[DISCUSSION DRAFT]

OCTOBER 28, 2013

113TH CONGRESS
1ST SESSION

H. R. _____

To provide for investment in innovation through research and development and STEM education, to improve the competitiveness of the United States, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

M__. _____ introduced the following bill; which was referred to the Committee on _____

A BILL

To provide for investment in innovation through research and development and STEM education, 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 2013''.

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

TITLE I—OSTP; GOVERNMENTWIDE SCIENCE

Subtitle A—General Provisions

SEC. 101. NATIONAL SCIENCE AND TECHNOLOGY COUNCIL AMENDMENTS.

Section 401 of the National Science and Technology Policy, Organization, and Priorities Act of 1977 (42 U.S.C. 6651) is amended—

(1) in subsection (a), by striking ''Federal Coordinating Council for Science, Engineering, and Technology'' and inserting ''National Science and Technology Council'';

(2) in subsection (b), by striking ''and Energy Research and Development Administration'' and inserting ''Department of Energy, and any other agency designated by the President''; and

(3) in subsection (e)—

(A) by striking ''engineering, and technology'' and inserting ''engineering, technology, innovation, and STEM education'';

(B) in paragraph (1), by striking ''engineering, and technological'' and inserting ''engineering, technological, innovation, and STEM education'';

(C) by redesignating paragraphs (3) and (4) as paragraphs (4) and (5), respectively; and

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

''(3) address research needs identified under paragraph (2) through appropriate funding mechanisms, which many include solicitations involving 2 or more agencies and public-private partnerships;''.

SEC. 102. STREAMLINING UNIVERSITY REGULATIONS.

SEC. 103. PRIZE COMPETITION AMENDMENTS.

Subtitle B—Reauthorization of the National Nanotechnology Initiative

SEC. 111. SHORT TITLE.

This title may be cited as the ''National Nanotechnology Initiative Amendments Act of 2013''.

SEC. 112. NATIONAL NANOTECHNOLOGY PROGRAM AMENDMENTS.

The 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501 et seq.) is amended—

(1) in section 2—

(A) in subsection (c), by amending paragraph (4) to read as follows:

''(4) develop, and update every 3 years thereafter, a strategic plan to guide the activities described under subsection (b) that specifies near-term and long-term objectives for the Program, the anticipated timeframe for achieving the near-term objectives, and the metrics to be used for assessing progress toward the objectives, and that describes—

''(A) how the Program will move results out of the laboratory and into applications for the benefit of society, including through cooperation and collaborations with nanotechnology research, development, and technology transition initiatives supported by the States;

''(B) how the Program will encourage and support interdisciplinary research and development in nanotechnology; and

''(C) proposed research in areas of national importance in accordance with the requirements

of section 116 of the National Nanotechnology Initiative Amendments Act of 2013;'';

(B) in subsection (d)—

(i) by redesignating paragraphs (1) through (5) as paragraphs (2) through (6), respectively;

(ii) by inserting before paragraph (2), as redesignated by clause (i), the following:

''(1) the Program budget, for the previous fiscal year, for each agency that participates in the Program, including a breakout of spending for the development and acquisition of research facilities and instrumentation, for each program component area, and for all activities pursuant to subsection (b)(10);''; and

(iii) by amending paragraph (6), as redesignated by clause (i), to read as follows:

''(6) an assessment of how Federal agencies are implementing the plan described in subsection (c)(7), a description of the amount of Small Business Innovative Research and Small Business Technology Transfer Research funds supporting the plan, and a description of the projects which received pri-

vate sector funding beyond the period of phase II support.''; and

(C) by adding at the end the following new subsection:

''(e) STANDARDS SETTING.—The agencies participating in the Program shall support the activities of committees involved in the development of standards for nanotechnology and may reimburse the travel costs of scientists and engineers who participate in activities of such committees.'';

(2) in section 3—

(A) by amending subsection (b)(1) to read as follows:

''(b) FUNDING.—

''(1) IN GENERAL.—The operation of the National Nanotechnology Coordination Office shall be supported by funds from each agency participating in the Program.

''(2) PROPORTION.—The portion of such Office's total budget provided by each agency for each fiscal year shall be in the same proportion as the agency's share of the total budget for the Program for the previous fiscal year, as specified in the report required under section 2(d)(1).

''(3) MINIMUM CONTRIBUTION.—The Director of the National Nanotechnology Coordination Office may establish a minimum contribution for participating agencies whose share of the total budget for the Program is below a threshold level, to be set by the Director.''; and

(B) by adding at the end the following new subsection:

''(d) PUBLIC INFORMATION.—

''(1) DATABASE.—

''(A) IN GENERAL.—The National Nanotechnology Coordination Office shall develop and maintain a database accessible by the public of projects funded under at least the Environmental, Health, and Safety program component area, or any successor program component area, including a description of each project, its source of funding by agency, and its funding history.

''(B) ORGANIZATION.—Projects shall be grouped by major objective as defined by the research plan required under section 3(b) of the National Nanotechnology Initiative Amendments Act of 2013.

''(2) ACCESSIBLE FACILITIES.—

''(A) IN GENERAL.—The National Nanotechnology Coordination Office shall develop, maintain, and publicize information on nanotechnology facilities supported under the Program, and may include information on nanotechnology facilities supported by the States, that are accessible for use by individuals from academic institutions and from industry.

''(B) WEBSITES.—The National Nanotechnology Coordination Office shall maintain active web links to the websites for each of these facilities and shall work with each facility supported under the Program to ensure that each facility publishes on its respective website updated information on the terms and conditions for the use of the facility, a description of the capabilities of the instruments and equipment available for use at the facility, and a description of the technical support available to assist users of the facility.'';

(3) in section 4—

(A) in subsection (a), by adding at the end the following: ''The co-chairs of the Advisory Panel shall meet the qualifications of Panel membership required in subsection (b) and may

be members of the President's Council of Advisors on Science and Technology. The Advisory Panel shall include members having specific qualifications tailored to enable it to carry out the requirements of subsection (c)(6).'';

(B) in subsection (c)—

(i) by striking paragraph (1); and

(ii) by redesignating paragraphs (2) through (7) as paragraphs (1) through (6), respectively; and

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

''(d) REPORTS.—The Advisory Panel shall report not less frequently than every 3 years, and, to the extent practicable, 1 year following each of the National Research Council triennial reviews required under section 5, to the President on its assessments under subsection (c) and its recommendations for ways to improve the Program. The Director of the Office of Science and Technology Policy shall transmit a copy of each report under this subsection to the Committee on Commerce, Science, and Transportation of the Senate, the Committee on Science, Space, and Technology of the House of Representatives, and other appropriate committees of the Congress.'';

(4) by amending section 5 to read as follows:

"SEC. 5. TRIENNIAL EXTERNAL REVIEW OF THE NATIONAL NANOTECHNOLOGY PROGRAM.

''(a) IN GENERAL.—The Director of the National Nanotechnology Coordination Office shall enter into an arrangement with the National Research Council of the National Academy of Sciences to conduct a triennial review of the Program. The Director shall ensure that the arrangement with the National Research Council is concluded in order to allow sufficient time for the reporting requirements of subsection (b) to be satisfied. Each triennial review shall include an evaluation of the—

''(1) research priorities and technical content of the Program, including whether the allocation of funding among program component areas, as designated according to section 2(c)(2), is appropriate;

''(2) Program's scientific and technological accomplishments and its success in transferring technology to the private sector; and

''(3) adequacy of the Program's activities addressing ethical, legal, environmental, and other appropriate societal concerns, including human health concerns.

''(b) PRIORITY REPORTS.—If the Director of the National Nanotechnology Coordination Office, working with the National Research Council and with input from the Advisory Panel, determines that a more narrowly focused

review of the Program is in the best interests of the Program, the Director may enter into such an arrangement with the National Research Council in lieu of a full review as required under subsection (a), but not more often than every second triennial review.

''(c) EVALUATION TO BE TRANSMITTED TO CONGRESS.—The National Research Council shall document the results of each triennial review carried out in accordance with this section in a report that includes any recommendations for changes to the Program's objectives, technical content, or other policy or Program changes. Each report shall be submitted to the Director of the National Nanotechnology Coordination Office, who shall transmit it to the Advisory Panel, the Committee on Commerce, Science, and Transportation of the Senate, and the Committee on Science, Space, and Technology of the House of Representatives.

''(d) FUNDING.—Of the amounts provided in accordance with section 3(b)(1), the following amounts shall be available to carry out this section:

''(1) $500,000 for fiscal year 2014.

''(2) $500,000 for fiscal year 2015.

''(3) $500,000 for fiscal year 2016.''; and

(5) in section 10—

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

''(2) NANOTECHNOLOGY.—The term 'nanotechnology' means the science and technology that will enable one to understand, measure, manipulate, and manufacture at the nanoscale, aimed at creating materials, devices, and systems with fundamentally new properties or functions.''; and

(B) by adding at the end the following new paragraph:

''(7) NANOSCALE.—The term 'nanoscale' means one or more dimensions of between approximately 1 and 100 nanometers.''.

SEC. 113. SOCIETAL DIMENSIONS OF NANOTECHNOLOGY.

(a) COORDINATOR FOR ENVIRONMENTAL, HEALTH, AND SAFETY RESEARCH.—The Director of the Office of Science and Technology Policy shall designate an associate director of the Office of Science and Technology Policy or other appropriate senior government official as the Coordinator for Environmental, Health, and Safety Research. The Coordinator shall be responsible for oversight of the coordination, planning, and budget prioritization of research and other activities related to environmental, health, safety, and other appropriate societal concerns re-

lated to nanotechnology. The responsibilities of the Coordinator shall include—

(1) ensuring that a research plan for the environmental, health, and safety research activities required under subsection (b) is developed, updated, and implemented and that the plan is responsive to the recommendations of the Advisory Panel established under section 4(a) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7503(a));

(2) encouraging and monitoring the efforts of the agencies participating in the Program to allocate the level of resources and management attention necessary to ensure that the environmental, health, safety, and other appropriate societal concerns related to nanotechnology are addressed under the Program, including the implementation of the research plan described in subsection (b); and

(3) encouraging the agencies required to develop the research plan under subsection (b) to identify, assess, and implement suitable mechanisms for the establishment of public-private partnerships and international partnerships for support of environmental, health, and safety research.

(b) RESEARCH PLAN.—

(1) IN GENERAL.—The Coordinator for Environmental, Health, and Safety Research shall convene and chair a panel comprised of representatives from the agencies funding research activities under the Environmental, Health, and Safety program component area of the Program, or any successor program component area, and from such other agencies as the Coordinator considers necessary to develop, periodically update, and coordinate the implementation of a research plan for this program component area. Such panel may be a subgroup of the Nanoscale Science, Engineering, and Technology Subcommittee of the National Science and Technology Council. In developing and updating the plan, the panel convened by the Coordinator shall solicit and be responsive to recommendations and advice from—

(A) the Advisory Panel established under section 4(a) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7503(a)); and

(B) the agencies responsible for environmental, health, and safety regulations associated with the production, use, and disposal of nanoscale materials and products.

(2) DEVELOPMENT OF STANDARDS.—The plan required under paragraph (1) shall include a description of how the Program will help to ensure the development of—

(A) standards related to nomenclature associated with engineered nanoscale materials;

(B) engineered nanoscale standard reference materials for environmental, health, and safety testing; and

(C) standards related to methods and procedures for detecting, measuring, monitoring, sampling, and testing engineered nanoscale materials for environmental, health, and safety impacts.

(3) COMPONENTS OF PLAN.—The plan required under paragraph (1) shall, with respect to activities described in paragraphs (1) and (2)—

(A) specify near-term research objectives and long-term research objectives;

(B) specify milestones associated with each near-term objective and the estimated time and resources required to reach each milestone;

(C) with respect to subparagraphs (A) and (B), describe the role of each agency carrying out or sponsoring research in order to meet the

objectives specified under subparagraph (A) and to achieve the milestones specified under subparagraph (B); and

(D) specify the funding allocated to each major objective of the plan and the source of funding by agency for the current fiscal year.

(4) TRANSMITTAL TO CONGRESS.—Not later than 6 months after the date of enactment of this Act, the plan required under paragraph (1) shall be transmitted to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives.

(5) UPDATING AND APPENDING TO REPORT.—The plan required under paragraph (1) shall be updated at least every 3 years and may be submitted as part of the report required under section 2(c)(4) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(c)(4)).

SEC. 114. NANOTECHNOLOGY EDUCATION.

(a) UNDERGRADUATE EDUCATION PROGRAMS.—As part of the activities included under the Education and Societal Dimensions program component area, or any successor program component area, the Program shall support efforts to introduce nanoscale science, engineering,

and technology into undergraduate science and engineering education through a variety of interdisciplinary approaches. Activities supported may include—

(1) development of courses of instruction or modules to existing courses;

(2) faculty professional development; and

(3) acquisition of equipment and instrumentation suitable for undergraduate education and research in nanotechnology.

(b) INTERAGENCY COORDINATION OF EDUCATION.—The Nanoscale Science, Engineering, and Technology Subcommittee of the National Science and Technology Council shall coordinate, as appropriate, with the Committee on Science, Technology, Engineering, and Math Education to prioritize, plan, and assess the educational activities supported under the Program.

(c) SOCIETAL DIMENSIONS IN NANOTECHNOLOGY EDUCATION ACTIVITIES.—Activities supported under the Education and Societal Dimensions program component area, or any successor program component area, that involve informal, precollege, or undergraduate nanotechnology education shall include education regarding the environmental, health and safety, and other societal aspects of nanotechnology.

(d) REMOTE ACCESS TO NANOTECHNOLOGY FACILITIES.—

(1) IN GENERAL.—Agencies supporting nanotechnology research facilities as part of the Program shall require the entities that operate such facilities to allow access via the Internet, and support the costs associated with the provision of such access, by secondary school students and teachers, to instruments and equipment within such facilities for educational purposes. The agencies may waive this requirement for cases when particular facilities would be inappropriate for educational purposes or the costs for providing such access would be prohibitive.

(2) PROCEDURES.—The agencies identified in paragraph (1) shall require the entities that operate such nanotechnology research facilities to establish and publish procedures, guidelines, and conditions for the submission and approval of applications for the use of the facilities for the purpose identified in paragraph (1) and shall authorize personnel who operate the facilities to provide necessary technical support to students and teachers.

SEC. 115. TECHNOLOGY TRANSFER.

(a) PROTOTYPING.—

(1) ACCESS TO FACILITIES.—In accordance with section 2(b)(7) of 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(b)(7)), the agencies supporting nanotechnology research facilities as part of the Program shall provide access to such facilities to companies for the purpose of assisting the companies in the development of prototypes of nanoscale products, devices, or processes (or products, devices, or processes enabled by nanotechnology) for determining proof of concept. The agencies shall publicize the availability of these facilities and encourage their use by companies as provided for in this section.

(2) PROCEDURES.—The agencies identified in paragraph (1)—

(A) shall establish and publish procedures, guidelines, and conditions for the submission and approval of applications for use of nanotechnology facilities;

(B) shall publish descriptions of the capabilities of facilities available for use under this subsection, including the availability of technical support; and

(C) may waive recovery, require full recovery, or require partial recovery of the costs as-

sociated with use of the facilities for projects under this subsection.

