such as the provision of

fellowships, grants, and occupational safety and awareness training.

(d) TRANSFER OF FUNDS.—The Director may authorize, under the agreement under subsection (a), the transfer of funds from the National Institute of Standards and Technology to the non-profit organization to offset any administrative costs of the Foundation.

(e) DEFINITIONS.—In this section:

(1) DIRECTOR.—The term ''Director'' means the Under Secretary of Commerce for Standards and Technology.

(2) NIST ASSOCIATE.—The term ''NIST associate'' means any guest researcher, research associate, facility user, or volunteer who conducts research at a National Institute of Standards and Technology facility, but is not an employee of the National Institute of Standards and Technology or of another Federal department or agency.

SEC. 405. SCIENTIFIC AND TECHNICAL CONFERENCES.

(a) FINDINGS.—Congress makes the following findings:

(1) Cooperative research and development activities, including collaboration between domestic and international government, industry, and academic

science and engineering organizations, are important to promoting innovation and knowledge creation.

(2) Scientific and technical conferences and trade events support the sharing of information, processes, and data within the scientific and engineering communities.

(3) In hosting and attending scientific and technical conferences and trade events, Federal agencies—

(A) gain greater access to top researchers and to new and potentially transformative ideas;

(B) keep abreast of developments relevant to their respective missions, as is relevant for future program planning;

(C) help disseminate Federal research results;

(D) provide opportunities both for employee professional development and for recruiting new employees;

(E) participate in scientific peer review; and

(F) support the reputation, visibility, and leadership both of the specific agency and of the United States.

(4) For those Federal agencies that provide financial support for external research and development activities, participation in scientific and technical conferences can help ensure that funds are directed toward the most promising ideas, thereby maximizing the Federal investment.

(b) POLICY.—To the extent practicable given budget, security, and other constraints, each Federal agency under this Act should support Federal employee attendance at scientific and technical conferences and trade events as relevant both to employee duties and to the agency's mission.

(c) OVERSIGHT.—Consistent with other relevant law, the Federal agencies, through appropriate oversight, shall aim to minimize the costs to the Federal Government related to conference and trade event attendance, through methods such as—

(1) ensuring that related fees collected by the agency help offset total costs to the Government;

(2) developing or maintaining procedures for investigating unexpected increases in related costs; and

(3) strengthening policies and training relevant to conference and trade event planning and participation.

(d) IMPLEMENTATION ACTIVITIES.—Subsection 2(c) of the National Institute of Standards and Technology Act (15 U.S.C. 272(c)) is amended—

(1) by redesignating paragraphs (18) through (22) as paragraphs (19) through (23), respectively; and

(A) by adding after paragraph (17) the following:

''(18) host, participate in, and support scientific and technical conferences , and collect and retain conference fees for the payment of related expenses, including, notwithstanding section 1345 of title 31, United States Code, subsistence expenses;''.

SEC. 406. STANDARDS AND CONFORMITY ASSESSMENT.

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

(1) by striking ''is authorized to'' and inserting ''is authorized to serve as the President's principal advisor on standards pertaining to the Nation's innovation and technological competitiveness and to'';

(2) by amending paragraph (3) to read as follows:

''(3) to compare standards used in scientific investigation, engineering, manufacturing, commerce,

industry, and education with the standards adopted or recognized by the Federal Government;'';

(3) by inserting after paragraph (3) the following:

''(3A) to facilitate standards-related information sharing and cooperation between Federal agencies and to coordinate the use by Federal agencies of private sector standards, emphasizing if possible the use of standards developed by private, consensus organizations;''; and

(4) by amending paragraph (13) to read as follows:

''(13) to coordinate the technical standards and conformity assessment activities of Federal, State, and local governments with those of the private sector, with the goal of eliminating unnecessary duplication and complexity in the development and promulgation of conformity assessment requirements and measures;''; and

(5) by renumbering paragraphs (3A) through (13) as paragraphs (4) through (14), respectively.

SEC. 407. VISITING COMMITTEE ON ADVANCED TECHNOLOGY.

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

(1) by striking ''15'' and inserting ''not fewer than 9''; and

(2) by striking ''at least 10'' and inserting ''a majority''.

SEC. 408. GRANTS AND COOPERATIVE AGREEMENTS.

Section 8 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3706) is amended by amending subsection (a) to read as follows:

''(a) IN GENERAL.—The Secretary may make grants and enter into cooperative agreements according to the provisions of this section in order to assist any activity consistent with this Act, including activities performed by individuals.''.

SEC. 409. CONSUMER PRODUCT SAFETY COMMISSION.

Section 4 of the Federal Emergency Management Improvement Act of 1988 (15 U.S.C. 5001) is amended—

(1) by striking ''Secretary of Commerce'' each place it appears and inserting ''Consumer Product Safety Commission''; and

(2) by striking ''Secretary'' each place it appears and inserting ''Consumer Product Safety Commission''.

TITLE V—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS SUPPORT PROGRAMS

Subtitle A—National Science Foundation

SEC. 501. DEFINITIONS.

In this subtitle:

(1) DIRECTOR.—The term ''Director'' means the Director of the National Science Foundation.

(2) FOUNDATION.—The term ''Foundation'' means the National Science Foundation.

(3) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) STATE.—The term ''State'' means 1 of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or any other territory or possession of the United States.

SEC. 502. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2015.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $7,649,310,000 for fiscal year 2015.

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

(A) $6,227,160,000 shall be authorized for research and related activities;

(B) $888,825,000 shall be authorized for education and human resources;

(C) $201,000,000 shall be authorized for major research equipment and facilities construction;

(D) $312,900,000 shall be authorized for agency operations and award management;

(E) $4,515,000 shall be authorized for the Office of the National Science Board; and

(F) $14,910,000 shall be authorized for the Office of Inspector General.

(b) FISCAL YEAR 2016.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $8,157,724,000 for fiscal year 2016.

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

(A) $6,675,516,000 shall be authorized for research and related activities;

(B) $933,266,000 shall be authorized for education and human resources;

(C) $200,000,000 shall be authorized for major research equipment and facilities construction;

(D) $328,545,000 shall be authorized for agency operations and award management;

(E) $4,741,000 shall be authorized for the Office of the National Science Board; and

(F) $15,656,000 shall be authorized for the Office of Inspector General.

(c) FISCAL YEAR 2017.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $8,702,471,000 for fiscal year 2017.

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

(A) $7,156,153,000 shall be authorized for research and related activities;

(B) $979,930,000 shall be authorized for education and human resources;

(C) $200,000,000 shall be authorized for major research equipment and facilities construction;

(D) $344,972,000 shall be authorized for agency operations and award management;

(E) $4,978,000 shall be authorized for the Office of the National Science Board; and

(F) $16,438,000 shall be authorized for the Office of Inspector General.

(d) FISCAL YEAR 2018.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $9,285,030,000 for fiscal year 2018.

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

(A) $7,671,396,000 shall be authorized for research and related activities;

(B) $1,028,926,000 shall be authorized for education and human resources;

(C) $200,000,000 shall be authorized for major research equipment and facilities construction;

(D) $362,221,000 shall be authorized for agency operations and award management;

(E) $5,227,000 shall be authorized for the Office of the National Science Board; and

(F) $17,260,000 shall be authorized for the Office of Inspector General.

(e) FISCAL YEAR 2019.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $9,908,051,000 for fiscal year 2019.

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

(A) $8,223,736,000 shall be authorized for research and related activities;

(B) $1,080,372,000 shall be authorized for education and human resources;

(C) $200,000,000 shall be authorized for major research equipment and facilities construction;

(D) $380,332,000 shall be authorized for agency operations and award management;

(E) $5,488,000 shall be authorized for the Office of the National Science Board; and

(F) $18,123,000 shall be authorized for the Office of Inspector General.

SEC. 503. SENSE OF CONGRESS ON NATIONAL SCIENCE FOUNDATION BASIC RESEARCH INVESTMENTS.

(a) FINDINGS.—Congress finds that—

(1) basic research investments support economic development and national security by—

(A) creating a base of scientific knowledge and understanding critical to innovation and to the creation of new industries and jobs;

(B) training and attracting a community of scientific and engineering experts; and

(C) enabling technological advances that can respond to intractable or unexpected societal or security challenges.