(3) SELECTION AND CRITERIA.—

(A) IN GENERAL.—In cases when less than full cost recovery is required pursuant to paragraph (2)(C), projects provided access to nanotechnology facilities in accordance with this subsection shall be selected through a competitive, merit-based process, and the criteria for the selection of such projects shall include at a minimum—

(i) the readiness of the project for technology demonstration;

(ii) evidence of a commitment by the applicant for further development of the project to full commercialization if the proof of concept is established by the prototype; and

(iii) evidence of the potential for further funding from private sector sources following the successful demonstration of proof of concept.

(B) SPECIAL CONSIDERATION.—The agencies may give special consideration in selecting

projects to applications that are relevant to important national needs or requirements.

(b) COLLABORATION WITH INDUSTRY.—The Program shall coordinate with industry from all industrial sectors that would benefit from applications of nanotechnology by—

(1) enhancing communication of information related to nanotechnology innovation, including information about research, education and training, manufacturing issues, and market-driven needs;

(2) advancing and accelerating the creation of new products and manufacturing processes derived from discovery at the nanoscale by working with industry, including small and medium-sized manufacturers;

(3) developing innovative methods for transferring nanotechnology products and processes from Federal agencies to industry; and

(4) facilitating industry-led partnerships between the Program and industry sectors, including regional partnerships.

(d) COORDINATION WITH STATE INITIATIVES.—Section 2(b)(5) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(b)(5)) is amended to read as follows:

''(5) ensuring United States global leadership in the development and application of nanotechnology, including through the coordination and leveraging of Federal investments with nanotechnology research, development, and technology transition initiatives supported by the States;''.

SEC. 116. SIGNATURE INITIATIVES IN AREAS OF NATIONAL IMPORTANCE.

(a) IN GENERAL.—The Program shall include support for nanotechnology research and development activities directed toward application areas that have the potential for significant contributions to national economic competitiveness and for other significant societal benefits. The activities supported shall be designed to advance the development of research discoveries by demonstrating technical solutions to important problems in such areas as nanoelectronics, energy efficiency, solar energy, health care, and water remediation and purification. The Advisory Panel shall make recommendations to the Program for candidate research and development areas for support under this section.

(b) CHARACTERISTICS.—

(1) IN GENERAL.—Research and development activities under this section shall—

(A) include projects selected on the basis of applications for support through a competitive, merit-based process;

(B) involve collaborations among researchers in academic institutions and industry, and may involve nonprofit research institutions and Federal laboratories, as appropriate;

(C) when possible, leverage Federal investments through collaboration with related State initiatives; and

(D) include a plan for fostering the transfer of research discoveries and the results of technology demonstration activities to industry for commercial development.

(2) PROCEDURES.—To the extent practicable, determination of the requirements for applications under this section, review and selection of applications for support, and subsequent funding of projects shall be carried out by a collaboration of no fewer than 2 agencies participating in the Program. In selecting applications for support, agencies may, as appropriate, give special consideration to projects that include cost sharing from non-Federal sources.

(3) INTERDISCIPLINARY RESEARCH CENTERS.—Research and development activities under this sec-

tion may be supported through interdisciplinary nanotechnology research centers, as authorized by section 2(b)(4) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(b)(4)), that are organized to investigate basic research questions and carry out technology demonstration activities in areas such as those identified in subsection (a).

(c) REPORT.—Reports required under section 2(d) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(d)) shall include a description of research and development areas supported in accordance with this section, including the same budget information as is required for program component areas under paragraphs (1) and (2) of such section 2(d).

SEC. 117. NANOMANUFACTURING RESEARCH.

(a) RESEARCH AREAS.—The Program shall include research on—

(1) the development of instrumentation and tools required for the rapid characterization of nanoscale materials and for monitoring of nanoscale manufacturing processes; and

(2) approaches and techniques for scaling the synthesis of new nanoscale materials to achieve industrial-level production rates.

(b) GREEN NANOTECHNOLOGY.—Interdisciplinary research centers supported under the Program in accordance with section 2(b)(4) of the 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501(b)(4)) that are focused on nanomanufacturing research and centers established under the authority of section 116(b)(3) of this Act shall include as part of the activities of such centers—

(1) research on methods and approaches to develop environmentally benign nanoscale products and nanoscale manufacturing processes, taking into consideration relevant findings and results of research supported under the Environmental, Health, and Safety program component area, or any successor program component area;

(2) fostering the transfer of the results of such research to industry; and

(3) providing for the education of scientists and engineers through interdisciplinary studies in the principles and techniques for the design and development of environmentally benign nanoscale products and processes.

SEC. 118. DEFINITIONS.

In this subtitle, terms that are defined in section 10 of the 21st Century Nanotechnology Research and Devel-

opment Act (15 U.S.C. 7509) have the meaning given those terms in that section.

TITLE II—STEM EDUCATION AND DIVERSITY

Subtitle A—STEM Education and Workforce

SEC. 201. SENSE OF CONGRESS.

(a) FISCAL YEAR 2014 BUDGET PROPOSAL.—It is the sense of Congress that Federal agencies need to develop and implement a comprehensive Federal STEM education strategy that focuses on leveraging the limited STEM education funding and other assets we have to invest for maximum student learning benefit, and that such a strategy will involve a reorganization of the current portfolio of Federal STEM investments. However, it is the sense of Congress that the Administration's fiscal year 2014 proposal to consolidate or eliminate 120 STEM programs across 14 Federal agencies lacked input or support from the Federal agencies and the stakeholder communities implicated in the proposal, was not based on evidence about program effectiveness, lacks clarity in how it will meet the goals of the strategic plan required in the America COMPETES Reauthorization Act of 2010, and is not an adequate basis for implementing changes to existing agency and interagency STEM activities.

(b) CoSTEM.—It is the sense of Congress that the National Science and Technology Council's Committee on STEM Education (CoSTEM), required under the America COMPETES Reauthorization Act of 2010, has taken important initial steps toward developing a comprehensive and defensible strategic plan through its completion of its first ''Federal STEM Education 5-Year Strategic Plan,'' but that much more work must be done to develop a clear evidence base for reorganization decisions and to solicit and take into account views and experience from stakeholders who help implement or are the beneficiaries of Federal STEM programs across the Nation. It is further the sense of Congress that agencies, through CoSTEM, should play a leading role in developing the Administration's budget proposals for STEM education just as they play a leading role in developing the budget proposals for other major interagency initiatives, such as the National Nanotechnology Initiative.

(c) Mission Agencies.—It is the sense of Congress that science mission agencies such as the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, and the Department of Energy are essential partners in contributing to the goals and implementation of a Federal STEM strategic plan because such agencies have unique scientific and techno-

logical facilities as well as highly trained scientists who are eager and able to contribute to improved STEM learning outcomes in their own communities. It is further the sense of Congress that the Department of Education can play an important role in implementing any Federal STEM education strategy because of its unique relationship with States, local educational agencies, schools, and institutions of higher education, as well as its capacity to scale and disseminate proven programs and models, but that the Department must take steps to build capacity in STEM education to maximize the effectiveness of any Governmentwide leadership role in K-12 STEM education.

SEC. 202. COORDINATION OF FEDERAL STEM EDUCATION.

Section 101 of America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621) is amended—

(1) in subsection (b)(5)—

(A) by redesignating subparagraphs (A) through (D) as subparagraphs (B) through (E), respectively; and

(B) by inserting before subparagraph (B), as so redesigned by subparagraph (A) of this paragraph, the following new subparagraph:

''(A) have as its primary goal to leverage the limited STEM education funding and other assets, including intellectual capital, invested by

Federal STEM agencies for maximum benefit to student learning;'';

(2) by striking the second subsection (b);

(3) by redesignating subsection (c) as subsection (f);

(4) by inserting after subsection (b), the following new subsections:

''(c) COORDINATOR FOR STEM EDUCATION.—The Director of the Office of Science and Technology Policy shall designate an associate director of the Office of Science and Technology Policy as the Coordinator for STEM Education. The Coordinator shall chair the committee established under subsection (a). The Coordinator shall, with the assistance of appropriate senior officials from other Committee on STEM Education agencies, ensure that the requirements of this section are satisfied.

''(d) STAKEHOLDER INPUT.—

''(1) INTERAGENCY CONSOLIDATION.—For all agency proposals to consolidate or transfer budgets or functions for STEM education programs or activities between agencies, at the time of submission of such proposals to Congress, the Director shall report to Congress on activities undertaken by the Office of Science and Technology Policy or by relevant agencies to solicit and take into consideration input

on such proposals from the STEM Education Advisory Panel established under subsection (e) and other relevant education stakeholders.

''(2) INTRAAGENCY CONSOLIDATION.—For all agency proposals to internally consolidate or terminate STEM education programs with budgets exceeding $3,000,000, at the time of submission of such proposals to Congress, the head of the relevant agency shall report to Congress on activities to solicit and take into consideration input on such proposals from the STEM Education Advisory Panel established under subsection (e) and other relevant education stakeholders.

''(e) STEM EDUCATION ADVISORY PANEL.—

''(1) IN GENERAL.—The President shall establish or designate a STEM Education Advisory Panel. The cochairs of the Advisory Panel shall meet the qualifications of Panel membership required in paragraph (2) and may be members of the President's Council of Advisors on Science and Technology.

''(2) QUALIFICATIONS.—The Advisory Panel established or designated by the President under this subsection shall consist of members from academic institutions, industry, informal education providers,

nonprofit STEM education organizations, foundations, and local and State educational agencies. Members of the Advisory Panel shall be qualified to provide advice on Federal STEM education programs, best practices in STEM education, assessment of STEM education programs, STEM education standards, industry needs for STEM graduates, and public-private STEM education partnerships.

''(3) DUTIES.—The Advisory Panel shall advise the President and the committee established under subsection (a) on implementing the Federal STEM education strategic plan required under subsection (b)(5) and coordinating Federal STEM programs with nongovernmental STEM initiatives and State and local educational agencies.

''(4) REPORT.—The Advisory Panel shall report, not more than 1 year after enactment of the America Competes Reauthorization Act of 2013, on options for evidence-based implementation of the Federal STEM strategic plan required under subsection (b)(5), including options for designating certain agencies as coordinating leads for different priority investment areas, timelines for implementation, and specific management, budget, policy, or other

steps that agencies must take to effectively implement the strategic plan.

''(5) SUNSET.—The authorization for the Advisory Panel established under this subsection shall expire 3 years after the date of enactment of the America Competes Reauthorization Act of 2013.''; and

(5) in subsection (f), as so redesignated by paragraph (3) of this section—

(A) by inserting ''progress made in implementing'' after ''describing'';

(B) by striking paragraph (3); and

(C) by redesignating paragraphs (4) and (5) as paragraphs (3) and (4), respectively.

SEC. 203. GRAND CHALLENGES IN EDUCATION RESEARCH.

(a) IN GENERAL.—The Director of the National Science Foundation and the Secretary of Education shall collaborate in—

(1) identifying, prioritizing, and developing strategies to address grand challenges in research and development, including assessment, on the teaching and learning of STEM at the pre-K-12 level, in formal and informal settings, for diverse learning populations, including individuals identified in section 33 or 34 of the Science and Engineering

Equal Opportunities Act (42 U.S.C. 1885a or 1885b); and

(2) ensuring the dissemination and promoting the utilization of the results of such research and development.

(b) STAKEHOLDER INPUT.—In identifying the grand challenges under subsection (a), the Director and the Secretary shall—

(1) take into consideration critical research gaps identified in existing reports, including reports by the National Academies, on the teaching and learning of STEM at the pre-K-12 level in formal and informal settings; and

(2) solicit input from a wide range of stakeholders, including officials from State educational agencies and local educational agencies, STEM teachers, STEM education researchers, scientific and engineering societies, STEM faculty at institutions of higher education, informal STEM education providers, businesses with a large STEM workforce, and other stakeholders in the teaching and learning of STEM at the pre-K-12 level, and may enter into an arrangement with the National Research Council for these purposes.

(c) TOPICS TO CONSIDER.—In identifying the grand challenges under subsection (a), the Director and the Secretary shall, at a minimum, consider research and development on—

(1) scalability, sustainability, and replication of successful STEM activities, programs, and models, in formal and informal environments;

(2) model systems that support improved teaching and learning of STEM across entire local educational agencies and States, and encompassing and integrating the teaching and learning of STEM in formal and informal venues;

(3) implementation of new State mathematics and science standards;

(4) what makes a STEM teacher effective and STEM teacher professional development effective, including development of tools and methodologies to measure STEM teacher effectiveness;

(5) cyber-enabled and other technology tools for teaching and learning, including massive open online courses;

(6) STEM teaching and learning in informal environments, including development of tools and methodologies for assessing STEM teaching and learning in informal environments; and

(7) how integrating engineering with mathematics and science education may—

(A) improve student learning of mathematics and science;

(B) increase student interest and persistence in STEM; or

(C) improve student understanding of engineering design principles and of the built world.

(d) REPORT TO CONGRESS.—Not later than 12 months after the date of enactment of this Act, the Director and the Secretary shall report to Congress with a description of—

(1) the grand challenges identified pursuant to this section;

(2) the role of each agency in supporting research and development activities to address the grand challenges;

(3) the common metrics that will be used to assess progress toward meeting the grand challenges;

(4) plans for periodically updating the grand challenges;

(5) how the agencies will disseminate and promote the utilization of the results of research and development activities carried out under this section to STEM education practitioners, to other Federal

agencies that support STEM programs and activities, and to non-Federal funders of STEM education; and

(6) how the agencies will support implementation of best practices identified by the research and development activities.

SEC. 204. ESTABLISHMENT OF THE ADVANCED RESEARCH PROJECT AGENCY-EDUCATION.

(a) PROGRAM ESTABLISHED.—From the amounts appropriated for section 14007 of division A of the American Recovery and Reinvestment Act of 2009 (Public Law 111–5), the Secretary of Education may reserve up to 30 percent to—

(1) establish and carry out the Advanced Research Projects Agency-Education (in this section referred to as ''ARPA–ED'') to—

(A) identify and promote advances in learning, fundamental and applied sciences, and engineering that may be translated into new learning technologies;

(B) develop, test, and evaluate new learning technologies and related processes; and

(C) accelerate transformational technological advances in education;

(2) convene an advisory panel under subsection (d); and

(3) carry out the evaluation and dissemination requirements under subsection (e).

(b) APPOINTMENTS.—

(1) DIRECTOR.—ARPA–ED shall be under the direction of the Director of ARPA–ED, who shall be appointed by the Secretary.

(2) QUALIFIED INDIVIDUALS.—The Secretary shall appoint, for a term of not more than 4 years, qualified individuals who represent scientific, engineering, professional, and other personnel with expertise in carrying out the activities described in this section to positions in ARPA–ED, at rates of compensation determined by the Secretary, without regard to the provisions of title 5, United States Code, except that such rates of compensation shall not to exceed the rate for level I of the Executive Schedule under section 5312 of such title.

(c) FUNCTIONS OF ARPA–ED.—Upon consultation with the advisory panel convened under subsection (d), the Secretary shall select public and private entities to carry out the activities described in subsection (a)(1) by—

(1) awarding such entities grants, contracts, cooperative agreements, or cash prizes; or

(2) entering into such other transactions with such entities as the Secretary may prescribe in regulations.

(d) ADVISORY PANEL.—

(1) IN GENERAL.—The Secretary shall convene an advisory panel to advise and consult with the Secretary, the Director, and the qualified individuals appointed under subsection (b)(2) on—

(A) ensuring that the awards made and transaction entered into under subsection (c) are consistent with the purposes described in subsection (a)(1); and

(B) ensuring the relevance, accessibility, and utility of such awards and transactions to education practitioners.

(2) APPOINTMENT OF MEMBERS.—The Secretary shall appoint the following qualified individuals to serve on the advisory panel:

(A) Education practitioners.

(B) Experts in technology.

(C) Specialists in rapid gains in student achievement and school turnaround.

(D) Specialists in personalized learning.

(E) Researchers, including at least one representative from a comprehensive center es-

tablished under section 203 of the Educational Technical Assistance Act of 2002 (20 U.S.C. 9602) or the regional laboratories system established under section 174 of the Education Sciences Reform Act (20 U.S.C. 9564).

(F) Other individuals with expertise who will contribute to the overall rigor and quality of ARPA–ED.

(3) APPLICABILITY OF FACA.—The Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the panel convened under this subsection and any appointee to such panel shall not be considered an ''employee'' under section 2105 of title 5, United States Code.

(e) EVALUATION AND DISSEMINATION.—

(1) EVALUATION.—The Secretary shall obtain independent, periodic, and rigorous evaluation of—

(A) the effectiveness of the processes ARPA–Ed is using to achieve the purposes described in subsection (a)(1);

(B) the relevance, accessibility, and utility of the awards made and transactions entered into under subsection (c) to education practitioners; and

(C) the effectiveness of the projects carried out through such awards and transactions, using evidence standards developed in consultation with the Institute of Education Sciences, and the suitability of such projects for further investment or increased scale.

(2) DISSEMINATION AND USE.—The Secretary shall disseminate information to education practitioners, including teachers, principals, and local and State superintendents, on effective practices and technologies developed under ARPA–ED, as appropriate, through—

(A) the comprehensive centers established under 203 of the Educational Technical Assistance Act of 2002 (20 U.S.C. 9602);

(B) the regional laboratories system established under section 174 of the Education Sciences Reform Act (20 U.S.C. 9564); and

(C) such other means as the Secretary determines to be appropriate.

(f) ADMINISTRATIVE REQUIREMENTS.—Notwithstanding section 437(d) of the General Education Provisions Act (20 U.S.C. 1232(d)), the Secretary shall establish such processes as may be necessary for the Secretary to manage and administer ARPA–ED, which are not con-

strained by other Department-wide administrative requirements that may prevent ARPA–ED from carrying out the purposes described in subsection (a)(1).

(g) DEFINITIONS.—For purposes of this section:

(1) DEPARTMENT.—The term ''Department'' means the Department of Education.

(2) DIRECTOR.—The term ''Director'' means the Director of ARPA–ED.

(3) SECRETARY.—The term ''Secretary'' means the Secretary of Education.

SEC. 205. COMMUNITY COLLEGE AND INDUSTRY PARTNERSHIPS PILOT GRANT PROGRAM.

(a) ESTABLISHMENT.—The Secretary of Labor shall establish a competitive grant pilot program for the purpose of developing, offering, improving, or providing educational or career training programs for workers.

(b) ELIGIBLE ENTITY.—

(1) IN GENERAL.—Entities eligible for a grant under this section are any of the following (or a consortium of any of the following) in partnership with employers or an association of employers—

(A) a junior or community college (as defined in section 312(f) of the Higher Education Act of 1965 (20 U.S.C. 1085(f)));

(B) a postsecondary vocational institution (as defined in section 102(c) of the Higher Education Act of 1965 (20 U.S.C. 1002(c)));

(C) a four-year public institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)) that offers two year degrees, will use funds provided under this section for activities at the certificate and associate degree levels, and is not reasonably close, as determined by the Secretary of Labor, to a community college;

(D) a tribal college or university (as defined in section 316(b) of the Higher Education Act of 1965 (20 U.S.C. 1059c(b))); or

(E) at the discretion of the Secretary of Labor, a private, not-for-profit, two-year institution of higher education in Puerto Rico, Guam, the United States Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, the Federated States of Micronesia, or the Republic of Palau.

(2) ADDITIONAL PARTNERSHIPS.—In addition to partnering with employers or an association of employers, the eligible entities described in para-

graph (1) may partner with any of the following organizations:

(A) An adult education provider or institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)).

(B) A community-based organization.

(C) A joint labor-management partnership.

(D) Any other organization that the Secretary of Labor considers appropriate.

(3) WORKFORCE INVESTMENT BOARD.—Any such partnership shall collaborate with, and may include, the State or local workforce investment board.

(c) APPLICATION.—An eligible entity seeking a grant under this section shall submit a grant proposal to the Secretary of Labor at such time and containing such information as the Secretary may require. The proposal shall include, at a minimum, a detailed description of—

(1) the specific project for which the grant proposal is submitted, including the manner in which the grant will be used to develop, offer, improve, or provide an educational or career training program;

(2) the extent to which the project will meet the educational or career training needs of workers in the area served by the eligible entity;

(3) the extent to which the project will meet the needs of employers in the region for skilled workers in in-demand industry sectors and in-demand occupations;

(4) the extent to which the project fits within any overall strategic plan developed by an eligible entity; and

(5) any previous experience of the eligible entity in providing educational or career training programs, the absence of which shall not automatically disqualify an eligible institution from receiving a grant under this section.

(d) SPECIFICATIONS OF GRANTS.—

(1) DURATION.—A grant shall be awarded under this section for a period of up to 36 months in duration.

(2) SIZE OF GRANT.—The amount of a grant awarded under this subsection may not exceed $3,000,000 for an individual entity and $20,000,000 for a consortium.

(e) CRITERIA FOR AWARD.—

(1) IN GENERAL.—Grants under this section shall be awarded based on—

(A) a determination of the merits of the grant proposal submitted by the eligible entity

to develop, offer, improve, or provide educational or career training programs to be made available to workers;

(B) an assessment of the likely employment opportunities available in the region to individuals who complete an educational or career training program that the eligible entity proposes to develop, offer, improve, or provide;

(C) an assessment of prior demand for training programs by individuals eligible for training served by the eligible entity as well as availability and capacity of existing training programs to meet future demand for training programs; and

(D) any additional criteria established by the Secretary of Labor.

(2) PRIORITY.—The Secretary of Labor shall give priority to eligible entities that—

(A) include a partnership with a business or industry or sector partnership that—

(i) pays a portion of the costs of such programs; or

(ii) agrees to hire individuals who have completed a particular postsecondary degree, certificate, or credential resulting

from the training program of the eligible entity;

(B) enter into a partnership with a labor organization or labor-management training program that provides technical expertise for occupationally specific education necessary for a recognized postsecondary credential leading to a skill occupation in an in-demand industry sector;

(C) are focused on serving individuals with barriers to employment, particularly individuals who have been unemployed for 27 weeks or longer;

(D) are community colleges serving areas with high unemployment rates, including rural areas; and

(E) are eligible entities that include an institution of higher education eligible for assistance under title III or V of the Higher Education Act of 1965.

(f) USE OF FUNDS.—Grants awarded under this section shall be used for one or more of the following:

(1) The development, offering, improvement, or provision of academic programs or training programs that provide relevant job training for skilled

occupations that will meet the needs of employers in in-demand industry sectors, which may include registered apprenticeship programs, on-the-job training programs, and programs that support employers in upgrading the skills of their workforce.

(2) The development and implementation of policies and programs to expand opportunities for students to earn a recognized postsecondary credential or degree in in-demand industry sectors and in-demand occupations, including by—

(A) facilitating the transfer of academic credits between institutions of higher education, including the transfer of academic credits for courses in the same field of study;

(B) expanding articulation agreements and policies that guarantee transfer between such institutions, including through common course numbering and general core curriculum; and

(C) developing or enhancing student support services programs.

(3) The creation of workforce programs that provide a sequence of education and occupational training that leads to a recognized postsecondary credential or degree, including programs that—

(A) blend basic skills and occupational training;

(B) facilitate means of transitioning from noncredit occupational, basic skills, or developmental coursework to for-credit coursework within and across institutions;

(C) build or enhance linkages including the development of dual enrollment programs and early college high schools between secondary education or adult education programs (including programs established under the Carl D. Perkins Career and Technical Education Act of 2006);

(D) implement other innovative programs designed to increase the provision of training for students, including students who are veteran members of the National Guard or Reserves, to enter skilled occupations in in-demand industry sectors; and

(E) support paid internships that will allow students to simultaneously earn credit for work-based learning and gain relevant employment experience in an in-demand industry sector or in-demand occupation, which shall include op-

portunities that transition individuals into employment.

(4) The support of regional or national in-demand industry sectors to develop skills consortia that will identify pressing workforce needs and develop solutions such as—

(A) standardizing industry certifications;

(B) developing new training technologies; and

(C) collaborating with industry employers to define and describe how specific skills lead to particular jobs and career opportunities.

(g) AUTHORIZATIONS OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Labor $100,000,000 for each of fiscal years 2014 through 2016 to carry out this section.

(h) DEFINITIONS.—For the purposes of this section—

(1) the term ''in-demand industry sector'' means an industry sector that has a substantial current or potential impact (including through jobs that lead to economic self-sufficiency and opportunities for advancement) on the State, regional, or local economy, as appropriate, and that contributes to the

growth or stability of other supporting businesses, or the growth of other industry sectors; and

(2) the term ''in-demand occupation'' means an occupation that currently has or is projected to have a number of positions (including positions that lead to economic self-sufficiency and opportunities for advancement) in an industry sector so as to have a significant impact on the State, regional, or local economy.

SEC. 206. NATIONAL RESEARCH COUNCIL REPORT ON STEAM EDUCATION.

(a) IN GENERAL.—The National Science Foundation shall enter into an arrangement with the National Research Council to conduct a workshop on the integration of arts and design with STEM education. The workshop shall include a discussion of—

(1) how the perspectives and experience of artists and designers may contribute to the advancement of science, engineering, and innovation, for example through the development of visualization aids for large experimental and computational data sets;

(2) how arts and design-based education experiences might support formal and informal STEM education at the pre-K-12 level, particularly in fostering creativity and risk taking, and encourage

more students to pursue STEM studies, including students from groups historically underrepresented in STEM;

(3) how the teaching of design principles can be better integrated into undergraduate engineering and other STEM curricula, including in the first two years of undergraduate studies, to enhance student capacity for creativity and innovation and improve student retention, including students from groups historically underrepresented in STEM; and

(4) what additional steps, if any, Federal science agencies should take to promote the inclusion of arts and design principles in their respective STEM programs and activities in order to improve student STEM learning outcomes, increase the recruitment and retention of students into STEM studies and careers, and increase innovation in the United States.

(b) REPORT.—Not later than 18 months after the date of enactment of this Act, the National Research Council shall submit a report to Congress providing a summary description of the discussion and findings from the workshop required under subsection (a).

Subtitle B—Broadening Participation in STEM

SEC. 211. SHORT TITLE.

This subtitle may be cited as the ''STEM Opportunities Act of 2013''.

SEC. 212. PURPOSE.

(a) IN GENERAL.—The Director of the Office of Science and Technology Policy, acting through the Federal science agencies, shall carry out programs and activities with the purpose of ensuring that Federal science agencies and institutions of higher education receiving Federal research and development funding are fully engaging their entire talent pool.

(b) PURPOSES.—The purposes of this subtitle are as follows:

(1) To promote research on and increase understanding of the participation and trajectories of women and underrepresented minorities in STEM careers at institutions of higher education and Federal science agencies, including Federal laboratories.

(2) To raise awareness within Federal science agencies, including Federal laboratories, and institutions of higher education about cultural and institutional barriers limiting the recruitment, retention, promotion, and other indicators of participation and

achievement of women and underrepresented minorities in academic and Government STEM research careers at all levels.

(3) To identify, disseminate, and implement best practices at Federal science agencies, including Federal laboratories, and at institutions of higher education to remove or reduce cultural and institutional barriers limiting the recruitment, retention, and success of women and underrepresented minorities in academic and Government STEM research careers.

(4) To provide grants to institutions of higher education to recruit, retain, and advance STEM faculty members from underrepresented minority groups and to implement or expand reforms in undergraduate STEM education in order to increase the number of students from underrepresented minority groups receiving degrees in these fields.

SEC. 213. FEDERAL SCIENCE AGENCY POLICIES FOR CAREGIVERS.

(a) OSTP GUIDANCE.—Not later than 6 months 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) apply to all—

(A) intramural and extramural research awards; and

(B) primary investigators who have caregiving responsibilities, including care for a newborn or newly adopted child and care for an immediate family member who is sick or disabled; and

(2) provide—

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

(B) no-cost extensions of research awards;

(C) grant supplements as appropriate to research awards for research technicians or equivalent to sustain research activities; and

(D) any other appropriate accommodations at the discretion of the head of each agency.

(b) UNIFORMITY OF GUIDANCE.—In providing such guidance, the Director of the Office of Science and Technology Policy shall encourage uniformity and consistency in the policies across all agencies.

(c) ESTABLISHMENT OF POLICIES.—Consistent with the guidance provided under this section, Federal science agencies shall maintain or develop and implement policies

for caregivers and shall broadly disseminate such policies to current and potential grantees.

(d) DATA ON USAGE.—Federal science agencies shall—

(1) collect data on the usage of the policies under subsection (c), by gender, at both institutions of higher education and Federal laboratories; and

(2) report such data on an annual basis to the Director of the Office of Science and Technology Policy in such form as required by the Director.

SEC. 214. COLLECTION AND REPORTING OF DATA ON FEDERAL RESEARCH GRANTS.

(a) COLLECTION OF DATA.—

(1) IN GENERAL.—Each Federal science agency shall collect standardized record-level annual information on demographics, primary field, award type, review rating (as practicable), budget request, funding outcome, and awarded budget for all applications for merit-reviewed research and development grants to institutions of higher education and Federal laboratories supported by that agency.

(2) UNIFORMITY AND STANDARDIZATION.—The Director of the Office of Science and Technology Policy shall establish a policy to ensure uniformity

and standardization of the data collection required under paragraph (1).

(3) RECORD-LEVEL DATA.—

(A) REQUIREMENT.—On an annual basis, beginning with the deadline under subparagraph (C), each Federal science agency shall submit to the Director of the National Science Foundation record-level data collected under paragraph (1) in the form required by such Director.

(B) PREVIOUS DATA.—As part of the first submission under subparagraph (A), each Federal science agency, to the extent practicable, shall also submit comparable record-level data for the 5 years preceding the deadline under subparagraph (C).

(C) DEADLINE.—The deadline under this paragraph is 2 years after the date of enactment of this Act.