(2) established by Congress in 1950, in part to avoid U.S. reliance on foreign scientific capital, the Foundation supports basic research activities in a wide range of fields, including the mathematical, physical, biological, and social sciences, as well as in fundamental engineering;

(3) the Foundation's basic research investments have provided novel solutions to societal challenges and created the scientific and engineering knowledge important to commercial successes in areas such as fiber optics, DNA fingerprinting, bar codes readers, and Internet browsers;

(4) the Foundation's investments in social, behavioral, and economic research have addressed challenges, including—

(A) in medicine, matching organ donors to patients, leading to a dramatic growth in paired kidney transplants;

(B) in policing, implementing predictive models that help to yield significant reductions in crime;

(C) in resource allocation, developing the theories underlying the Federal Communications Commission spectrum auction, which has generated over $60,000,000,000 in revenue;

(D) in disaster preparation and recovery, identifying barriers to effective disaster evacuation strategies;

(E) in national defense, assisting U.S. troops in cross-cultural communication and in identifying threats; and

(F) in areas such as economics, education, cybersecurity, transportation, and the national defense, supporting informed decision-making in foreign and domestic policy;

(5) through its research support, the Foundation has proven critical to the development of the Nation's scientific and engineering workforce;

(6) having recognized the benefits of research investments to their economies and workforce, the Nation's economic competitors have vastly increased their research efforts; and

(7) the economic benefits related to basic research investments tend to accrue within the region where the research is conducted.

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

(1) just as in 1950, basic research investments across a wide range of disciplines are crucial to the Foundation's mission and essential to the scientific progress of the Nation;

(2) The Foundation's basic research investments continue to support long-term national economic competitiveness by expanding the potential for practical innovations in science and technology and by attracting and training a knowledgeable workforce;

(3) stagnant private sector investment in basic and early applied research relative to international

competitors emphasizes the Foundation's critical role in research funding; and

(4) if the United States is to remain innovative and globally competitive, the Foundation must continue to meet its legislative mandate through—

(A) robust support for basic research across a wide range of science and engineering fields, including the social, behavioral, and economic sciences;

(B) continued support for engagement between scientists, particularly through scientific conferences; and

(C) funding for the education and training of the U.S. scientific and technical workforce.

SEC. 504. NATIONAL SCIENCE FOUNDATION MERIT REVIEW.

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

(1) the Foundation's Intellectual Merit and Broader Impacts criteria remain appropriate for evaluating grant proposals, as concluded by the 2011 National Science Board Task Force on Merit Review;

(2) evaluating proposals on the basis of the Foundation's Intellectual Merit and Broader Impacts criteria assures that—

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

(B) the Foundation's overall funding portfolio addresses societal needs directly through research findings or through related activities; and

(3) as evidenced by the Foundation's contributions to scientific advancement, economic development, human health, and national security, its peer review and merit review processes have successfully identified and funded scientifically and societally-relevant research and must be preserved.

(b) CRITERIA.—The Foundation shall maintain the Intellectual Merit and Broader Impacts criteria as the basis for evaluating grant proposals.

(c) REPORT.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Director shall submit to the appropriate committees of Congress a report detailing—

(A) steps taken to improve the merit-review process, the justification for any changes, and the effect of these steps on funding recipients; and

(B) recent efforts by the Foundation to improve transparency and accountability in the merit-review process.

(2) CHANGES.—The Director shall update and resubmit the report under paragraph (1) if there are any changes to the merit-review criteria.

SEC. 505. NATIONAL SCIENCE FOUNDATION STEM PROGRAM CONTRIBUTION AND RESEARCH DISSEMINATION.

(a) FINDINGS.—Congress makes the following findings:

(1) The Foundation's Directorate for Education and Human Resources supports STEM education by—

(A) funding research into student learning, to include learning in informal environments;

(B) supporting programs to improve pedagogy and to increase the participation of underrepresented groups in the STEM workforce;

(C) providing financial support for students pursuing STEM degrees and encouraging students to become STEM educators; and

(D) promoting the adoption of validated teaching practices and encouraging broad STEM literacy.

(2) External evaluations of the Foundation's education programs demonstrate that the education programs produce more highly qualified teachers, increase interest in STEM careers and in higher education, broaden the participation of underrepresented minorities in STEM fields, and support the development of the STEM workforce.

(b) POLICY.—It is the policy of the United States that—

(1) the Foundation should maintain robust investments in STEM education, including in teacher education at the K-12 and undergraduate levels, and in identifying and adapting promising STEM learning projects for broader use;

(2) the Foundation's educational initiatives should—

(A) develop, evaluate, and promote new or transformative approaches to STEM education both inside and outside of the classroom;

(B) balance support for research into education, for transforming promising research into innovative educational approaches, tools, and programs, and for disseminating pedagogical best practices; and

(C) consider the needs of the educational community, including academia, informal educational providers, and non-profit, industry, and local, State, and Federal education agencies; and

(3) while the Federal Government should seek to optimize its STEM education initiatives, decisions related to the expansion, consolidation, or reorganization of STEM programs should be supported both by program evaluations and by careful consideration of each affected program's contribution to agency and Federal education goals.

(c) EVALUATION.—The Director shall ensure that the Foundation's education programs have measurable objectives and clear, documented metrics for evaluating program outcomes. The Director shall, for each education program or portfolio of similar programs—

(1) include measurable objectives and milestones within program solicitations;

(2) encourage the collection of quantitative data as relevant to the measurable objectives and milestones in paragraph (1);

(3) engage external evaluators, which may include Foundation-funded researchers, in assessing

the impact of the program or portfolio against the objectives and milestones in paragraph (1);

(4) ensure that program or portfolio evaluations focus on the impact of the program rather than just the inputs or activities completed; and

(5) wherever practicable, conduct longitudinal or comparison group studies to more clearly demonstrate program or portfolio impacts.

(d) BEST PRACTICES.—The Director shall support activities to disseminate and catalyze the adoption of empirically-validated best practices in STEM education content and pedagogy. In conducting these activities, the Director shall, at a minimum,—

(1) identify those best practices that have been validated through peer-reviewed research efforts;

(2) establish collaborations with organizations involved in teacher training, to include other Federal science agencies, professional associations, institutions of higher education, and private sector entities , including informal education providers, as appropriate; and

(3) through collaboration with organizations involved in teacher training, transmit best practice information to educators.

(e) PROGRAM SCALING GRANTS.—The Director shall incentivize and support the widespread adoption of evidence-based education practices and of initiatives that have been proven successful through rigorous evaluation.

(1) AWARDS.—Grants under this subsection shall be competitively awarded to propagate practices that improve student learning and increase participation and retention in STEM fields.

(2) ELIGIBILITY.—The following organizations may be eligible for grants under this subsection:

(A) Institutions of higher education.

(B) State, local, and non-profit educational organizations.

(C) Other educational groups as identified by the Director.

(3) USE OF FUNDS.—Activities supported by grants under this subsection may include—

(A) expanding promising education projects and initiatives; and

(B) supporting professional development or community outreach efforts, as required to encourage a commitment to educational reforms.

SEC. 506. STEM TEACHER TRAINING.

(a) REAFFIRMATION.—Congress reaffirms its support, as expressed in the America COMPETES Act (Pub-

lic Law 110—69; 121 Stat. 572) and the America COMPETES Reauthorization Act of 2010 (Public Law 111—358; 124 Stat. 3982), for developing, implementing, and replicating programs at institutions of higher education to recruit and prepare STEM educators.

(b) PURPOSE.—The purpose of this section is to further encourage the development, implementation, and adoption of projects to recruit, prepare, and provide for the training and professional development of STEM educators. The projects may be established, administered, or conducted in cooperation with institutions of higher education, public, non-profit, or professional groups, and Federal, State, or local entities involved in education.

(c) IN GENERAL.—The Director shall provide grants to fund projects, including workshops, in order to provide teacher training and professional development for current and potential K-12 STEM educators.

(d) EDUCATOR TRAINING.—In carrying out this section, the Director shall support the training and professional development of STEM educators—

(1) to increase comfort with teaching scientific concepts and engineering practices, and with using inquiry-based learning methods; and

(2) to assist in integrating validated educational technologies, best practices, and methodologies into their pedagogy.

(e) AREAS OF FOCUS.—In carrying out this section, the Director shall focus on—

(1) synthesizing the results of the Foundation's efforts in the training and professional development of STEM educators;

(2) disseminating effective content, pedagogy, tools, and best practices, as supported by Foundation-sponsored education research, in areas including active STEM education;

(3) assisting teachers in integrating effective content, pedagogy, tools, and best practices into student instruction; and

(4) increasing teacher comfort with teaching scientific concepts and engineering practices, as well as with inquiry based learning methods.