(b) REPORTING OF DATA.—The Director of the National Science Foundation shall publish statistical summary data collected under this section, disaggregated and cross-tabulated by race, ethnicity, gender, age, and years since completion of doctoral degree, including in conjunction with the National Science Foundation's report re-

quired by section 37 of the Science and Technology Equal Opportunities Act (42 U.S.C. 1885d; Public Law 96–516).

SEC. 215. POLICIES FOR REVIEW OF FEDERAL RESEARCH GRANTS.

(a) IN GENERAL.—The Director of the Office of Science and Technology Policy, in collaboration with the Director of the National Science Foundation, shall identify information and best practices useful for educating program officers and members of standing peer review committees at Federal science agencies about—

(1) research on implicit bias based on gender, race, or ethnicity; and

(2) methods to minimize the effect of such bias in the review of extramural and intramural Federal research grants.

(b) GUIDANCE TO ALL FEDERAL SCIENCE AGENCIES.—The Director of the Office of Science and Technology Policy shall disseminate the information and best practices identified in subsection (a) to all Federal science agencies and provide guidance as necessary on policies to implement such practices within each agency.

(c) ESTABLISHMENT OF POLICIES.—Consistent with the guidance provided in subsection (b), Federal science agencies shall maintain or develop and implement policies

and practices to minimize the effects of implicit bias in the review of extramural and intramural Federal research grants.

(d) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall report to Congress on what steps all Federal science agencies have taken to implement policies and practices to minimize the effects of bias in the review of extramural and intramural Federal research grants.

SEC. 216. COLLECTION OF DATA ON DEMOGRAPHICS OF FACULTY.

(a) COLLECTION OF DATA.—

(1) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, and at least every 5 years thereafter, the Director of the National Science Foundation shall carry out a survey to collect institution-level data on the demographics of STEM faculty, by broad fields of STEM, at different types of institutions of higher education.

(2) CONSIDERATIONS.—To the extent practicable, the Director of the National Science Foundation shall consider, by gender, race, ethnicity, citizenship status, age, and years since completion of doctoral degree—

(A) the number and percentage of faculty;

(B) the number and percentage of faculty at each rank;

(C) the number and percentage of faculty who are in nontenure-track positions, including teaching and research;

(D) the number and percentage of faculty who are reviewed for promotion, including tenure, and the percentage of that number who are promoted, including being awarded tenure;

(E) faculty years in rank;

(F) the number and percentage of faculty to leave tenure-track positions;

(G) the number and percentage of faculty hired, by rank; and

(H) the number and percentage of faculty in leadership positions.

(b) EXISTING SURVEYS.—The Director of the National Science Foundation—

(1) may carry out the requirements under subsection (a) by collaborating with statistical centers at other Federal agencies to modify or expand, as necessary, existing Federal surveys of higher education; or

(2) may award a grant or contract to an institution of higher education or other nonprofit organization to design and carry out the requirements under subsection (a).

(c) REPORTING DATA.—The Director of the National Science Foundation shall publish statistical summary data collected under this section, including as part of the National Science Foundation's report required by section 37 of the Science and Technology Equal Opportunities Act (42 U.S.C. 1885d; Public Law 96–516).

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $3,000,000 for each of fiscal years 2014 through 2016 to develop and carry out the initial survey required in subsection (a).

SEC. 217. CULTURAL AND INSTITUTIONAL BARRIERS TO EXPANDING THE ACADEMIC AND FEDERAL STEM WORKFORCE.

(a) BEST PRACTICES AT INSTITUTIONS OF HIGHER EDUCATION.—

(1) DEVELOPMENT OF GUIDANCE.—Not later than 6 months after the date of enactment of this Act, the Director of the National Science Foundation shall develop written guidance for institutions of higher education on the best practices for—

(A) conducting periodic campus culture surveys of STEM departments, with a particular focus on identifying any cultural or institutional barriers to or successful enablers for the recruitment, retention, promotion, and other indicators of participation and achievement, of women and underrepresented minorities in STEM degree programs and academic STEM careers; and

(B) providing educational opportunities, including workshops as described in subsection (c), for STEM faculty and administrators to learn about current research on implicit bias in recruitment, evaluation, and promotion of faculty in STEM and recruitment and evaluation of undergraduate and graduate students in STEM degree programs.

(2) EXISTING GUIDANCE.—In developing the guidance in paragraph (1), the Director of the National Science Foundation shall utilize guidance already developed by the National Aeronautics and Space Administration, the Department of Energy, and the Department of Education.

(3) DISSEMINATION OF GUIDANCE.—The Director of the National Science Foundation shall broadly

disseminate the guidance developed in paragraph (1) to institutions of higher education that receive Federal research funding.

(4) REPORTS TO THE NATIONAL SCIENCE FOUNDATION.—The Director of the National Science Foundation shall develop a policy that—

(A) applies to, at a minimum, the institutions classified by the Carnegie Foundation for the Advancement of Teaching on January 1, 2013, as a doctorate-granting university with a very high level of research activity; and

(B) requires each institution identified in subparagraph (A), not later than 3 years after the date of enactment of this Act, to report to the Director of the National Science Foundation on activities and policies developed and implemented based on the guidance provided in paragraph (1).

(b) BEST PRACTICES AT FEDERAL LABORATORIES.—

(1) DEVELOPMENT OF GUIDANCE.—Not later than 6 months after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall develop written guidance for Fed-

eral laboratories to develop and implement practices and policies to—

(A) conduct periodic laboratorywide culture surveys of research personnel at all levels, with a particular focus on identifying any cultural or institutional barriers to the recruitment, retention, and success of women and underrepresented minorities in STEM careers at Federal laboratories; and

(B) provide educational opportunities, including workshops as described in subsection (c), for STEM research personnel to learn about current research in implicit bias in recruitment, evaluation, and promotion of research personnel at Federal laboratories.

(2) ESTABLISHMENT OF POLICIES.—Consistent with the guidance provided in paragraph (1), Federal science agencies with Federal laboratories shall maintain or develop and implement policies for their respective Federal laboratories.

(c) WORKSHOPS TO ADDRESS CULTURAL BARRIERS TO EXPANDING THE ACADEMIC AND FEDERAL STEM WORKFORCE.—

(1) IN GENERAL.—Not later than 6 months after the date of enactment of this Act, the Director

of the National Science Foundation shall recommend a uniform policy for Federal science agencies to carry out a program of workshops that educate STEM department chairs at institutions of higher education, senior managers at Federal laboratories, and other federally funded researchers about methods that minimize the effects of implicit bias in the career advancement, including hiring, tenure, promotion, and selection for any honor based in part on the recipient's research record, of academic and Federal STEM researchers.

(2) INTERAGENCY COORDINATION.—The Director of the National Science Foundation shall ensure that workshops supported under this subsection are coordinated across Federal science agencies and jointly supported as appropriate.

(3) MINIMIZING COSTS.—To the extent practicable, workshops shall be held in conjunction with national or regional STEM disciplinary meetings to minimize costs associated with participant travel.

(4) PRIORITY FIELDS FOR ACADEMIC PARTICIPANTS.—In considering the participation of STEM department chairs and other academic researchers, the Director of the National Science Foundation shall prioritize workshops for the broad fields of

STEM in which the national rate of representation of women among tenured or tenure-track faculty or non-faculty researchers at doctorate-granting institutions of higher education is less than 25 percent, according to the most recent data available from the National Center for Science and Engineering Statistics.

(5) ORGANIZATIONS ELIGIBLE TO CARRY OUT WORKSHOPS.—Federal science agencies may carry out the program of workshops under this subsection by making grants to eligible organizations. In addition to any other organizations made eligible by the Federal science agencies, the following organizations are eligible for grants under this subsection:

(A) Nonprofit scientific and professional societies and organizations that represent one or more STEM disciplines.

(B) Nonprofit organizations that have the primary mission of advancing the participation of women or underrepresented minorities in STEM.

(6) CHARACTERISTICS OF WORKSHOPS.—The workshops shall have the following characteristics:

(A) Invitees to workshops shall include at least—

(i) the chairs of departments in the relevant STEM discipline or disciplines from at least the top 50 institutions of higher education, as determined by the amount of Federal research and development funds obligated to each institution of higher education in the prior year based on data available from the National Science Foundation; and

(ii) in the case of Federal laboratories, individuals with personnel management responsibilities comparable to those of an institution of higher education department chair.

(B) Activities at the workshops shall include research presentations and interactive discussions or other activities that increase the awareness of the existence of implicit bias in recruitment, hiring, tenure review, promotion, and other forms of formal recognition of individual achievement for faculty and other federally funded STEM researchers and shall provide strategies to overcome such bias.

(C) Research presentations and other workshop programs, as appropriate, shall in-

clude a discussion of the unique challenges faced by underrepresented subgroups, including minority women, minority men, and first generation minority graduates in research.

(D) Workshop programs shall include information on best practices for mentoring undergraduate and graduate women and underrepresented minority students.

(7) DATA ON WORKSHOPS.—Any proposal for funding by an organization seeking to carry out a workshop under this subsection shall include a description of how such organization will—

(A) collect data on the rates of attendance by invitees in workshops, including information on the home institution and department of attendees, and the rank of faculty attendees;

(B) conduct attitudinal surveys on workshop attendees before and after the workshops; and

(C) collect follow-up data on any relevant institutional policy or practice changes reported by attendees not later than one year after attendance in such a workshop.

(8) REPORT TO NSF.—Organizations receiving funding to carry out workshops under this sub-

section shall report the data required in paragraph (7) to the Director of the National Science Foundation in such form as required by such Director.

(d) REPORT TO CONGRESS.—Not later than 4 years after the date of enactment of this Act, the Director of the National Science Foundation shall submit a report to Congress that includes—

(1) a summary and analysis of the types and frequency of activities and policies developed and carried out under subsection (a) based on the reports submitted under paragraph (4) of such subsection; and

(2) a description and evaluation of the status and effectiveness of the program of workshops required under subsection (c), including a summary of any data reported under paragraph (8) of such subsection.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $2,000,000 for each of fiscal years 2014 through 2018 to carry out this section.

SEC. 218. RESEARCH AND DISSEMINATION AT THE NATIONAL SCIENCE FOUNDATION.

(a) IN GENERAL.—The Director of the National Science Foundation shall award research grants and carry

out dissemination activities consistent with the purposes of this subtitle, including—

(1) research grants to analyze the record-level data collected under section 214 and section 216, consistent with policies to ensure the privacy of individuals identifiable by such data;

(2) research grants to study best practices for work-life accommodation;

(3) research grants to study the impact of policies and practices that are implemented under this subtitle or that are otherwise consistent with the purposes of this subtitle;

(4) collaboration with other Federal science agencies and professional associations to exchange best practices, harmonize work-life accommodation policies and practices, and overcome common barriers to work-life accommodation; and

(5) collaboration with institutions of higher education in order to clarify and catalyze the adoption of a coherent and consistent set of work-life accommodation policies and practices.

(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $5,000,000 for each of fiscal years 2014 through 2018 to carry out this section.

SEC. 219. REPORT TO CONGRESS.

Not later than 4 years after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall submit a report to Congress that includes—

(1) a description and evaluation of the status and usage of caregiver policies at all Federal science agencies, including any recommendations for revising or expanding such policies;

(2) a description of any significant updates to the policies for review of Federal research grants required under section 215, and any evidence of the impact of such policies on the review or awarding of Federal research grants; and

(3) a description and evaluation of the status of Federal laboratory policies and practices required under section 217(b), including any recommendations for revising or expanding such policies.

SEC. 220. NATIONAL SCIENCE FOUNDATION SUPPORT FOR INCREASING DIVERSITY AMONG STEM FACULTY AT INSTITUTIONS OF HIGHER EDUCATION.

(a) GRANTS.—The Director of the National Science Foundation shall award grants to institutions of higher education (or consortia thereof) for the development of innovative reform efforts designed to increase the recruit-

ment, retention, and advancement of individuals from underrepresented minority groups in academic STEM careers.

(b) MERIT REVIEW; COMPETITION.—Grants shall be awarded under this section on a merit-reviewed, competitive basis.

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

(1) institutional assessment activities, such as data analyses and policy review, in order to identify and address specific issues in the recruitment, retention, and advancement of faculty members from underrepresented minority groups;

(2) implementation of institution-wide improvements in workload distribution, such that faculty members from underrepresented minority groups are not disadvantaged in the amount of time available to focus on research, publishing papers, and engaging in other activities required to achieve tenure status and run a productive research program;

(3) development and implementation of training courses for administrators and search committee members to ensure that candidates from underrepresented minority groups are not subject to implicit biases in the search and hiring process;

(4) development and hosting of intra- or inter-institutional workshops to propagate best practices in recruiting, retaining, and advancing faculty members from underrepresented minority groups;

(5) professional development opportunities for faculty members from underrepresented minority groups;

(6) activities aimed at making undergraduate STEM students from underrepresented minority groups aware of opportunities for academic careers in STEM fields;

(7) activities to identify and engage exceptional graduate students from underrepresented minority groups at various stages of their studies and to encourage them to enter academic careers; and

(8) other activities consistent with subsection (a), as determined by the Director of the National Science Foundation.

(d) SELECTION PROCESS.—

(1) APPLICATION.—An institution of higher education (or consortia thereof) seeking funding under this section shall submit an application to the Director of the National Science Foundation at such time, in such manner, and containing such information and assurances as such Director may require.

The application shall include, at a minimum, a description of—

(A) the reform effort that is being proposed for implementation by the institution of higher education;

(B) any available evidence of specific difficulties in the recruitment, retention, and advancement of faculty members from underrepresented minority groups in STEM academic careers within the institution of higher education submitting an application, and how the proposed reform effort would address such issues;

(C) how the institution of higher education submitting an application plans to sustain the proposed reform effort beyond the duration of the grant; and

(D) how the success and effectiveness of the proposed reform effort will be evaluated and assessed in order to contribute to the national knowledge base about models for catalyzing institutional change.

(2) REVIEW OF APPLICATIONS.—In selecting grant recipients under this section, the Director of

the National Science Foundation shall consider, at a minimum—

(A) the likelihood of success in undertaking the proposed reform effort at the institution of higher education submitting the application, including the extent to which the administrators of the institution are committed to making the proposed reform effort a priority;

(B) the degree to which the proposed reform effort will contribute to change in institutional culture and policy such that greater value is placed on the recruitment, retention, and advancement of faculty members from underrepresented minority groups;

(C) the likelihood that the institution of higher education will sustain or expand the proposed reform effort beyond the period of the grant; and

(D) the degree to which evaluation and assessment plans are included in the design of the proposed reform effort.

(3) GRANT DISTRIBUTION.—The Director of the National Science Foundation shall ensure, to the extent practicable, that grants awarded under this

section are made to a variety of types of institutions of higher education.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $10,000,000 for each of fiscal years 2014 through 2018 to carry out this section.

SEC. 221. NATIONAL SCIENCE FOUNDATION SUPPORT FOR BROADENING PARTICIPATION IN UNDERGRADUATE STEM EDUCATION.