(f) FEDERAL COORDINATION.—The Director, through collaboration with the National Science and Technology Council Committee on Science, Technology, Engineering, and Math Education, shall ensure that Federal support for teacher training and professional development activities under this section are coordinated across Federal science agencies and jointly supported, as appropriate.

(g) COLLABORATION.—Funded workshops and teacher training activities may occur in collaboration with industry, professional associations, non-profit organizations, and institutions of higher education, including community colleges. Potential collaborations may include—

(1) professional development activities that facilitate teacher access to academic, government, and industry STEM professionals;

(2) establishing or expanding projects designed to recruit and train STEM educators;

(3) industry, organization, or State or local agency co-funding for teacher professional development activities.

(h) REPORT.—The Director shall include, in the Foundation annual budget report to Congress, a summary of teacher training projects funded by the Foundation during the previous fiscal year and the needs addressed by each funded project.

SEC. 507. ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM.

(a) FINDINGS.—Congress finds that—

(1) the Robert Noyce Teacher Scholarship Program supports the development and dissemination of effective teacher preparation models and the recruit-

ment, preparation, and retention of STEM educators;

(2) as a result of awards granted between fiscal years 2002 and 2013, the Robert Noyce Teacher Scholarship Program will produce over 12,000 new math and science teachers, including in high-need districts; and

(3) independent evaluation suggests that the Robert Noyce Teacher Scholarship Program improves recruitment of underrepresented and STEM-trained students into teaching, encourages teachers to work in high-need areas, and can improve relationships between teacher preparation programs and industry.

(b) RETENTION.—Section 10 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-1) is amended by striking subsection (k) and inserting the following:

''(k) TEACHER SERVICE AND RETENTION.—The Director shall develop and implement practices for increasing the retention of teachers funded under this section in high-need districts. Potential actions may include—

''(1) conducting research to better understand factors relevant to teacher retention;

''(2) increasing the recruitment from high-need districts;

''(3) partnering with non-profit or professional associations to provide teachers funded under this section with more opportunities for professional development and mentorship;

''(4) establishing a system to better collect, track, and respond to data on the career decisions of teachers funded under this section; and

''(5) conducting pilot programs to improve teacher retention.''.

(c) EXPANSION.—Section 10 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-1) is amended by adding at the end the following:

''(m) EXPANSION.—The Director shall encourage the expansion of the Robert Noyce Teacher Scholarship Program by—

''(1) actively recruiting participation among and providing proposal drafting assistance to institutions of higher education that do not grant doctoral degrees, including associate-degree granting institutions and community colleges;

''(2) encouraging a broad geographic distribution of funding recipients under this section through increased outreach to geographic regions that have

been traditionally underfunded by the Robert Noyce Teacher Scholarship Program, relative to other regions; and

''(3) soliciting grant proposals that incorporate technology into teacher training, including the development of distance learning techniques to support teacher training in rural areas.''.

SEC. 508. EARLY UNDERGRADUATE RESEARCH OPPORTUNITIES.

(a) FINDINGS.—Congress finds that—

(1) fewer than 40 percent of college students who intend to pursue a STEM degree complete a STEM degree;

(2) evaluations of the Foundation's Research Experiences for Undergraduates Program, which engages undergraduate students in research activities, suggest that research experiences increase participant awareness, confidence, and interest in research fields; and

(3) providing research experiences, particularly during the first 2 years of undergraduate education, improves both persistence and performance in STEM fields.

(b) GRANT AWARDS.—The Director shall support, through the Division of Undergraduate Education, innova-

tion in early undergraduate education, with a focus on students in the first 2 years of undergraduate STEM education. Potential awards may include grants to institutions—

(1) to facilitate the expanded participation of first or second year undergraduate students at research sites (as defined under section 514 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-6) designated to provide research experiences for undergraduate students; and

(2) to implement innovative research and engineering design courses, including those focusing on mentorship or discovery-based learning, for first or second year undergraduate students.

SEC. 509. INFORMAL STEM EDUCATION.

(a) IN GENERAL.—Subject to subsections (h) and (j), the Director shall maintain a grant program to support STEM learning activities in informal educational settings. The purpose of the grant program shall be to improve STEM engagement and outcomes among students in kindergarten through twelfth grade.

(b) USE OF FUNDS.—Grants under this section may support—

(1) research to identify best practices in informal STEM learning;

(2) designing, developing, implementing, evaluating, or expanding innovative or promising informal STEM learning activities, tools, or models;

(3) implementing, expanding, or evaluating promising informal STEM learning activities that promote Federal or agency STEM education goals;

(4) developing communities of practice in informal STEM learning;

(5) improving the STEM and educational expertise of informal STEM educators; and

(6) creating a national network of institutions involved in informal STEM learning.

(c) NATIONAL NETWORK.—The Director shall award, in supporting the national network under subsection (b), grants to foster partnerships between institutions involved in informal science learning, institutions of higher education, and education research centers. Funded activities may include developing, adapting, and making available informal STEM education activities and educational materials for broad implementation.

(d) KINDERGARTEN THROUGH EIGHTH GRADE INITIATIVE FOR UNDERREPRESENTED GROUPS.—Within the grant program established under subsection (a), the Director shall support an initiative to engage underrepresented students in kindergarten through the eighth grade in in-

formal STEM education activities. Activities funded through the initiative may include—

(1) exposing underrepresented students to role models and near-peer mentors in the STEM fields;

(2) providing for underrepresented student to attend STEM-related events, competitions, and programs;

(3) providing information regarding STEM career opportunities to underrepresented students and their parents;

(4) training informal educators in the use of evidence-based methods for engaging underrepresented students in STEM; and

(5) any other activities described under subsection (b) that the Director considers relevant to underrepresented students.

(e) ELIGIBILITY.—Grants under this section shall be competitively awarded to organizations that provide informal STEM education activities to students in kindergarten through the twelfth grade, such as—

(1) State, local, and non-profit or nongovernmental educational organizations;

(2) institutions of higher education;

(3) other education-oriented organizations, as identified by the Director; and

(4) consortia of any organizations listed in paragraphs (1) through (3).

(f) APPLICATIONS.—An application for funding under this section shall be submitted at such time and in such manner and contain such information as the Director considers necessary. An application shall include, at a minimum—

(1) a description of the student population to be served by the activity;

(2) a description of the process for attracting, recruiting, or selecting student participants;

(3) a description of how funded activities would support research into engaging students, including underrepresented students, in STEM and into promoting their academic achievement;

(4) an evaluation plan consistent with the requirements under subsection (g);

(5) a description of the applicant's experience and expertise in providing informal education activities; and

(6) if an application is relevant to the initiative in subsection (d), a description of the applicant's experience and expertise in increasing the participation of underrepresented students in STEM.

(g) EVALUATIONS.—The Director shall require each grant recipient under this section to submit an evaluation at the conclusion of each fiscal year during which funds are received under this section. The evaluation shall—

(1) include both formative and summative evaluations of the funded activity, as applicable to determining or improving its impact and efficacy;

(2) be in a form prescribed by the Director; and

(3) be submitted to the Director.

(h) RESEARCH IMPACTS.—Each grant under this section shall be relevant to research on student engagement in STEM fields. In ensuring that grants help identify, develop, implement, or propagate best practices in informal STEM education, the Director may establish, as necessary, additional reporting requirements for a grant recipient under this section.

(i) BROADER IMPACTS.—The Director may encourage all research grant recipients, in satisfying the Foundation's Broader Impacts criterion, to dedicate a portion of awarded funds to public engagement activities conducted through sustained collaboration with an informal STEM education organization or initiative.

(j) LIMITATIONS.—A grant under this section may not be used for construction of infrastructure or employee compensation.

(k) COORDINATION.—In carrying out this section, the Director shall consult with other relevant Federal agencies, and cooperate and coordinate with those Federal agencies, as necessary, to enhance program effectiveness and to avoid duplication with the programs and policies of those Federal agencies.

(l) ACCOUNTABILITY AND DISSEMINATION.—Not later than 3 years after the date of enactment of this Act, the Director shall evaluate the grants under this section and, to the extent practicable, identify any research outputs, best practices, and materials developed or demonstrated. Not later than 180 days after the date the evaluation is complete, the Director shall submit to the appropriate committees of Congress and make widely available to the public a report that includes—

(1) the results of the evaluation; and

(2) any recommendations for improving informal STEM education, STEM engagement, and STEM education outcomes among students in kindergarten through twelfth grade.