(a) GRANTS.—The Director of the National Science Foundation shall award grants to institutions of higher education (or consortia thereof) to implement or expand research-based reforms in undergraduate STEM education for the purpose of recruiting and retaining students from minority groups who are underrepresented in STEM fields, with a priority focus on natural science and engineering fields.

(b) MERIT REVIEW; COMPETITION.—Grants shall be awarded under this section on a merit-reviewed, competitive basis.

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

(1) implementation or expansion of innovative, research-based approaches to broaden participation

of underrepresented minority groups in STEM fields;

(2) implementation or expansion of bridge, cohort, tutoring, or mentoring programs designed to enhance the recruitment and retention of students from underrepresented minority groups in STEM fields;

(3) implementation or expansion of outreach programs linking institutions of higher education and K–12 school systems in order to heighten awareness among pre-college students from underrepresented minority groups of opportunities in college-level STEM fields and STEM careers;

(4) implementation or expansion of faculty development programs focused on improving retention of undergraduate STEM students from underrepresented minority groups;

(5) implementation or expansion of mechanisms designed to recognize and reward faculty members who demonstrate a commitment to increasing the participation of students from underrepresented minority groups in STEM fields;

(6) expansion of successful reforms aimed at increasing the number of STEM students from underrepresented minority groups beyond a single course

or group of courses to achieve reform within an entire academic unit, or expansion of successful reform efforts beyond a single academic unit to other STEM academic units within an institution of higher education;

(7) expansion of opportunities for students from underrepresented minority groups to conduct STEM research in industry, at Federal laboratories, and at international research institutions or research sites;

(8) provision of stipends for students from underrepresented minority groups participating in research;

(9) development of research collaborations between research-intensive universities and primarily undergraduate minority-serving institutions;

(10) support for graduate students and postdoctoral fellows from underrepresented minority groups to participate in instructional or assessment activities at primarily undergraduate institutions, including primarily undergraduate minority-serving institutions and two-year institutions of higher education; and

(11) other activities consistent with subsection (a), as determined by the Director of the National Science Foundation.

(d) SELECTION PROCESS.—

(1) APPLICATION.—An institution of higher education (or consortium thereof) seeking a grant under this section shall submit an application to the Director of the National Science Foundation at such time, in such manner, and containing such information and assurances as such Director may require. The application shall include, at a minimum—

(A) a description of the proposed reform effort;

(B) a description of the research findings that will serve as the basis for the proposed reform effort or, in the case of applications that propose an expansion of a previously implemented reform, a description of the previously implemented reform effort, including data about the recruitment, retention, and academic achievement of students from underrepresented minority groups;

(C) evidence of an institutional commitment to, and support for, the proposed reform effort, including a long-term commitment to implement successful strategies from the current reform beyond the academic unit or units included in the grant proposal;

(D) a description of existing or planned institutional policies and practices regarding faculty hiring, promotion, tenure, and teaching assignment that reward faculty contributions to improving the education of students from underrepresented minority groups in STEM; and

(E) how the success and effectiveness of the proposed reform effort will be evaluated and assessed in order to contribute to the national knowledge base about models for catalyzing institutional change.

(2) REVIEW OF APPLICATIONS.—In selecting grant recipients under this section, the Director of the National Science Foundation shall consider, at a minimum—

(A) the likelihood of success of the proposed reform effort at the institution submitting the application, including the extent to which the faculty, staff, and administrators of the institution are committed to making the proposed institutional reform a priority of the participating academic unit or units;

(B) the degree to which the proposed reform effort will contribute to change in institu-

tional culture and policy such that greater value is placed on faculty engagement in the retention of students from underrepresented minority groups;

(C) the likelihood that the institution will sustain or expand the proposed reform effort beyond the period of the grant; and

(D) the degree to which evaluation and assessment plans are included in the design of the proposed reform effort.

(3) PRIORITY.—For applications that include an expansion of existing reforms beyond a single academic unit, the Director of the National Science Foundation shall give priority to applications for which a senior institutional administrator, such as a dean or other administrator of equal or higher rank, serves as the principal investigator.

(4) GRANT DISTRIBUTION.—The Director of the National Science Foundation shall ensure, to the extent practicable, that grants awarded under this section are made to a variety of types of institutions of higher education, including two-year and minority-serving institutions of higher education.

(e) EDUCATION RESEARCH.—

(1) IN GENERAL.—All grants made under this section shall include an education research component that will support the design and implementation of a system for data collection and evaluation of proposed reform efforts in order to build the knowledge base on promising models for increasing recruitment and retention of students from underrepresented minority groups in STEM education at the undergraduate level across a diverse set of institutions.

(2) DISSEMINATION.—The Director of the National Science Foundation shall coordinate with relevant Federal agencies in disseminating the results of the research under this subsection to ensure that best practices in broadening participation in STEM education at the undergraduate level are made readily available to all institutions of higher education, other Federal agencies that support STEM programs, non-Federal funders of STEM education, and the general public.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Director of the National Science Foundation $15,000,000 for each of fiscal years 2014 through 2018 to carry out this section.

SEC. 222. DEFINITIONS.

(a) THIS SUBTITLE.—In this subtitle:

(1) FEDERAL LABORATORY.—The term ''Federal laboratory'' has the meaning given such term in section 4 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3703).

(2) FEDERAL SCIENCE AGENCY.—The term ''Federal science agency'' means any Federal agency with at least $100,000,000 in research and development expenditures in fiscal year 2012.

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

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

(b) NATIONAL SCIENCE FOUNDATION AUTHORIZATION ACT OF 2002.—Section 4 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n note) is amended—

(1) by redesignating paragraph (16) as paragraph (17); and

(2) by inserting after paragraph (15) the following new paragraph:

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

TITLE III—NATIONAL SCIENCE FOUNDATION

Subtitle A—General Provisions

SEC. 301. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2014.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $7,625,780,000 for fiscal year 2014.

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

(A) $6,212,290,000 shall be made available for research and related activities;

(B) $880,290,000 shall be made available for education and human resources;

(C) $210,120,000 shall be made available for major research equipment and facilities construction;

(D) $304,290,000 shall be made available for agency operations and award management;

(E) $4,470,000 shall be made available for the Office of the National Science Board, including salaries and compensation for members

of the Board and staff appointed under section 4 of the National Science Foundation Act of 1950 (42 U.S.C. 1863), travel and training costs for members of the Board and such staff, general and Board operating expenses, representational expenses for the Board, honorary awards made by the Board, Board reports (other than the report entitled ''Science and Engineering Indicators''), and contracts; and

(F) $14,320,000 shall be made available for the Office of Inspector General.

(b) FISCAL YEAR 2015.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $7,986,830,000 for fiscal year 2015.

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

(A) $6,522,900,000 shall be made available for research and related activities;

(B) $924,300,000 shall be made available for education and human resources;

(C) $200,760,000 shall be made available for major research equipment and facilities construction;

(D) $319,500,000 shall be made available for agency operations and award management;

(E) $4,600,000 shall be made available for the Office of the National Science Board, including salaries and compensation for members of the Board and staff appointed under section 4 of the National Science Foundation Act of 1950 (42 U.S.C. 1863), travel and training costs for members of the Board and such staff, general and Board operating expenses, representational expenses for the Board, honorary awards made by the Board, Board reports (other than the report entitled ''Science and Engineering Indicators''), and contracts; and

(F) $14,750,000 shall be made available for the Office of Inspector General.

(c) FISCAL YEAR 2016.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $8,374,980,000 for fiscal year 2016.

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

(A) $6,849,050,000 shall be made available for research and related activities;

(B) $970,520,000 shall be made available for education and human resources;

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

(D) $335,480,000 shall be made available for agency operations and award management;

(E) $4,740,000 shall be made available for the Office of the National Science Board, including salaries and compensation for members of the Board and staff appointed under section 4 of the National Science Foundation Act of 1950 (42 U.S.C. 1863), travel and training costs for members of the Board and such staff, general and Board operating expenses, representational expenses for the Board, honorary awards made by the Board, Board reports (other than the report entitled ''Science and Engineering Indicators''), and contracts; and

(F) $15,190,000 shall be made available for the Office of Inspector General.

(d) FISCAL YEAR 2017.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $8,783,330,000 for fiscal year 2017.

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

(A) $7,191,500,000 shall be made available for research and related activities;

(B) $1,019,050,000 shall be made available for education and human resources;

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

(D) $352,250,000 shall be made available for agency operations and award management;

(E) $4,880,000 shall be made available for the Office of the National Science Board, including salaries and compensation for members of the Board and staff appointed under section 4 of the National Science Foundation Act of 1950 (42 U.S.C. 1863), travel and training costs for members of the Board and such staff, general and Board operating expenses, representational expenses for the Board, honorary awards made by the Board, Board reports (other than the report entitled ''Science and Engineering Indicators''), and contracts; and

(F) $15,650,000 shall be made available for the Office of Inspector General.

(e) FISCAL YEAR 2018.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $9,212,090,000 for fiscal year 2018.

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

(A) $7,551,080,000 shall be made available for research and related activities;

(B) $1,070,000,000 shall be made available for education and human resources;

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

(D) $369,870,000 shall be made available for agency operations and award management;

(E) $5,030,000 shall be made available for the Office of the National Science Board, including salaries and compensation for members of the Board and staff appointed under section 4 of the National Science Foundation Act of 1950 (42 U.S.C. 1863), travel and training costs for members of the Board and such staff, general and Board operating expenses, representational expenses for the Board, honorary awards made by the Board, Board reports

(other than the report entitled ''Science and Engineering Indicators''), and contracts; and

(F) $16,120,000 shall be made available for the Office of Inspector General.

SEC. 302. SENSE OF CONGRESS ON SUPPORT FOR ALL FIELDS OF SCIENCE AND ENGINEERING.

It is the sense of Congress that in order to achieve its mission ''to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense...'' the National Science Foundation must continue to support unfettered, competitive, merit-reviewed basic research across all fields of science and engineering, including the social and behavioral sciences. It is further the sense of Congress that the Foundation's process for selecting proposals for funding, which includes merit review based on both intellectual merit and broader impacts, remains the gold standard for the world, and that program officers and division directors at the Foundation play an essential role in this process.

SEC. 303. MANAGEMENT AND OVERSIGHT OF LARGE FACILITIES.

(a) LARGE FACILITIES OFFICE.—The Director shall maintain a Large Facilities Office within the Foundation. The functions of the Large Facilities Office shall be to

support the research directorates in the development and implementation of major research facilities, including by—

(1) serving as the Foundation's primary resource for all policy or process issues related to the development and implementation of major research facilities;

(2) serving as a Foundation-wide resource on project management, including providing expert assistance on nonscientific and nontechnical aspects of project planning, budgeting, implementation, management, and oversight; and

(3) coordinating and collaborating with research directorates to share best management practices and lessons learned from prior projects.

(b) OVERSIGHT OF LARGE FACILITIES.—The Director shall appoint a senior agency official within the Office of the Director whose primary responsibility is oversight of major research facilities. The duties of this official shall include—

(1) oversight of the development, construction, and operation of major research facilities across the Foundation;

(2) in collaboration with the directors of the research directorates and other senior agency officials as appropriate, ensuring that the requirements of

section 14(a) of the National Science Foundation Authorization Act of 2002 are satisfied;

(3) serving as a liaison to the National Science Board for approval and oversight of major research facilities; and

(4) periodically reviewing and updating as necessary Foundation policies and guidelines for the development and construction of major research facilities.

(c) POLICIES FOR COSTING LARGE FACILITIES.—

(1) IN GENERAL.—The Director shall ensure that the Foundation's policies for developing and managing major research facility construction costs are consistent with the best practices described in the March 2009 General Accountability Office Report GAO-09-3SP.

(2) REPORT.—Not later than 12 months after the date of enactment of this Act, the Director shall submit to Congress a report describing the Foundation's policies for developing and managing major research facility construction costs, including a description of any aspects of the policies that diverge from the best practices recommended in General Accountability Office Report GAO-09-3SP.

SEC. 304. DATA MANAGEMENT PLANS.

(a) DEVELOPMENT OF DATA MANAGEMENT POLICIES.—Not later than 6 months after the date of enactment of this Act, the Director shall develop and implement a policy requiring that all proposals for research funding from the Foundation include a plan for management of data resulting from such funding.

(b) REQUIREMENTS.—The policy shall—

(1) include a clear definition of what constitutes data for the purposes of data management plans;

(2) include mechanisms to ensure appropriate evaluation of the merits of submitted data management plans required under this section;

(3) include mechanisms to ensure that researchers comply with approved data management plans; and

(4) allow for the inclusion of appropriate costs for data management in proposals for research grants.

(c) PUBLIC DATABASES.—The Foundation shall promote the deposit of data covered under this section in publicly accessible databases, where appropriate and available.

SEC. 305. SUPPORT FOR POTENTIALLY TRANSFORMATIVE RESEARCH.

(a) IN GENERAL.—The Director shall establish and periodically update grant solicitation, merit review, and

funding policies and mechanisms designed to identify and provide support for high-risk, high-reward basic research proposals.

(b) POLICIES AND MECHANISMS.—Such policies and mechanisms may include—

(1) development of solicitations specifically for high-risk, high-reward basic research;

(2) establishment of review panels for the primary purpose of selecting high-risk, high-reward proposals;

(3) development of guidance to standard review panels to encourage the identification and consideration of high-risk, high-reward proposals; and

(4) support for workshops and other conferences with the primary purpose of identifying new opportunities for high-risk, high-reward basic research, especially at interdisciplinary interfaces.

(c) DEFINITION.—For purposes of this section, the term ''high-risk, high-reward basic research'' means research driven by ideas that have the potential to radically change our understanding of an important existing scientific or engineering concept, or leading to the creation of a new paradigm or field of science or engineering, and that is characterized by its challenge to current understanding or its pathway to new frontiers.

SEC. 306. STRENGTHENING INSTITUTIONAL RESEARCH PARTNERSHIPS.

(a) IN GENERAL.—For any Foundation research grant, in an amount greater than $5,000,000, to be carried out through a partnership that includes one or more minority-serving institutions or predominantly undergraduate institutions and one or more institutions described in subsection (b), the Director shall award funds directly, according to the budget justification described in the grant proposal, to at least two of the institutions of higher education in the partnership, including at least one minority-serving institution or one predominantly undergraduate institution, to ensure a strong and equitable partnership.

(b) INSTITUTIONS.—The institutions referred to in subsection (a) are institutions of higher education that are among the 100 institutions receiving, over the 3-year period immediately preceding the awarding of grants, the highest amount of research funding from the Foundation.

(c) REPORT.—Not later than 2 years after the date of enactment of this Act, the Director shall provide a report to Congress on institutional research partnerships identified in subsection (a) funded in the 2 previous fiscal years and make any recommendations for how such partnerships can continue to be strengthened.

SEC. 307. INNOVATION CORPS.

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

(1) the National Science Foundation's Innovation Corps (I-Corps) was established to foster a national innovation ecosystem by encouraging institutions, scientists, engineers, and entrepreneurs to identify and explore the innovation and commercial potential of Foundation-funded research well beyond the laboratory;

(2) the Foundation's I-Corps includes investments in entrepreneurship and commercialization education, training, and mentoring, ultimately leading to the practical deployment of technologies, products, processes, and services that improve the Nation's competitiveness, promote economic growth, and benefit society; and

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

(b) PROGRAM.—

(1) IN GENERAL.—The Director shall carry out a program to award grants for entrepreneurship and commercialization education to Foundation-funded

researchers to increase the economic and social impact of federally funded research.

(2) PURPOSES.—The purpose of the program shall be to increase the capacity of STEM researchers and students to successfully engage in entrepreneurial activities and to help transition the results of federally funded research into the marketplace by—

(A) identifying STEM research that can lead to the practical deployment of technologies, products, processes, and services that improve the Nation's economic competitiveness;

(B) bringing STEM researchers and students together with entrepreneurs, venture capitalists, and other industry representatives experienced in commercialization of new technologies;

(C) supporting entrepreneurship and commercialization education and training for faculty, students, postdoctoral fellows, and other STEM researchers; and

(D) promoting the development of regional and national networks of entrepreneurs, venture capitalists, and other industry representatives who can serve as mentors to researchers and

students at Foundation-funded institutions across the country.

(3) ADDITIONAL USE OF FUNDS.—Grants awarded under this subsection may be used to help support—

(A) prototype and proof-of-concept development for the funded project; and

(B) additional activities needed to build a national infrastructure for STEM entrepreneurship.

(4) OTHER FEDERAL AGENCIES.—The Director may establish agreements with other Federal agencies that fund scientific research to make researchers funded by those agencies eligible to participate in the Foundation's Innovation Corps program.

SEC. 308. DEFINITIONS.

For purposes of this title:

(1) DIRECTOR.—The term ''Director'' means the Director of the 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 such term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

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

Subtitle B—STEM Education

SEC. 321. NATIONAL SCIENCE BOARD REPORT ON CONSOLIDATION OF STEM EDUCATION ACTIVITIES AT THE FOUNDATION.

(a) IN GENERAL.—The National Science Board shall review and evaluate the appropriateness of the Foundation's portfolio of STEM education programs and activities at the pre-K-12 and undergraduate levels, including informal education, taking into account the mission of the Foundation and the 2013 Federal STEM Education 5-Year Strategic Plan.

(b) REPORT.—Not later than 1 year after the date of enactment of this Act, the National Science Board shall submit to Congress a report summarizing their findings and including—

(1) an analysis of how well the Foundation's portfolio of STEM education programs is contributing to the mission of the Foundation;

(2) an analysis of how well STEM education programs and activities are coordinated and best practices are shared across the Foundation;

(3) an analysis of how well the Foundation's portfolio of STEM education programs is aligned with and contributes to priority STEM education investment areas described in the 2013 Federal STEM Education 5-Year Strategic Plan;

(4) any Board recommendations regarding internal reorganization, including consolidation, of the Foundation's STEM education programs and activities, taking into account both the mission of the Foundation and the 2013 Federal STEM Education 5-Year Strategic Plan;

(5) any Board recommendations regarding the Foundation's role in helping to implement the Federal STEM Education 5-Year Strategic Plan, including opportunities for the Foundation to more effectively partner and collaborate with other Federal agencies; and

(6) any additional Board recommendations regarding specific management, policy, budget, or other steps the Foundation should take to increase effectiveness and accountability across its portfolio of STEM education programs and activities.

SEC. 322. MODELS FOR GRADUATE STUDENT SUPPORT.

(a) IN GENERAL.—The Director shall enter into an agreement with the National Research Council to evaluate

the Foundation's current programs and models for supporting STEM graduate students, including the Graduate Research Fellowship program, traineeship programs across the Foundation, and the research assistantship model, for their effectiveness in helping to prepare graduate students for diverse careers utilizing STEM degrees, including at diverse types of institutions of higher education, in industry, and at government agencies and research laboratories.

(b) REPORT ON MODELS FOR GRADUATE STUDENT SUPPORT.—Not later than 2 years after the date of enactment of this Act, the National Research Council shall submit to Congress a report on models for graduate student support at the Foundation. At a minimum, the report shall include the following:

(1) An analysis of the relative strengths and limitations of the Foundation's current portfolio of programs and mechanisms for support of graduate student research and training, including the research assistantship model funded through research grants, including an analysis of the capacity of such programs and mechanisms to provide students with knowledge and skills—

(A) to become independent, creative, successful researchers;

(B) to participate in large interdisciplinary research projects, including in an international context;

(C) to adhere to the highest standards for research ethics;

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

(E) in oral and written communication, to both technical and nontechnical audiences;

(F) in innovation, entrepreneurship, and business ethics; and

(G) in program management.

(2) An analysis of the relative strengths and limitations of the Foundation's current portfolio of programs and mechanisms for support of graduate student research to improve recruitment, retention, and timely completion of doctoral degrees, including for students from groups historically underrepresented in STEM.

(3) A recommendation or recommendations for improvements to any of the current programs or models or the creation of new programs or models.

(4) A recommendation or recommendations regarding the appropriateness of the current distribu-

tion of funding among the different programs and models.

(5) A recommendation or recommendations regarding the appropriateness of creating a new education and training program for graduate students distinct from programs that provide financial support to students, including the grants authorized in section. 527 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p-15).

SEC. 323. UNDERGRADUATE STEM EDUCATION REFORM.

Section 17 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–6) is amended to read as follows:

"SEC. 17. UNDERGRADUATE STEM EDUCATION REFORM.

''(a) IN GENERAL.—The Director, through the Directorate for Education and Human Resources, shall award grants, on a competitive, merit-reviewed basis, to institutions of higher education (or to consortia thereof) and to other eligible nonprofit organizations to reform undergraduate STEM education for the purpose of increasing the number and quality of students studying toward and completing baccalaureate degrees in STEM and improving the STEM learning outcomes for all undergraduate students.

''(b) INTERDIRECTORATE WORKING GROUP ON UNDERGRADUATE STEM EDUCATION.—In carrying out the requirements of this section, the Directorate for Education and Human Resources shall collaborate and coordinate with the Research Directorates, including through the establishment of an interdirectorate working group on undergraduate STEM education reform, in order to identify and implement new and expanded opportunities for collaboration between STEM disciplinary researchers and education researchers on the reform of undergraduate STEM education.

''(c) GRANTS.—Research and development supported by grants under this section may encompass a single discipline, multiple disciplines, or interdisciplinary education at the undergraduate level, and may include—

''(1) research foundational to the improvement of teaching, learning, and retention;

''(2) development, implementation, and assessment of innovative, research-based approaches to transforming teaching, learning, and retention; and

''(3) scaling of successful efforts on learning and learning environments, broadening participation, workforce preparation, employing emerging technologies, or other reforms in STEM education, including expansion of successful STEM reform ef-

forts beyond a single course or group of courses to achieve reform within an entire academic unit, or expansion of successful reform efforts beyond a single academic unit to other STEM academic units within an institution or to comparable academic units at other institutions.

''(d) SELECTION PROCESS.—

''(1) APPLICATIONS.—An institution of higher education or other eligible nonprofit organization seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. In addition to a description of the proposed research, development, or scaling effort, including a description of the research findings that will serve as the basis for the proposed effort, applications shall include, at a minimum—

''(A) evidence of institutional support for, and commitment to, the proposed effort, including long-term commitment to implement and scale successful strategies resulting from the current effort;

''(D) a description of existing or planned institutional policies and practices regarding faculty hiring, promotion, tenure, and teaching

assignment that reward faculty contributions to undergraduate STEM education; and

''(E) a description of the plans for assessment and evaluation of the effort, including evidence of participation by individuals with experience in assessment and evaluation of teaching and learning programs.

''(2) REVIEW OF APPLICATIONS.—In selecting grant recipients for funding under this section, the Director shall consider, as appropriate to the scale of the proposed effort—

''(A) the likelihood of success in undertaking the proposed effort at the institution submitting the application, including the extent to which the faculty, staff, and administrators of the institution are committed to making undergraduate STEM education reform a priority of the participating academic unit or units;

''(B) the degree to which the proposed effort will contribute to change in institutional culture and policy such that a greater value is placed on faculty engagement in undergraduate education;

''(C) the likelihood that the institution will sustain or expand the effort beyond the period of the grant; and

''(D) the degree to which the proposed effort will contribute to the systematic accumulation of knowledge on STEM education.

''(3) PRIORITY.—The Director shall give priority to proposals focused on the first 2 years of undergraduate education, including STEM education at 2-year institutions of higher education.

''(4) GRANT DISTRIBUTION.—The Director shall ensure, to the extent practicable, that grants awarded under this section are made to a variety of types of institutions of higher education.''.

SEC. 324. ADVANCED MANUFACTURING EDUCATION.

Section 506(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–1(b)) is amended to read as follows:

''(b) ADVANCED MANUFACTURING EDUCATION.—The Director shall award grants, on a competitive, merit reviewed basis, to community colleges for the development and implementation of innovative advanced manufacturing education reforms to ensure an adequate and well-trained advanced manufacturing workforce. Activities supported by grants under this subsection may include—

''(1) the development or expansion of educational materials, courses, curricula, strategies, and methods that will lead to improved advanced manufacturing degree or certification programs, including the integration of industry standards and workplace competencies into the curriculum;

''(2) the development and implementation of faculty professional development programs that enhance a faculty member's capabilities and teaching skills in advanced manufacturing, including efforts to understand current advanced manufacturing technologies and practices;

''(3) the establishment of centers that provide models and leadership in advanced manufacturing education and serve as regional or national clearinghouses for educational materials and methods;

''(4) activities to enhance the recruitment and retention of students into certification and degree programs in advanced manufacturing, including the provision of improved mentoring and internship opportunities;

''(5) the establishment of partnerships with private sector entities to ensure the development of an advanced manufacturing workforce with the skills necessary to meet regional economic needs; and

''(6) other activities as determined appropriate by the Director.''.

SEC. 325. 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**'';

(2) by striking ''mathematics and science'' each place it appears in subsection (a) and (b) and inserting ''STEM'';

(3) by striking ''mathematics or science'' each place it appears in subsection (a)(3) and (4)(A) and inserting ''STEM'';

(4) by striking ''mathematics, science, or engineering'' in subsection (a)(2)(B) and inserting ''STEM'';

(5) by striking ''mathematics, science, and technology'' in subsection (a)(3)(B)(ii)(II) and (8) and inserting ''STEM'';

(6) by striking ''professional mathematicians, scientists, and engineers'' in subsection (a)(3)(F) and inserting ''STEM professionals'';

(7) by striking ''mathematicians, scientists, and engineers'' in subsection (a)(3)(J) and (M) and inserting ''STEM professionals'';

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

(9) by striking ''science, technology, engineering, and mathematics'' each place it appears in subsection (a)(3)(K) and (10) and inserting ''STEM'';

(10) by striking ''science, technology, engineering, or mathematics'' in subsection (a)(10)(A)(ii)(II) and inserting ''STEM'';

(11) by striking ''science, mathematics, engineering, and technology'' each place it appears in subsection (a)(5) and inserting ''STEM'';

(12) by striking ''science, mathematics, engineering, or technology'' in subsection (a)(5) and inserting ''STEM'';

(13) by striking ''mathematics, science, engineering, and technology'' in subsection (b)(1) and (2) and inserting ''STEM''; and

(14) by striking subsection (d).

SEC. 326. NOYCE SCHOLARSHIP PROGRAM AMENDMENTS.

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

(1) in subsection (a)(2)(B), by inserting ''or bachelor's'' after ''master's'';

(2) in subsection (c)—

(A) by striking ''and'' at the end of paragraph (2)(B);

(B) in paragraph (3), by—

(i) inserting ''for teachers with master's degrees in their field'' after ''Teaching Fellowships''; and

(ii) by striking the period at the end of subparagraph (B) and inserting ''; and''; and

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

''(4) in the case of National Science Foundation Master Teaching Fellowships for teachers with bachelor's degrees in their field—

''(A) offering academic courses leading to a master's degree and leadership training to prepare individuals to become master teachers in elementary and secondary schools; and

''(B) offering programs both during and after matriculation in the program for which the fellowship is received to enable fellows to become highly effective mathematics and science teachers, including mentoring, training, induction, and professional development activi-

ties, to fulfill the service requirements of this section, including the requirements of subsection (e), and to exchange ideas with others in their fields.'';

(3) in subsection (e), by striking ''subsection (g)'' and inserting ''subsection (h)''; and

(4) by after subsection (f) the following new subsection:

''(g) SUPPORT FOR MASTER TEACHING FELLOWS WHILE ENROLLED IN A MASTER'S DEGREE PROGRAM.—A National Science Foundation Master Teacher Fellow may receive a maximum of 1 year of fellowship support while enrolled in a master's degree program as described in subsection (c)(4)(A), except that if such fellow is enrolled in a part-time program, such amount shall be prorated according to the length of the program.''.

TITLE IV—NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

SEC. 401. SHORT TITLE.

This title may be cited as the ''National Institute of Standards and Technology Authorization Act of 2013''.

SEC. 402. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2014.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $947,547,000 for the National Institute of Standards and Technology for fiscal year 2014.

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

(A) $703,000,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $60,040,000 shall be authorized for the construction and maintenance of facilities; and

(C) $184,507,000 shall be authorized for industrial technology services activities, of which—

(i) $153,078,000 shall be authorized for the Hollings Manufacturing Extension Partnership under section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) and the program under section 26 of such Act (15 U.S.C. 278l), of which not more than $20,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(ii) $31,429,000 shall be authorized for the Advanced Manufacturing Technology Consortia program established under section 33 of such Act (15 U.S.C. 278r).

(b) FISCAL YEAR 2015.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $994,924,350 for the National Institute of Standards and Technology for fiscal year 2015.

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

(A) $738,150,000 shall be authorized for scientific and technical research and services laboratory activities;

(B) $63,042,000 shall be authorized for the construction and maintenance of facilities; and

(C) $193,732,350 shall be authorized for industrial technology services activities, of which—

(i) $160,731,900 shall be authorized for the Hollings Manufacturing Extension Partnership under section 25 of the National Institute of Standards and Tech-

nology Act (15 U.S.C. 278k) and the program under section 26 of such Act (15 U.S.C. 278l), of which not more than $20,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(ii) $33,000,450 shall be authorized for the Advanced Manufacturing Technology Consortia program established under section 33 of such Act (15 U.S.C. 278r).

(c) FISCAL YEAR 2016.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,044,670,568 for the National Institute of Standards and Technology for fiscal year 2016.

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

(A) $775,057,500 shall be authorized for scientific and technical research and services laboratory activities;

(B) $66,194,100 shall be authorized for the construction and maintenance of facilities; and

(C) $203,418,968 shall be authorized for industrial technology services activities, of which—

(i) $168,768,495 shall be authorized for the Hollings Manufacturing Extension Partnership under section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) and the program under section 26 of such Act (15 U.S.C. 278l), of which not more than $20,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(ii) $34,650,473 shall be authorized for the Advanced Manufacturing Technology Consortia program established under section 33 of such Act (15 U.S.C. 278r).