SEC. 510. BROADENING PARTICIPATION.

(a) IN GENERAL.—The Director shall invest in broadening the participation of underrepresented groups, including minorities, women, and students from rural

areas, in STEM fields. Investments shall include competitively awarded grants—

(1) to support institutions of higher education in providing academic and social support for underrepresented groups;

(2) to facilitate student research activities;

(3) to establish, maintain, and expand partnerships, including research collaborations, between national research laboratories, Federal agencies, industry, and minority-serving institutions (as described in section 371 of part J of title IV of the Higher Education Act of 1965 (20 U.S.C. 1067q(a))), including community colleges;

(4) to promote activities to improve, among parents and students in underrepresented groups, awareness of educational and career opportunities in STEM fields;

(5) to conduct data collection and research activities relevant to recruitment, retention, instruction, and curriculum development in STEM fields; and

(6) to expand those projects that broaden the participation of underrepresented groups in STEM fields.

(b) USE OF FUNDS.—Grants to broaden the participation of underrepresented groups in STEM fields shall support activities such as—

(1) mentoring programs that partner STEM professionals with students;

(2) internships for undergraduate and graduate students in STEM;

(3) outreach programs that provide elementary and secondary school students with exposure to STEM fields; and

(4) additional programs as the Director may determine.

(c) EVALUATION.—The Director, for each broadening participation program or portfolio of programs, shall—

(1) identify and include measurable objectives and milestones in each program's solicitation;

(2) encourage the collection of quantitative data as relevant to the measurable objectives and milestones under paragraph (1);

(3) engage external evaluators in assessing the impact of the program or portfolio against the objectives and milestones under paragraph (1);

(4) ensure that program or portfolio evaluations focus on the impact of the program rather than just the inputs or activities completed; and

(5) whenever practicable, conduct longitudinal or comparison group studies to more clearly demonstrate program or portfolio impacts.

SEC. 511. PRIZES AND CHALLENGES FOR BROADENING PARTICIPATION.

(a) IN GENERAL.—In order to encourage the participation of underrepresented students in STEM fields, the Director may establish a prize or challenge under the America COMPETES Reauthorization Act of 2010 (Public Law 111—358; 124 Stat. 3982) or under any other provision of law, as appropriate.

(b) PURPOSES.—The purpose of a prize or challenge under this section, among other possible purposes, may be—

(1) to recognize institutions of higher education that have achieved sustained improvements in the recruitment, retention, and graduation rates of underrepresented students in STEM fields;

(2) to encourage innovation by institutions of higher education in improving the recruitment, retention, and graduation rates of underrepresented students in STEM fields;

(3) to develop, identify, and broadly distribute best practices in the recruitment, retention, and

graduation rates of underrepresented students in STEM fields; or

(4) to address other issues related to the participation of underrepresented groups in the STEM fields, as the Director considers necessary.

(c) SELECTION.—Each prize award made under this section shall be determined based on proven outcomes for underrepresented students in STEM fields, as demonstrated through rigorous, data-driven evaluation.

SEC. 512. COMMERCIALIZATION GRANTS.

(a) IN GENERAL.—The Director shall continue to award grants to promote the translation of research discoveries into the marketplace.

(b) USE OF FUNDS.—Commercialization grants awarded under this section may be used to fund activities such as—

(1) identifying Foundation-sponsored research and technologies that have the potential for accelerated commercialization;

(2) supporting prior or current Foundation-funded investigators in developing early-stage proofs-of-concept and prototypes of technologies that are derived from Foundation-funded research and have potential market value;

(3) promoting sustainable partnerships between Foundation-funded institutions, industry, and other organizations within academia and the private sector with the purpose of accelerating technology transfer;

(4) developing multi-disciplinary innovation ecosystems which involve and are responsive to specific needs of academia and industry; and

(5) providing professional development, mentoring, and advice in entrepreneurship, project management, and technology and business development to innovators.

(c) ELIGIBILITY.—

(1) IN GENERAL.—The following organizations may be eligible for grants under this section:

(A) Institutions of higher education.

(B) Public technology transfer organizations.

(C) Nonprofit technology transfer organizations.

(D) A consortia of 2 or more of the organizations described under subparagraphs (A) through (C).

(2) LEAD ORGANIZATIONS.—Any eligible organization under paragraph (1) may apply as a lead organization.

(d) APPLICATIONS.—An organization seeking a grant under this section shall be required to meet such requirements and to submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The Director shall—

(1) solicit applications from Foundation grants recipients who have developed technologies with the potential for commercialization; and

(2) seek from Foundation offices and divisions recommendations on outstanding Foundation-funded research with clear potential for commercialization within a 3- to 5-year period.

(e) REPORT.—Not later than 3 years after the date of enactment of this Act, the Director shall—

(1) report to the appropriate committees of Congress on the impact of commercialization grants described under subsections (a) and (b); and

(2) make recommendations on whether and how a technology commercialization fund could be adopted by other Federal research and development agencies.

SEC. 513. NATIONAL SCIENCE FOUNDATION INNOVATION CORPS.

(a) FINDINGS.—Congress makes the following findings:

(1) The National Science Foundation Innovation Corps (referred to in this section as the ''I-Corps'') was established to foster a national innovation ecosystem by encouraging institutions, scientists, engineers, and entrepreneurs to identify and explore the potential of Foundation-funded research well beyond the laboratory.

(2) Through I-Corps, the Foundation invests in entrepreneurship and commercialization education, training, and mentoring that can ultimately lead to the practical deployment of technologies, products, processes, and services that improve the Nation's competitiveness and benefit society.

(b) SENSE OF CONGRESS.—It is the sense of Congress that, in order to promote a strong, lasting foundation for the American innovation ecosystem, I-Corps should continue to build a network of entrepreneurs, educators, mentors, and institutions and support specialized education and training.

(c) EXPANSION OF I-CORPS AND SIMILAR PROGRAMS.—

(1) IN GENERAL.—The Director shall encourage the development and expansion of I-Corps and of other training programs that focus on graduate student professional development, including edu-

cation in product commercialization and entrepreneurship. To facilitate this development and expansion, the Director may establish agreements with other Federal agencies that fund scientific research and development to allow researchers funded by those agencies to participate in the I-Corps program.

(2) TWENTY-FIRST CENTURY GRADUATE EDUCATION.—Sections 527(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-15(b)) is amended—

(A) by striking paragraphs (6) and (7); and

(B) by inserting after paragraph (5) the following:

''(6) development and implementation of seminars, workshops, and other professional development activities that increase the ability of graduate students to engage in innovation, technology transfer, research commercialization, and entrepreneurship;

''(7) development and implementation of seminars, workshops, and other professional development activities that increase the ability of graduate students to effectively communicate their research findings to technical audiences outside of their own dis-

cipline and to nontechnical audiences, including potential commercial partners and investors;''.

SEC. 514. GRADUATE TRAINEESHIP GRANT PROGRAM.

(a) ESTABLISHMENT.—Not later than 1 year after the date of enactment of this Act, the Director shall establish a grant program to incentivize the establishment, improvement, or expansion of qualifying traineeship programs for graduate students.

(b) AWARDS TO ELIGIBLE INSTITUTIONS.—

(1) IN GENERAL.—The Director may award a grant under this section, in an amount determined by the Director, to an eligible institution for the establishment, improvement, or expansion of a qualifying traineeship program.

(2) PARTNERSHIP.—An eligible institution may partner with 1 or more nonprofit education or research organizations, including scientific and engineering societies, for the purposes of carrying out the activities authorized under this section.

(3) USE OF FUNDS.—A grant to an eligible institution may be used—

(A) to provide up to 5 years of student support to trainees , including stipends, tuition and fees, education allowances, and support for ancillary needs; and

(B) to fund permissible activities.

(4) PERMISSIBLE ACTIVITIES.—Activities supported by grants to eligible institutions under this section may include—

(A) designing curricula that combine educational content with professional skill development relevant to a diversity of career pathways;

(B) advancing a multi-disciplinary focus that applies advanced knowledge to problem solving in multiple areas;

(C) providing opportunities for graduate students to gain teamwork, oral communication, planning and project management, writing, presentation, and entrepreneurial skills;

(D) creating advisory committees of employers to provide input and expertise in designing or modifying graduate education programs;

(E) providing graduate students with resources and guidance for a variety of career pathways; and

(F) implementing an accountability and reporting system which tracks enrollment, completion rates, and job placement information for the trainees supported under the traineeship program.

(5) NON-FEDERAL MATCHING.—An eligible institution receiving funding under this section for the establishment, improvement, or expansion of a qualifying traineeship program may be required to contribute non-Federal funds to the effort in an amount that is significant and specified by the Director.

(c) AWARDS TO INDIVIDUALS.—The Director may award a grant under this section to a Foundation-supported principal investigator, graduate student, or postdoctoral fellow, in an amount determined by the Director, to support professional skills development through participation in a qualifying traineeship program.

(d) MERIT REVIEW.—

(1) IN GENERAL.—Each grant awarded under this section shall be provided on a competitive, merit-reviewed basis.

(2) CONSIDERATIONS.—In selecting a qualifying institution to receive a grant under subsection (c), the Director shall consider at a minimum—

(A) the likelihood of success in undertaking the proposed effort at the eligible institution submitting the application;

(B) the evidence of long-term organizational support for the existing or proposed traineeship program; and

(C) the inclusion of plans for the assessment of the existing or proposed traineeship program and for the dissemination of best practices.

(e) EVALUATION.—The Director shall evaluate the traineeship grant program established under this section not later than 6 years after the date the program is established. At a minimum, the Director shall evaluate the extent to which the program has achieved the objective of supporting career development among graduate students.

(f) DEFINITIONS.—In this section:

(1) ELIGIBLE INSTITUTION.—The term ''eligible institution'' means an institution of higher education.

(2) QUALIFYING TRAINEESHIP PROGRAM.—The term ''qualifying traineeship program'' means a traineeship program designed—

(A) to provide graduate students with career experience related to the graduate students' fields of study;

(B) to increase the relevance of academic preparation to national workforce needs, including the needs of industry or Federal, State, or local government;

(C) to support education and experience in entrepreneurship and commercialization; and

(D) to provide for tuition and fees and such stipends and allowances, including travel and subsistence expenses and dependency allowances, for the trainees as the Director considers necessary.

SEC. 515. THE EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH.

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

(1) in paragraph (1)—

(A) by striking ''The National'' and inserting ''the National''; and

(B) by striking ''education,'' and inserting ''education'';

(2) in paragraph (2), by striking ''with 27 States and 2 jurisdictions, taken together, receiving only about 10 percent of all NSF research funding'' and inserting ''with 28 States and 3 jurisdictions, taken together, receiving only about 12 percent of all National Science Foundation research funding'';

(3) by striking paragraph (3); and

(4) by inserting after paragraph (2) the following:

''(3) first established at the National Science Foundation in 1979, the Experimental Program to Stimulate Competitive Research (referred to in this section as 'EPSCoR') assists States and jurisdictions historically underserved by Federal research and development funding in strengthening their research and innovation capabilities;

''(4) The EPSCoR structure requires each participating State to develop a science and technology plan suited to local research, education, and economic interests and objectives;

''(5) EPSCoR has been credited with improving awareness of science, promoting policies that link scientific investment and economic growth, encouraging partnerships between government, industry, and academia, and advancing the research competitiveness of participating States;

''(6) EPSCoR proposals are evaluated through rigorous and competitive merit-review processes to ensure that awarded research efforts meet high scientific standards; and

''(7) according to the National Academy of Sciences, EPSCoR has strengthened the national re-

search infrastructure and enhanced the educational opportunities needed to develop the science and engineering workforce.''.

(b) SENSE OF CONGRESS.—

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

(A) since maintaining the Nation's scientific and economic leadership requires the participation of talented individuals nationwide, EPSCoR investments into State research and education capacities are in the Federal interest and should be sustained; and

(B) EPSCoR should maintain its experimental component by supporting innovative methods for improving research capacity and competitiveness.

(2) DEFINITION OF EPSCOR.—In this subsection, the term ''EPSCoR'' has the meaning given the term in section 502 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p note).

(c) CONTINUATION OF EPSCoR.—Section 517(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-9(b)) is amended to read as follows:

''(b) CONTINUATION OF PROGRAM.—The Director shall continue to carry out EPSCoR, with the objective of helping the eligible States to develop the research infrastructure that will make them more competitive for Foundation research funding. The program shall continue to increase as the National Science Foundation funding increases.''.

(d) AWARD STRUCTURE STUDY.—Section 517 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-9) is amended by adding at the end the following:

''(g) AWARD STRUCTURE PLAN.—In implementing its mandate to maximize the impact of Federal EPSCoR support on building competitive research infrastructure, and based on the inputs and recommendation of previous EPSCoR reviews, the EPSCoR Interagency Coordinating Committee shall develop a plan that, at a minimum—

''(1) considers modifications to EPSCoR proposal solicitation, award type, and project evaluation—

''(A) to better reflect current agency priorities;

''(B) to focus EPSCoR funding on achieving critical scientific, infrastructure, and edu-

cational needs of participating agencies and jurisdictions;

''(C) to encourage collaboration between EPSCoR-funded institutions and researchers, including with institutions and researchers in other States and jurisdictions;

''(D) to improve communication between State and Federal agency proposal reviewers; and

''(E) to continue to reduce administrative burdens associated with EPSCoR;

''(2) considers modifications to EPSCoR award structures—

''(A) to emphasize long-term investments in building research capacity, potentially through the use of larger, renewable funding opportunities; and

''(B) to allow participating agencies, States, and jurisdictions to experiment with new research and development funding models; and

''(3) considers modifications to the mechanisms used to monitor and evaluate EPSCoR awards—

''(A) to increase collaboration between EPSCoR-funded researchers and agency staff,

including by providing opportunities for mentoring young researchers and for the use of Federal facilities;

"(B) to identify and disseminate best practices; and

"(C) to harmonize metrics across participating agencies, as appropriate.".

(e) REPORTS.—

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

(A) by striking subsection (c);

(B) by redesignating subsections (d) through (g) as subsections (c) through (f), respectively; and

(C) by amending subsection (d), as redesignated, to read as follows:

"(d) FEDERAL AGENCY REPORTS.—Each Federal agency that administers an EPSCoR program, as part of its Federal budget submission, shall submit to the appropriate committees of Congress—

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

''(2) a description of the awards made in the previous year, including—

''(A) the total amount made available, by State, under EPSCoR;

''(B) if applicable, the amount of co-funding made available to EPSCoR States;

''(C) the total amount of agency funding made available to all institutions and entities within EPSCoR States;

''(D) the efforts and accomplishments to more fully integrate the EPSCoR States in major agency activities and initiatives;

''(E) the percentage of reviewers and number of new reviewers from EPSCoR States;

''(F) the percentage of new investigators from EPSCoR States; and

''(G) the number of programs or large collaborator awards involving a partnership of organizations and institutions from EPSCoR and non-EPSCoR States; and

''(3) an analysis of the gains in academic research quality and competitiveness, and in science and technology human resource development, achieved by the program in the last year.''.

(2) RESULTS OF AWARD STRUCTURE PLAN.—In its first annual report after the date of enactment of this Act, the EPSCoR Interagency Coordinating Committee shall submit to the appropriate committees of Congress the results of the plan under 517(f) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-9(f)).

(f) DEFINITION OF EPSCOR.—Section 502 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p note) is amended by amending paragraph (2) to read as follows:

''(2) EPSCOR.—The term 'EPSCoR' means—

''(A) the Experimental Program to Stimulate Competitive Research; or

''(B) a program similar to the Experimental Program to Stimulate Competitive Research at another Federal agency.''.

SEC. 516. ASSESSING NATIONAL K-12 SCIENCE AND ENGINEERING PROFICIENCY.

(a) METRICS.—The National Science Board shall assess, for inclusion in the biennial report to the President and Congress under section 4(j) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)), potential metrics for evaluating science and engineering comprehension for grades K–12. In conducting its assessment, the

National Science Board shall consider including metrics that—

(1) assess student understanding of science and engineering practices and their application to real-world situations;

(2) address student comprehension of core science and engineering principles;

(3) emphasize student engagement in and exposure to science and engineering practices;

(4) measure student ability to develop and use science and engineering knowledge.

(b) CONSULTATION.—In conducting its assessment, the National Science Board shall consult Federal, State, local, and private sector experts and draw upon available studies relevant to science and engineering education and assessment.

(c) REPORT.—Not later than 1 year after the date of enactment of this Act, the National Science Board shall transmit to the appropriate committees of Congress a report detailing potential methodologies for assessing trends in national science and engineering proficiency for grades K–12. At a minimum, this report shall include—

(1) a detailed list of recommended metrics for evaluating science and engineering proficiency;

(2) an assessment of any potential costs and challenges in assessing science and engineering proficiency nationally; and

(3) a recommendation on how best, if at all, to integrate the science and engineering proficiency metrics into the report required under section 4(j) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)).