(d) FISCAL YEAR 2017.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,096,904,096 for the National Institute of Standards and Technology for fiscal year 2017.

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

(A) $813,810,375 shall be authorized for scientific and technical research and services laboratory activities;

(B) $69,503,805 shall be authorized for the construction and maintenance of facilities; and

(C) $213,589,916 shall be authorized for industrial technology services activities, of which—

(i) $177,206,920 shall be authorized for the Hollings Manufacturing Extension Partnership under section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) and the program under section 26 of such Act (15 U.S.C. 278l), of which not more than $20,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(ii) $36,382,996 shall be authorized for the Advanced Manufacturing Technology Consortia program established under section 33 of such Act (15 U.S.C. 278r).

(e) FISCAL YEAR 2018.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,151,749,301 for the National Institute of Standards and Technology for fiscal year 2018.

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

(A) $854,500,894 shall be authorized for scientific and technical research and services laboratory activities;

(B) $72,978,995 shall be authorized for the construction and maintenance of facilities; and

(C) $224,269,412 shall be authorized for industrial technology services activities, of which—

(i) $186,067,266 shall be authorized for the Hollings Manufacturing Extension Partnership under section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) and the program under section 26 of such Act (15 U.S.C. 278l), of which not more than $20,000,000 shall be for the competitive grant program under section 25(f) of such Act; and

(ii) $38,202,146 shall be authorized for the Advanced Manufacturing Technology Consortia program established under section 33 of such Act (15 U.S.C. 278r).

SEC. 403. ADVANCED MANUFACTURING TECHNOLOGY CONSORTIA.

Section 33 of the National Institute of Standards and Technology Act (15 U.S.C. 278r) is amended to read as follows:

"SEC. 33. ADVANCED MANUFACTURING TECHNOLOGY CONSORTIA.

''(a) AUTHORITY.—

''(1) IN GENERAL.—The Director shall carry out a program to facilitate the development of and provide support to industry-led consortia that will identify, prioritize, and address long-term, precompetitive industrial research needs in the area of advanced manufacturing.

''(2) PROGRAM OBJECTIVES.—The objectives of the program established under this section include the following:

''(A) To promote collective public-private efforts to develop key technology platforms and infrastructure for advanced manufacturing.

"(B) To enable the prioritization of public research portfolios to be more responsive to the long-term technology development needs of industry.

"(C) To leverage Federal investment in advanced manufacturing with shared investment by the private sector.

"(D) To increase industrial research and development investment in precompetitive technology platforms and infrastructure.

"(E) To accelerate technological innovation in advanced manufacturing.

"(F) To foster broad participation by industry, the Federal Government, institutions of higher education, and State, local, and tribal governments in advanced manufacturing research and development.

"(b) ACTIVITIES.—As part of the program established under this section, the Director shall—

"(1) support the formation of industry-led consortia composed of representatives from industry (including small and medium-sized manufacturers), institutions of higher education, the Federal Government, State, local, and tribal governments, and other entities, as appropriate;

''(2) collaborate with consortia participants in the development of technology roadmaps that identify research needs in the area of advanced manufacturing;

''(3) support precompetitive research directed at meeting the research needs identified in the roadmaps developed under paragraph (2);

''(4) promote the transfer of precompetitive technology platforms and infrastructure resulting from consortia research to the private sector and facilitate open access to the intellectual property underpinning those platforms and technology; and

''(5) facilitate the development of new technologies into commercial products.

''(c) SELECTION CRITERIA.—In selecting applications for awards under this section, the Director shall consider, at a minimum—

''(1) the degree to which the activities proposed under the consortia will broadly impact manufacturing, including regional manufacturing efforts, and increase the productivity and economic competitiveness of the United States;

''(2) the level of technical risk to be addressed by the consortia;

''(3) the potential to produce fundamental new knowledge; and

''(4) the likelihood that the consortia will become self-sustaining, if appropriate.''.

SEC. 404. NETWORK FOR MANUFACTURING INNOVATION.

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

(1) by redesignating section 34 as section 36; and

(2) by inserting after section 33 (15 U.S.C. 278r) the following:

''SEC. 34. NETWORK FOR MANUFACTURING INNOVATION.

''(a) ESTABLISHMENT OF NETWORK FOR MANUFACTURING INNOVATION PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish within the Institute a program to be known as the 'Network for Manufacturing Innovation Program' (referred to in this section as the 'Program').

''(2) PURPOSES OF PROGRAM.—The purposes of the Program are—

''(A) to improve the competitiveness of United States manufacturing and to increase domestic production;

''(B) to stimulate United States leadership in advanced manufacturing research, innovation, and technology;

''(C) to facilitate the transition of innovative technologies into scalable, cost-effective, and high-performing manufacturing capabilities;

''(D) to facilitate access by manufacturing enterprises to capital-intensive infrastructure, including high-performance computing, in order to improve the speed with which such enterprises commercialize new processes and technologies;

''(E) to accelerate the development of an advanced manufacturing workforce;

''(F) to facilitate peer exchange of and the documentation of best practices in addressing advanced manufacturing challenges; and

''(G) to leverage non-Federal sources of support to promote a stable and sustainable business model without the need for long-term Federal funding.

''(3) SUPPORT.—The Secretary, acting through the Director, shall carry out the purposes set forth in paragraph (2) by supporting—

"(A) the Network for Manufacturing Innovation established under subsection (b); and

"(B) the establishment of centers for manufacturing innovation.

"(4) DIRECTOR.—The Secretary shall carry out the Program through the Director.

"(b) ESTABLISHMENT OF NETWORK FOR MANUFACTURING INNOVATION.—

"(1) IN GENERAL.—As part of the Program, the Secretary shall establish a network of centers for manufacturing innovation.

"(2) DESIGNATION.—The network established under paragraph (1) shall be known as the 'Network for Manufacturing Innovation' (referred to in this section as the 'Network').

"(c) CENTERS FOR MANUFACTURING INNOVATION.—

"(1) IN GENERAL.—For purposes of this section, a 'center for manufacturing innovation' is a center that—

"(A) has been established by a person to address challenges in advanced manufacturing and to assist manufacturers in retaining or expanding industrial production and jobs in the United States;

''(B) has a predominant focus on a manufacturing process, novel material, enabling technology, supply chain integration methodology, or another relevant aspect of advanced manufacturing, as determined by the Secretary, with the potential—

''(i) to improve the competitiveness of United States manufacturing;

''(ii) to accelerate investment in advanced manufacturing production capacity in the United States; and

''(iii) to enable the commercial application of new technologies or industry-wide manufacturing processes; and

''(C) includes active participation among representatives from multiple industrial entities, research universities, community colleges, and such other entities as the Secretary considers appropriate, which may include career and technical education schools, Federal laboratories, State, local, and tribal governments, businesses, educational institutions, and nonprofit organizations.

''(2) ACTIVITIES.—Activities of a center for manufacturing innovation may include the following:

''(A) Research, development, and demonstration projects, including proof-of-concept development and prototyping, to reduce the cost, time, and risk of commercializing new technologies and improvements in existing technologies, processes, products, and research and development of materials to solve pre-competitive industrial problems with economic or national security implications.

''(B) Development and implementation of education and training courses, materials, and programs.

''(C) Development of innovative methodologies and practices for supply chain integration and introduction of new technologies into supply chains.

''(D) Outreach and engagement with small and medium-sized manufacturing enterprises, in addition to large manufacturing enterprises.

''(E) Such other activities as the Secretary, in consultation with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing, considers consistent with the purposes described in subsection (a)(2).

''(3) ADDITIONAL CENTERS FOR MANUFACTURING INNOVATION.—The National Additive Manufacturing Innovation Institute and pending manufacturing centers under interagency review shall be considered centers for manufacturing innovation.

''(d) FINANCIAL ASSISTANCE TO ESTABLISH AND SUPPORT CENTERS FOR MANUFACTURING INNOVATION.—

''(1) IN GENERAL.—In carrying out the Program, the Secretary shall award financial assistance to a person to assist the person in planning, establishing, or supporting a center for manufacturing innovation.

''(2) APPLICATION.—A person seeking financial assistance under paragraph (1) shall submit to the Secretary an application therefor at such time, in such manner, and containing such information as the Secretary may require.

''(3) OPEN PROCESS.—In soliciting applications for financial assistance under paragraph (1), the Secretary shall ensure an open process that will allow for the consideration of all applications relevant to advanced manufacturing regardless of technology area.

''(4) SELECTION.—

"(A) COMPETITIVE, MERIT REVIEW.—In awarding financial assistance under paragraph (1), the Secretary shall use a competitive, merit review process.

"(B) COLLABORATION.—In awarding financial assistance under paragraph (1), the Secretary shall, acting through the National Program Office established under subsection (e)(1), collaborate with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing.

"(C) CONSIDERATIONS.—In selecting a person who submitted an application under paragraph (2) for an award of financial assistance under paragraph (1), the Secretary shall consider, at a minimum, the following:

"(i) The potential of the center for manufacturing innovation to advance domestic manufacturing and the likelihood of economic impact in the predominant focus areas of the center for manufacturing innovation.

"(ii) The commitment of continued financial support, advice, participation, and other contributions from non-Federal

sources to provide leverage and resources to promote a stable and sustainable business model without the need for long-term Federal funding.

''(iii) How the center for manufacturing innovation will engage with small and medium-sized manufacturing enterprises, to improve the capacity of such enterprises to commercialize new processes and technologies.

''(iv) How the center for manufacturing innovation will carry out educational and workforce activities that meet industrial needs related to the predominant focus areas of the center for manufacturing innovation.

''(v) How the center for manufacturing innovation will advance economic competitiveness.

''(vi) How the center for manufacturing innovation will strengthen and leverage the assets of a region.

''(5) LIMITATION ON PERIOD FOR AWARDS.—No award of financial assistance may be made under paragraph (1) to a center of manufacturing innova-

tion after the 7-year period beginning on the date on which the Secretary first awards financial assistance to a center under such paragraph.

''(e) NATIONAL PROGRAM OFFICE.—

''(1) ESTABLISHMENT.—The Secretary shall establish, within the Institute, the National Office of the Network for Manufacturing Innovation Program (referred to in this section as the 'National Program Office'), which shall oversee and carry out the Program.

''(2) FUNCTIONS.—The functions of the National Program Office are—

''(A) to oversee the planning, management, and coordination of the Program;

''(B) to enter into memorandums of understanding with Federal departments and agencies, whose missions contribute to or are affected by advanced manufacturing, to carry out the purposes described in subsection (a)(2);

''(C) to develop, not later than 1 year after the date of the enactment of the National Institute of Standards and Technology Authorization Act of 2013, and update not less frequently than once every 3 years thereafter, a strategic plan to guide the Program;

''(D) to establish such procedures, processes, and criteria as may be necessary and appropriate to maximize cooperation and coordinate of the activities of the Program with programs and activities of other Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing;

''(E) to establish a clearinghouse of public information related to the activities of the Program; and

''(F) to act as a convener of the Network.

''(3) RECOMMENDATIONS.—In developing and updating the strategic plan under paragraph (2)(C), the Secretary shall solicit recommendations and advice from a wide range of stakeholders, including industry, small and medium-sized manufacturing enterprises, research universities, community colleges, and other relevant organizations and institutions.

''(4) REPORT TO CONGRESS.—The Secretary shall transmit the strategic plan required under paragraph (2)(C) to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives.

''(5) HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.—The Secretary shall ensure that the National Program Office incorporates the Hollings Manufacturing Extension Partnership into Program planning to ensure that the results of the Program reach small and medium-sized entities.

''(6) DETAILEES.—Any Federal Government employee may be detailed to the National Program Office without reimbursement. Such detail shall be without interruption or loss of civil service status or privilege.

''(f) REPORTING AND AUDITING.—

''(1) ANNUAL REPORTS TO THE SECRETARY.—

''(A) IN GENERAL.—The Secretary shall require recipients of financial assistance under subsection (d)(1) to annually submit a report to the Secretary that describes the finances and performance of the center for manufacturing innovation for which such assistance was awarded.

''(B) ELEMENTS.—Each report submitted under subparagraph (A) shall include—

''(i) an accounting of expenditures of amounts awarded to the recipient under subsection (d)(1); and

"(ii) a description of the performance of the center for manufacturing innovation with respect to—

"(I) its goals, plans, financial support, and accomplishments; and

"(II) how the center for manufacturing innovation has furthered the purposes described in subsection (a)(2).

"(2) ANNUAL REPORTS TO CONGRESS.—

"(A) IN GENERAL.—Not less frequently than once each year, the Secretary shall submit a report to Congress that describes the performance of the Program during the most recent 1-year period.

"(B) ELEMENTS.—Each report submitted under subparagraph (A) shall include, for the period covered by the report—

"(i) a summary and assessment of the reports received by the Secretary under paragraph (1);

"(ii) an accounting of the funds expended by the Secretary under the Program; and

"(iii) an assessment of the Program with respect to the purposes described in subsection (a)(2).

"(3) TRIENNIAL ASSESSMENT BY GAO.—

"(A) IN GENERAL.—Not less frequently than once every 3 years, the Comptroller General of the United States shall submit to Congress an assessment of the operation of the Program during the most recent 3-year period.

"(B) ELEMENTS.—Each assessment submitted under subparagraph (A) shall include, for the period covered by the report—

"(i) a review of the management, coordination, and industry utility of the Program;

"(ii) an assessment of the extent to which the Program has furthered the purposes described in subsection (a)(2); and

"(iii) such recommendations for legislative and administrative action as the Comptroller General considers appropriate to improve the Program.

"(g) ADDITIONAL AUTHORITIES.—

"(1) APPOINTMENT OF PERSONNEL AND CONTRACTS.—The Secretary may appoint such per-

sonnel and enter into such contracts, financial assistance agreements, and other agreements as the Secretary considers necessary or appropriate to carry out the Program including support for research and development activities involving a center for manufacturing innovation.

''(2) TRANSFER OF FUNDS.—The Secretary may transfer to other Federal agencies such sums as the Secretary considers necessary or appropriate to carry out the Program.

''(3) AUTHORITY OF OTHER AGENCIES.—In the event that the Secretary exercises the authority to transfer funds to another agency under paragraph (2), such agency may award and administer all aspects of financial assistance awards under this section.

''(4) USE OF RESOURCES.—In furtherance of the purposes of the Program, the Secretary may use, with the consent of a covered entity and with or without reimbursement, the land, services, equipment, personnel, and facilities of such covered entity.

''(5) ACCEPTANCE OF RESOURCES.—In addition to amounts appropriated to carry out the Program, the Secretary may accept funds, services, equipment,

personnel, and facilities from any covered entity to carry out the Program.

''(6) COVERED ENTITY.—For purposes of this subsection, a covered entity is any Federal department, Federal agency, instrumentality of the United States, State, local government, tribal government, territory or possession of the United States, or of any political subdivision thereof, or international organization, or any public or private entity or individual.

''(h) PATENTS.—Chapter 18 of title 35, United States Code, shall not apply if financial assistance is awarded under this section solely for the purpose of planning, establishing, or supporting new or existing centers for manufacturing innovation.