SEC. 517. INTEGRATIVE GRADUATE EDUCATION AND RESEARCH TRAINEESHIP PROGRAM.

Section 510(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1869 note) is amended to read as follows:

''(b) EQUAL TREATMENT OF IGERT AND GRF.—

''(1) RATE OF FUNDING INCREASE.—Beginning in the first fiscal year after the date of enactment of the America COMPETES Reauthorization Act of 2014 and each fiscal year thereafter, the Director may only increase funding for the Foundation's Graduate Research Fellowship program (or any successor thereto), relative to the previous fiscal year's funding level, at the same rate as a corresponding funding increase to the Foundation's Integrative Graduate Education and Research Traineeship program (or any successor thereto).

''(2) ESSENTIAL ELEMENTS OF IGERT.—The essential elements of the Foundation's Integrative Graduate Education and Research Traineeship program (or any successor thereto) shall be maintained, including—

''(A) collaborative research that transcends traditional disciplinary boundaries to solve large and complex research problems of significant scientific and societal importance;

''(B) providing students the opportunity to become leaders in the science and engineering of the future; and

''(C) that U.S. academic institutions in the United States, its territories, or possessions that grant a Ph.D. degree in science, technology, engineering, or mathematics are eligible to be lead institutions.''.

SEC. 518. STEM EDUCATION PARTNERSHIPS.

Section 9 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n) is amended—

(1) in the section heading, by striking ''**MATHEMATICS AND SCIENCE**'' and inserting ''**STEM AND COMPUTING**'';

(2) in subsection (a)—

(A) by striking ''mathematics and science'' each place it appears and inserting ''STEM'';

(B) by striking ''mathematics or science'' each place it appears in and inserting ''STEM'';

(C) by striking ''mathematics, science, and technology'' each place it appears and inserting ''STEM'';

(D) in paragraph (2)(B), by striking ''mathematics, science, or engineering'' and inserting ''STEM'';

(E) in paragraph (3)—

(i) in subparagraph (F), by striking ''professional mathematicians, scientists, and engineers'' and inserting ''STEM professionals'';

(ii) in subparagraph (J), by striking ''mathematicians, scientists, and engineers'' and inserting ''STEM professionals'';

(iii) in subparagraph (K), by striking ''science, technology, engineering, and mathematics'' each place it appears and inserting ''STEM''; and

(iv) in subparagraph (M), by striking ''mathematicians, scientists, and engi-

neers'' and inserting ''STEM professionals'';

(F) in paragraph (5)—

(i) by striking ''SCIENCE'' in the heading and inserting ''STEM'';

(ii) by striking ''science, mathematics, engineering, and technology'' each place it appears and inserting ''STEM''; and

(iii) by striking ''science, mathematics, engineering, or technology'' and inserting ''STEM'';

(G) in paragraph (8), by striking ''scientists, technologists, engineers, or mathematicians'' and inserting ''STEM professionals''; and

(H) in paragraph (10)—

(i) by striking ''science, technology, engineering, and mathematics'' each place it appears and inserting ''STEM''; and

(ii) in subparagraph (A)(ii)(II), by striking ''science, technology, engineering, or mathematics'' and inserting ''STEM'';

(3) in subsection (b)—

(A) by striking ''mathematics and science'' each place it appears and inserting ''STEM'';

(B) in paragraphs (1)(B)(iv), by striking ''mathematics, science, engineering, and technology'' and inserting ''STEM''; and

(C) in paragraph (2)(G), by striking ''mathematics, science, engineering, and technology'' and inserting ''STEM''; and

(4) by amending subsection (d) to read as follows:

''(d) DEFINITIONS.—In this section:

''(1) STEM.—The term 'STEM' means science, technology, engineering, and mathematics, including computing and computer science.

''(2) STEM TEACHER.—The term 'STEM teacher' means a science, technology, engineering, mathematics, or computing teacher at the elementary school or secondary school level.

''(3) SCIENCE.—In the context of elementary and secondary education, the term 'science' includes technology and pre-engineering.''.

Subtitle B—STEM Secondary Schools

SEC. 521. REPORT ON STEM SECONDARY SCHOOLS.

(a) DATABASE.—The Secretary of Education, in coordination with the Director of the National Science Foun-

dation, shall develop a database to identify existing STEM secondary schools.

(b) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary of Education, in coordination with the Director of the National Science Foundation, shall submit a report to Congress with recommendations on how to replicate existing successful STEM secondary schools.

SEC. 522. FUNDING FOR STEM SECONDARY SCHOOLS.

(a) PURPOSE.—The purpose of this section is to increase the number of STEM secondary schools in the United States.

(b) PROGRAM AUTHORIZED.—

(1) IN GENERAL.—The Secretary of Education, in coordination with the Director of the National Science Foundation, shall award grants, on a competitive basis, to State educational agencies to enable the State educational agencies to carry out the purposes of this section by establishing or expanding STEM secondary schools.

(2) GEOGRAPHIC DISTRIBUTION.—The Secretary of Education shall award grants under this section in a manner that ensures geographic diversity, including awarding grants to State educational agencies serving rural areas.

(c) APPLICATION.—A State educational agency desiring to receive a grant under this section shall submit an application to the Secretary of Education at such time, in such manner, and containing such information as the Secretary may require.

(d) USE OF FUNDS.—A State educational agency receiving funds under this section shall use such funds to award subgrants, on a competitive basis, to local educational agencies in the State to enable the local educational agencies to establish and maintain new STEM secondary schools, which may include repurposing an existing secondary school to become a STEM secondary school.

TITLE VI—INNOVATION

Subtitle A—Innovation Ecosystems

SEC. 611. REGIONAL INNOVATION PROGRAM.

(a) LOAN GUARANTEES FOR SCIENCE PARK INFRASTRUCTURE.—Subsection (d) of section 27 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3722) is amended—

(1) by striking paragraphs (1) and (2) and inserting the following:

"(1) IN GENERAL.—Subject to paragraph (2), the Secretary may guarantee one or more loans for projects for the construction or expansion, including

renovation and modernization, of science park infrastructure.

''(2) LIMITATIONS.—

''(A) TYPE.—In guaranteeing a loan pursuant to paragraph (1), the Secretary may only guarantee one of the following:

''(i) Payment of up to 80 percent of the loan principal.

''(ii) Not more than 3 years of debt service payments on the loan.

''(B) SIZE.—The maximum amount of loan principal guaranteed under this subsection may not exceed—

''(i) $50,000,000 with respect to any single project; and

''(ii) $300,000,000 with respect to all projects.'';

(2) in paragraph (4)—

(A) by striking subparagraph (D); and

(B) by redesignating subparagraphs (E) through (G) as subparagraphs (D) through (F), respectively;

(3) by striking paragraph (7) and inserting the following:

''(7) TAX TREATMENT.—Section 149(b) of the Internal Revenue Code of 1986 shall not apply to bonds guaranteed under this subsection.''; and

(4) by amending paragraph (8) to read as follows:

''(8) AUTHORIZATION OF APPROPRIATIONS.—

''(A) IN GENERAL.—There are authorized to be appropriated for the cost (as defined in section 661a(5) of title 2) of guaranteeing loans under this section, amounts as follows:

''(i) $7,000,000 for each of fiscal years 2011 through 2013.

''(ii) $7,000,000 for each of fiscal years 2015 through 2019.

''(B) AVAILABILITY.—Amounts appropriated or otherwise made available pursuant to subparagraph (A) shall remain available for guaranteeing loans as described in such subparagraph until expended.''.

(b) AUTHORIZATION OF APPROPRIATIONS FOR REGIONAL INNOVATION PROGRAM FOR FISCAL YEARS 2015 THROUGH 2019.—Subsection (i) of such section is amended to read as follows:

''(i) AUTHORIZATION OF APPROPRIATIONS.—Except as provided in subsection (d)(8), there are authorized to

be appropriated to carry out this section, other than for loan guarantees under subsection (d), amounts as follows:

''(1) $100,000,000 for each of fiscal years 2011 through 2013.

''(2) $25,000,000 for each of fiscal years 2015 through 2019.''.

(c) REPORT ON REGIONAL INNOVATION CLUSTERS.—Not later than 1 year after the date of the enactment of this Act, the Secretary of Commerce shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Energy and Commerce of the House of Representatives a report describing—

(1) the achievements of the regional innovation clusters formed or developed with the support of grants awarded under subsection (b)(1) of such section; and

(2) the economic benefits and job creation attributable to such regional innovation clusters with, to the extent practical, quantifiable data.

SEC. 612. WORKFORCE STUDIES.

(a) REPORT ON THE STEM WORKFORCE.—

(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Secretary of Commerce, in consultation with the Chair of the Na-

tional Science and Technology Council Committee on STEM Education, shall conduct a study of current and projected deficiencies in the available STEM workforce.

(2) CONTENT.—The study shall include—

(A) an assessment of shortfalls in the availability of STEM professionals within the U.S. workforce, currently and as projected over the next decade, with data categorized by industry or industry sector, as practicable;

(B) an assessment of shortfalls in the availability of STEM professionals within the U.S. workforce, currently and as projected over the next decade, as required to meet the demand for STEM professionals within industry, academia, and the Federal Government;

(C) an assessment of the most common STEM-skill requirements within industry, academia, and the Federal Government, currently and as projected over the next decade;

(D) an identification of—

(i) the STEM skills that are most deficient in the current and projected available STEM workforce; and

(ii) the industries or industry sectors most likely to be affected, over the next decade, by the deficiencies identified under clause (i);

(E) priorities for STEM training, as informed by the assessments and identifications under this section; and

(3) INPUT.—The study shall draw on previous data collection and reports related to STEM workforce needs and deficiencies in the United States, as appropriate.

(4) REPORT.—Not later than 540 days after the date enactment of this Act, the Secretary of Commerce shall report to the appropriate committees of Congress the findings of the study, including any recommendations to update the Federal 5-year STEM education strategic plan to minimize current and projected deficiencies, over the next decade, in the available STEM workforce.

(b) REPEAL.—Section 303 of the America COMPETES Reauthorization Act of 2010 (33 U.S.C. 893c) is repealed.

Subtitle B—National Nanotechnology Initiative

SEC. 621. SHORT TITLE.

This subtitle may be cited as the ''National Nanotechnology Initiative Amendments Act of 2014''.

SEC. 622. FINDINGS.

Congress makes the following findings:

(1) The National Nanotechnology Initiative is a multiagency Federal Government research and development program established in 2001.

(2) The Federal Government continues to invest more in nanotechnology research and development than the government of any other single country.

(3) As of the date of the enactment of this Act, more than $18,000,000,000 has been invested in nanoscience and nanotechnology through the National Nanotechnology Initiative.

(4) Of the 20 agencies participating in the National Nanotechnology Initiative, 11 have budgets for nanotechnology-related research and development.

(5) Research supported by the National Nanotechnology Initiative is advancing our fundamental understanding and techniques to enable the meas-

urement, manipulation, and control of matter at the nanoscale.

(6) In order for United States companies and society to benefit from this research, the National Nanotechnology Initiative needs to support the engineering, scale-up, and commercialization of nanotechnology-enabled materials, devices, systems, and products.

(7) An important achievement of the National Nanotechnology Initiative is the development of an extensive infrastructure of interdisciplinary research, development, and education centers, networks, and user facilities that should be continued, supported, and expanded.

(8) The field of nanotechnology is expanding rapidly and is projected to develop closely with other emerging and converging bio and information technologies, creating new science and engineering domains and manufacturing paradigms.

(9) The United States is the world leader in nanoscience and nanotechnology and the creation of nanotechnology knowledge as measured by the number and quality of scientific papers and patents. However, international indicators, such as foreign government and corporate funding and publications

and patent applications, suggest that the United States is facing increasing global competition in nanotechnology.

(10) The National Nanotechnology Initiative is making an important contribution to the goal of the United States to be the world leader in research, responsible development, and infrastructure relating to nanotechnology and in the commercialization of nanotechnology.

SEC. 623. ENHANCEMENT OF MANAGEMENT OF NATIONAL NANOTECHNOLOGY INITIATIVE.

(a) ESTABLISHMENT OF NANOTECHNOLOGY SIGNATURE INITIATIVES; QUADRENNIAL STRATEGIC PLAN.—Section 2 of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501) is amended—

(1) in subsection (c)—

(A) by redesignating paragraphs (3) through (10) as paragraphs (4) through (11), respectively;

(B) by inserting after paragraph (2) the following:

''(3) establish nanotechnology signature initiatives in focused areas of national importance (as described in subsection (d));''; and

(C) by amending paragraph (5), as redesignated, to read as follows:

''(5) develop, not later than 1 year after the date of the enactment of the National Nanotechnology Initiative Amendments Act of 2014, and update not less frequently than once every 4 years thereafter, a strategic plan to guide the Program activities described under subsection (b) that—

''(A) specifies—

''(i) the overarching goals for the Program;

''(ii) near-term and long-term objectives for the Program; and

''(iii) the metrics to be used for assessing progress toward such objectives;

''(B) describes how the Program will—

''(i) allocate funding for interagency nanotechnology projects;

''(ii) encourage and support interdisciplinary research and development in nanotechnology; and

''(iii) support the engineering, scale-up, and commercialization of nanotechnology necessary to move results out of the laboratory and into applications for the

benefit of society, including through cooperation and collaboration with nanotechnology research, development, and technology transition initiatives supported by the States;

''(C) includes—

''(i) recommendations for research and technology development that could be met through joint industry and government partnership; and

''(ii) plans of participating agencies for categorizing and tracking investments in nanotechnology; and

''(D) addresses recommendations of the Advisory Panel and the National Research Council concerning the Program;''.

(2) by redesignating subsection (d) as subsection (e);

(3) by inserting after subsection (c) the following:

''(d) NANOTECHNOLOGY SIGNATURE INITIATIVES.—

''(1) TEAMS.—The Council shall establish multiagency teams to carry out the nanotechnology signature initiatives established under subsection (c)(3).

''(2) JOINT SOLICITATIONS AND COLLABORATIVE NETWORKS.—Each team established under paragraph (1) shall encourage joint agency solicitations and the establishment of collaborative nanotechnology research and development, user facilities, and education networks.''; and

(4) in subsection (e), as redesignated by subparagraph (B)—

(A) in the matter preceding paragraph (1), by striking ''Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science'' and inserting ''Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives'';

(B) by redesignating paragraphs (3) through (5) as paragraphs (4) through (6), respectively; and

(C) by inserting after paragraph (2) the following:

''(3) the Program budget for the current fiscal year and the proposed Program budget for the next fiscal year for each nanotechnology signature initiative, including a description of each initiative's re-

search goals, strategic plan, expected outcomes for the next fiscal year, and accomplishments;''; and

(5) by adding at the end the following:

''(f) DESIGNATION AS NATIONAL NANOTECHNOLOGY INITIATIVE.—The Program shall also be known as the 'National Nanotechnology Initiative'.''.

(b) APPOINTMENT OF DIRECTOR OF NATIONAL NANOTECHNOLOGY COORDINATION OFFICE AS COCHAIR OF SUBCOMMITTEE ON NANOSCALE SCIENCE, ENGINEERING, AND TECHNOLOGY OF NATIONAL SCIENCE AND TECHNOLOGY COUNCIL.—Section 3 of such Act (15 U.S.C. 7502) is amended by adding at the end the following:

''(d) COCHAIR OF SUBCOMMITTEE ON NANOSCALE SCIENCE, ENGINEERING, AND TECHNOLOGY.—The Director of the Office of Science and Technology Policy shall appoint the Director of the National Nanotechnology Coordination Office as a cochair of the Subcommittee on Nanoscale Science, Engineering, and Technology of the Council.''.

(c) NANOTECHNOLOGY SIGNATURE INITIATIVE DEFINED.—Section 10 of such Act (15 U.S.C. 7509) is amended—

(1) by redesignating paragraphs (1), (2), (3), (4), (5), and (6) as paragraphs (2), (4), (6), (3), (1), and (7), respectively; and

(2) by inserting after paragraph (4), as redesignated, the following:

''(5) NANOTECHNOLOGY SIGNATURE INITIATIVE.—The term 'nanotechnology signature initiative' means a Program initiative established under section 2(c)(3).''.

(d) SENSE OF CONGRESS ON WORKING GROUPS OF THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL.—It is the sense of Congress that the National Science and Technology Council should—

(1) regularly assess the working groups of the Council to ensure that each working group is serving a useful management and coordination role related to the goals and objectives of the strategic plan of the National Nanotechnology Initiative required under section 2(c)(5) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(c)(5)), as amended by subsection (a)(1)(C);

(2) redefine or eliminate working groups that are no longer useful and form new working groups as needed;

(3) consider creating new working groups in the areas of user facility oversight and coordination and education and workforce development; and

(4) consider expanding the charters of the Nanotechnology, Industry Liaison and Innovation Working Group and the Nanotechnology Environment and Health Implications Working Group to enable the groups to address more broadly cross-agency nanotechnology-related policy issues, such as informatics, modeling and simulation, regulatory science, and instrument development.

SEC. 624. QUADRENNIAL REPORTS BY NATIONAL NANOTECHNOLOGY ADVISORY PANEL.

Section 4(d) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7503(d)) is amended to read as follows:

''(d) QUADRENNIAL REPORTS.—Not later than 1 year after the date on which the National Science and Technology Council develops the strategic plan required under section 2(c)(5) and not less frequently than once every 4 years thereafter, the Advisory Panel shall submit a report to the President and Congress that includes—

''(1) the assessments of the Advisory Panel under subsection (c); and

''(2) the recommendations of the Advisory Panel for ways to improve the Program.''.

SEC. 625. QUADRENNIAL EXTERNAL REVIEW OF NATIONAL NANOTECHNOLOGY INITIATIVE.

Section 5 of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7504) is amended to read as follows:

''SEC. 5. QUADRENNIAL EXTERNAL REVIEW OF NATIONAL NANOTECHNOLOGY PROGRAM.

''(a) IN GENERAL.—The Director of the National Nanotechnology Coordination Office shall seek to enter into an arrangement with the National Research Council of the National Academy of Sciences to conduct a quadrennial review of the Program. The Director shall ensure that the arrangement with the National Research Council is concluded in order to allow sufficient time to comply with the reporting requirements under subsection (c).

''(b) SCOPE OF WORK.—The Director shall negotiate with the National Research Council regarding the scope of work to be performed, which shall include—

''(1) a review of the research priorities of the Program, including whether the amount and allocation of funding among program component areas and nanotechnology signature initiatives is appro-

priate to accomplish the Program's goals and objectives;

''(2) an evaluation of the Program's management and coordination across agencies and disciplines, including the effectiveness of the National Nanotechnology Coordination Office in providing technical and administrative support to the Program; and

''(3) an assessment of the Program's success in transferring technology to the private sector and recommendations for improving technology demonstration, transfer, and commercialization.

''(c) QUADRENNIAL REPORTS.—Not later than 913 days after the date on which the development of the strategic plan required under section 2(c)(5) is completed and not less frequently than once every 4 years thereafter, the Director of the National Nanotechnology Coordination Office shall submit a report to the Advisory Panel and Congress that describes the results of the most recent quadrennial review carried out under subsection (a).''.

SEC. 626. NANOTECHNOLOGY TRANSFER, COMMERCIALIZATION, AND ROADMAPS.

(a) TECHNOLOGY TRANSFER AND COMMERCIALIZATION.—The 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501 et seq.) is amended—

(1) by redesignating section 10 as section 13; and

(2) by inserting after section 9 the following:

"SEC. 10. TECHNOLOGY TRANSFER AND COMMERCIALIZATION.

''(a) PUBLIC OUTREACH AND EDUCATION.—

''(1) BY PARTICIPATING AGENCIES.—The Council shall encourage agencies participating in the Program to inform the public about—

''(A) the science, technology, and benefits of nanotechnology; and

''(B) the commercial products enabled by nanotechnology.

''(2) NATIONAL NANOTECHNOLOGY COORDINATION OFFICE.—The Director of the National Nanotechnology Coordination Office shall inform the public about the matters described in paragraph (1).

''(b) ACCESS TO FACILITIES.—

''(1) IN GENERAL.—The Council shall encourage the head of each agency that participates in the Program and supports a Federally owned or operated nanotechnology research center or designated user facility as part of the Program to provide access to such center or facility to a representative of

industry, academia, or other potential user of such center or facility for the purpose of—

''(A) transferring research results;

''(B) demonstrating models of nanoscale- or nanotechnology-enabled products or devices; or

''(C) demonstrative processes for determining proof of concept.

''(2) POLICY.—The head of each agency described in paragraph (1) shall develop a policy on providing access to the centers and facilities described in such paragraph, which shall include whether such access necessitates imposing a user fee.

''(c) SUPPORT OF STANDARDS DEVELOPMENT.—

''(1) IN GENERAL.—The head of an agency participating in the Program shall support the development of domestic and international standards for nanotechnology.

''(2) TRAVEL EXPENSES.—The head of an agency participating in the Program may reimburse the travel expenses of an employee of the agency who participates in activities relating to development under paragraph (1).''.

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

(1) the National Science and Technology Council should encourage groups in nanotechnology-enabled industries to participate in developing technology roadmaps and in partnering to address long-term research and development needs;

(2) when appropriate, agencies participating in the National Nanotechnology Initiative should use the prize authority granted under section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719) to conduct prize competitions in order to spur innovation, solve difficult problems, and advance their core mission; and

(3) to the greatest extent practical, agencies participating in the National Nanotechnology Initiative that conduct a Small Business Innovation Research program or a Small Business Technology Transfer program should—

(A) encourage the submission of applications for nanoscience- and nanotechnology-related projects to such programs; and

(B) utilize authorities under subsections (cc) and (gg) of section 9 of the Small Business Act (15 U.S.C. 638) to accelerate the commer-

cialization of Small Business Innovation Research program and Small Business Technology Transfer program nanoscience and nanotechnology research.

SEC. 627. PUBLICATION OF DATA CONCERNING NANOTECHNOLOGY.

The 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501 et seq.) is amended by inserting after section 10, as added by section 625(a)(2), the following:

''SEC. 11. PUBLICATION OF DATA.

''The National Nanotechnology Coordination Office shall serve as a central repository to collect, track, analyze, and report data regarding—

''(1) the impact of nanotechnology on the United States economy;

''(2) publications concerning nanotechnology;

''(3) patents relating to nanotechnology;

''(4) educational activities relating to nanotechnology; and

''(5) matters concerning the United States workforce and nanotechnology.''.

SEC. 628. NATIONAL SCIENCE FOUNDATION EVALUATION OF INVESTMENTS OF NATIONAL NANOTECHNOLOGY INITIATIVE IN EDUCATION AND WORKFORCE TRAINING.

Not later than 2 years after the date of the enactment of this Act, the National Science Foundation, in cooperation with the Secretary of Education and the Secretary of Labor and working with the Director of the National Nanotechnology Coordination Office, shall—

(1) evaluate the investments of the National Nanotechnology Initiative in education and workforce training; and

(2) submit to Congress a report on the findings of the National Science Foundation with respect to the evaluation carried out under paragraph (1).

SEC. 629. SHARING OF BEST PRACTICES OF CENTERS, NETWORKS, AND USER FACILITIES.

The 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501 et seq.) is amended by inserting after section 11, as added by section 626, the following:

"SEC. 12. SHARING OF BEST PRACTICES OF CENTERS, NETWORKS, AND USER FACILITIES.

''The Council, working with the Director of the National Nanotechnology Coordinating Office, shall periodically convene meetings for nanotechnology related centers,

networks, and user facilities to share best practices regarding—

''(1) strategic planning;

''(2) intellectual property management;

''(3) outreach to industry; and

''(4) technology demonstration, transfer, and commercialization.''.

SEC. 630. SENSE OF CONGRESS REGARDING ENVIRONMENT, HEALTH, AND SAFETY MATTERS CONCERNING NANOTECHNOLOGY.

(a) SENSE OF CONGRESS ON COORDINATION REGARDING ENVIRONMENT, HEALTH, AND SAFETY RESEARCH RELATING TO NANOTECHNOLOGY.—It is the sense of Congress that the National Science and Technology Council should—

(1) coordinate the development by the agencies participating in the National Nanotechnology Initiative of performance measures, targets, time frames, cost estimates and available resources for nanotechnology environment, health, and safety research that align with the research needs of the Initiative, consistent with the agencies' respective statutory authorities; and

(2) include the information described in paragraph (1) in publicly available reports.

(b) SENSE OF CONGRESS ON FUNDING CROSS-AGENCY ACTIVITIES.—It is the sense of Congress that the head of each agency participating in the National Nanotechnology Initiative should consider funding cross-agency activities of the environment, health, and safety program component area, such as partnerships, informatics, regulatory science, nanotoxicology, models, and instrument development.