''(i) FUNDING.—

''(1) NETWORK FOR MANUFACTURING INNOVATION FUND.—

''(A) ESTABLISHMENT.—There is established in the Treasury of the United States a fund to be known as the 'Network for Manufacturing Innovation Fund' (referred to in this paragraph as the 'Fund').

''(B) ELEMENTS.—There shall be deposited in the Fund, which shall constitute the as-

sets of the Fund, amounts appropriated or otherwise made available to carry out the Program.

''(C) AVAILABILITY.—Amounts deposited in the Fund shall be available to the Secretary, at the discretion of the Secretary, or the Secretary's delegee, to carry out the Program without further appropriation and without fiscal year limitation.

''(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated $600,000,000 to the Secretary to carry out this section.

''(3) ADMINISTRATIVE EXPENSES.—The Secretary may use not more than 5 percent of the amounts appropriated pursuant to paragraph (2) to pay the salaries, expenses, and other administrative costs incurred by the Secretary under this section.''.

SEC. 405. HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.

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 AND PURPOSE.—

''(1) IN GENERAL.—The Secretary, through the Director and, if appropriate, through other officials, shall provide assistance for the creation and support of regional manufacturing extension centers for the transfer of manufacturing technology and best business practices. These centers shall be known as the 'Hollings Manufacturing Extension Centers' (in this Act referred to as the 'Centers'). The program under this section shall be known as the 'Hollings Manufacturing Extension Partnership'.

''(2) AFFILIATIONS.—Such Centers shall be affiliated with any United States-based public or nonprofit institution or organization, or group thereof, that applies for and is awarded financial assistance under this section.

''(3) OBJECTIVE.—The objective of the Centers is to enhance productivity, competitiveness, and technological performance in United States manufacturing through—

''(A) the transfer of manufacturing technology and techniques to Centers and, through them, to manufacturing companies throughout the United States;

''(B) the participation of individuals from industry, institutions of higher education, State

governments, other Federal agencies, and, when appropriate, the Institute in cooperative technology transfer activities;

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

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

''(E) the development of new partnerships, networks, and services that will assist small and medium-sized manufacturing companies expand into new markets, including global markets;

''(F) the utilization, when appropriate, of the expertise and capability that exists in Federal laboratories other than the Institute; and

''(G) the provision to community colleges and area career and technical education schools of information about the job skills needed in small and medium-sized manufacturing businesses in the regions they serve.

''(b) ACTIVITIES.—The activities of the Centers shall include—

''(1) the establishment of automated manufacturing systems and other advanced production technologies, based on research by the Institute and other entities, for the purpose of demonstrations and technology transfer;

''(2) assistance to Federal agencies in satisfying the domestic preference requirements of chapter 83 of title 41, United States Code (popularly referred to as the Buy American Act), and other similar provisions by identifying and providing technical assistance to small and medium-sized manufacturers to help them meet Federal agency procurement and acquisition needs;

''(3) the active transfer and dissemination of research findings and Center expertise to a wide range of companies and enterprises, particularly small and medium-sized manufacturers; and

''(4) the facilitation of collaborations and partnerships between small and medium-sized manufacturing companies and community colleges and area career and technical education schools to help such colleges and schools better understand the specific needs of manufacturers and to help manufacturers

better understand the skill sets that students learn in the programs offered by such colleges and schools.

''(c) FINANCIAL ASSISTANCE AND REQUIREMENTS.—

''(1) FINANCIAL SUPPORT.—The Secretary may provide financial support to any Center created under subsection (a) for an initial period of 5 years. 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 such Center.

''(2) REGULATIONS.—The Secretary shall implement, review, and update the sections of the Code of Federal Regulations related to this section at least once every 5 years.

''(3) APPLICATION.—

''(A) IN GENERAL.—Any public or nonprofit institution, or consortium thereof, may submit to the Secretary an application for financial support under this section, in accordance with the procedures established by the Secretary.

''(B) COST-SHARING.—In order to receive assistance under this section, an applicant for financial assistance under subparagraph (A)

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. For purposes of the preceding sentence, the 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) AGREEMENTS WITH OTHER ENTITIES.—In meeting the 50 percent requirement, it is anticipated that a Center will enter into agreements with other entities such as private industry, institutions of higher education, 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.—Each applicant under subparagraph (A) shall submit a proposal for the allocation of the legal rights associated

with any invention that may result from the proposed Center's activities.

''(4) MERIT REVIEW.—The Secretary shall subject each such application to merit review. In making a decision whether to approve such application and provide financial support under this section, the Secretary shall consider, at a minimum, the following:

''(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) Geographical diversity and extent of service area.

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

''(5) EVALUATION.—

''(A) IN GENERAL.—Each Center that receives financial assistance under this section shall be evaluated during its third year of oper-

ation by an evaluation panel appointed by the Secretary.

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

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

"(D) PERFORMANCE MEASUREMENT.—Each evaluation panel shall measure the involved Center's performance against the objectives specified in this section.

"(E) POSITIVE EVALUATION.—If the evaluation is positive, the Secretary may provide continued funding through the fifth year.

"(F) CORRECTIVE ACTION PLAN.—The Secretary may not provide funding for the remaining years of a Center's operation unless the evaluation is positive. A Center that has not received a positive evaluation by the evaluation panel shall be notified by the panel of the deficiencies in its performance and shall be placed on a corrective action plan and provided the opportunity to improve performance unless immediate action is necessary to protect the public

interest. The panel shall re-evaluate the Center within one year and if the Center has not addressed the deficiencies identified by the panel, or shown a significant improvement in its performance, the Director shall conduct a new competition to select an operator for the Center or may close the Center.

''(G) ADDITIONAL FINANCIAL SUPPORT.—After the fifth year, a Center may receive additional financial support under this section if it has received a positive evaluation through an independent review, under procedures established by the Institute. If a Center has received financial support for 10 consecutive years, the Director shall conduct a new competition to select an operator for the Center. The Director may create classes of Centers to phase in requirements related to recompetition.

''(6) OVERSIGHT BOARD.—

''(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 firms.

"(B) BYLAWS AND CONFLICT OF INTEREST.—Each 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.

"(C) LIMITATION.—Board members may not serve simultaneously on more than one Center's oversight board.

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

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

"(i) a participant under the program; or

"(ii) a client of a Center.

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

"(8) PATENT RIGHTS.—The provisions of chapter 18 of title 35, United States Code, shall apply, to the extent not 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.

''(d) REPORTING AND AUDITING REQUIREMENTS.—The Director shall establish procedures regarding Center financial reporting and auditing to ensure that awards are used for the purposes specified in this section and are in accordance with sound accounting practices.

''(e) 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, the Secretary and Director also may accept funds from other Federal departments and agencies and, under section 2(c)(7), from the private sector for the purpose of strengthening United States manufacturing.

''(2) ALLOCATION OF FUNDS.—

''(A) FUNDS ACCEPTED FROM OTHER 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) FUNDS ACCEPTED FROM THE PRIVATE SECTOR.—Funds accepted from the private sector under section 2(c)(7), if allocated to a Center, may not be considered in the calculation of the Federal share under subsection (c) of this section.

''(f) MEP ADVISORY BOARD.—

''(1) ESTABLISHMENT.—There is established within the Institute a Manufacturing Extension Partnership Advisory Board (in this subsection referred to as the 'MEP Advisory Board').

''(2) MEMBERSHIP.—

''(A) IN GENERAL.—The MEP Advisory Board shall consist of not fewer than 10 members broadly representative of stakeholders, to be appointed by the Director. At least 2 members shall be employed by or on an advisory board for the Centers, at least 1 member shall represent a community college, 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) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

''(D) SERVING CONSECUTIVE TERMS.—Any person who has completed two consecutive full terms of service on the MEP Advisory Board shall thereafter be ineligible for appointment during the one-year period following the expiration of the second such term.

''(3) MEETINGS.—The MEP Advisory Board shall meet not less than 2 times annually and shall provide to the Director—

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

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

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

''(4) FEDERAL ADVISORY COMMITTEE ACT APPLICABILITY.—

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

''(B) EXCEPTION.—Section 14 of the Federal Advisory Committee Act 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 within 30 days after the submission to Congress of the President's annual budget request in each year. Such report shall address the status of the program established pursuant to this section and 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.

''(g) COMPETITIVE GRANT PROGRAM.—

''(1) ESTABLISHMENT.—The Director shall establish, within the Hollings Manufacturing Extension Partnership, a program of competitive awards

among participants described in paragraph (2) for the purposes described in paragraph (3).

''(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 is to add capabilities to the Hollings Manufacturing Extension Partnership, 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, the MEP Advisory Board, and small and medium-sized manufacturers.

''(4) THEMES.—One or more themes for the competition may be identified, which may vary from year to year, depending on the needs of manufacturers and the success of previous competitions. These themes may include—

''(A) supply chain integration and quality management;

''(B) the creation of partnerships to encourage the development of a workforce with the skills necessary to meet the needs of a region, including the creation of apprenticeship

opportunities and the adoption of universally-recognized credential programs, as appropriate;

''(C) energy efficiency, including efficient building technologies and environmentally friendly materials, products, and processes;

''(D) enhancing the competitiveness of small and medium-sized manufacturers in the global marketplace;

''(E) 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; and

''(F) areas that extend beyond traditional areas of manufacturing extension activities, including projects related to construction industry modernization.

''(5) REIMBURSEMENT.—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, at such time, and containing such information as the Director shall require, in consultation with the MEP Advisory Board.

''(7) SELECTION.—Awards under this subsection shall be peer reviewed and competitively awarded. The Director shall endeavor to have broad geographic diversity among selected proposals. The Director shall select proposals to receive awards that will—

''(A) utilize innovative or collaborative approaches to solving the problem described in the competition;

''(B) improve the competitiveness of industries in the region in which the Center or Centers are located; and

''(C) contribute to the long-term economic stability of that region, including the creation of jobs or training employees.

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

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

''(h) INNOVATIVE SERVICES INITIATIVE.—

''(1) ESTABLISHMENT.—The Director, in coordination with the Advanced Manufacturing Office of the Department of Energy, shall establish, within the Hollings Manufacturing Extension Partnership,

an innovative services initiative to assist small and medium-sized manufacturers 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.

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

''(i) EXPORT ASSISTANCE TO SMALL AND MEDIUM-SIZED MANUFACTURERS.—

''(1) IN GENERAL.—The Director shall—

''(A) evaluate obstacles that are unique to small and medium-sized manufacturers that

prevent such manufacturers from effectively competing in the global market;

''(B) implement a comprehensive export assistance initiative through the Centers to help small and medium-sized manufacturers address such obstacles; and

''(C) to the maximum extent practicable, ensure that the activities carried out under this subsection are coordinated with, and do not duplicate the efforts of, other export assistance programs within the Federal Government.

''(2) REQUIREMENTS.—The initiative shall include—

''(A) export assistance counseling;

''(B) the development of partnerships that will provide small and medium-sized manufacturers with greater access to and knowledge of global markets; and

''(C) improved communication between the Centers to assist such manufacturers in implementing appropriate, targeted solutions to such obstacles.

''(j) DEFINITIONS.—In this section:

''(1) AREA CAREER AND TECHNICAL EDUCATION SCHOOL.—The term 'area career and tech-

nical education school' has the meaning given such term in section 3 of the Carl D. Perkins Career and Technical Education Improvement Act of 2006 (20 U.S.C. 2302).

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

SEC. 406. BIOSCIENCE MEASUREMENT SCIENCE AND STANDARDS.

(a) IN GENERAL.—The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended by inserting after section 34, as added by section 404 of this Act, the following:

''SEC. 35. BIOSCIENCE MEASUREMENT SCIENCE AND STANDARDS.

''The Director shall—

''(1) establish a bioscience research program to support the development of standards and measurements and to create new data, tools, techniques, and processes necessary to promote new research and industries at the intersection of the biological, physical, and information sciences and engineering;

''(2) provide access to user facilities with advanced or unique equipment, services, materials, and other resources to industry, institutions of higher education, nonprofit organizations, and government agencies to perform research and testing related to the biosciences program established under this section; and

''(3) provide technical expertise to inform the development of guidelines and safeguards for new products, processes, and systems that may result from advancements at the intersection of the biological, physical, and information sciences and engineering.''.

SEC. 407. NATIONAL ACADEMY OF SCIENCES REVIEW.

Not later than 6 months after the date of enactment of this Act, the Director of the National Institute of Standards and Technology shall enter into a contract with the National Academy of Sciences to conduct a single, comprehensive review of the Institute's laboratory programs. The review shall—

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

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

(3) evaluate how cross-cutting research and development activities are planned, coordinated, and executed across the laboratories; and

(4) assess how the laboratories are engaging industry, including the incorporation of industry need, into the research goals and objectives of the Institute.

SEC. 408. IMPROVING NIST COLLABORATION WITH OTHER AGENCIES.

Section 8 of the National Bureau of Standards Authorization Act for Fiscal Year 1983 (15 U.S.C. 275b) is amended—

(1) in the section heading, by inserting ''AND WITH'' after ''PERFORMED FOR''; and

(2) by adding at the end the following: ''The Secretary may accept, apply for, use, and spend Federal, State, and non-governmental acquisition and assistance funds to further the mission of the Institute without regard to the source or the period of availability of these funds as well as share personnel, associates, facilities, and property with these partner organizations, with or without reimbursement, upon mutual agreement.''.

SEC. 409. MISCELLANEOUS PROVISIONS.

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

(1) by striking ''of the Government; and'' and inserting ''of the Government;'';

(2) by striking ''transportation services for employees of the Institute'' and inserting ''transportation services for employees, associates, or fellows of the Institute''; and

(3) by striking ''Code.'' and inserting ''Code; and (i) the protection of Institute buildings and other plant facilities, equipment, and property, and of employees, associates, visitors, or other persons located therein or associated therewith, notwithstanding any other provision of law.''

(b) POST-DOCTORAL FELLOWSHIP PROGRAM.—Section 19 of the National Institute of Standards and Technology Act (15 U.S.C. 278g–2) is amended is to read as follows:

''SEC. 19. POST-DOCTORAL FELLOWSHIP PROGRAM.

''The Director, in conjunction with the National Academy of Sciences, shall establish and conduct a post-doctoral fellowship program that shall include not less than 20 new fellows per fiscal year. In evaluating applications for fellowships under this section, the Director shall

give consideration to the goal of promoting the participation of underrepresented minorities in research areas supported by the Institute.''.

TITLE V—INNOVATION

SEC. 501. OFFICE OF INNOVATION AND ENTREPRENEURSHIP.

Section 25 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3720) is amended—

(1) in subsection (a) by inserting ''with a Director and full-time staff'' after ''Office of Innovation and Entrepreneurship'';

(2) in subsection (b)—

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

''(3) providing access to relevant data, research, and technical assistance on innovation and commercialization, including best practices for university-based incubators and accelerators;'';

(B) by redesignating paragraphs (4) and (5) as paragraphs (6) and (7), respectively; and

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

''(4) oversee the implementation of the loan guarantee programs and the Regional Innovation

Program established under sections 26 and 27, respectively;

''(5) develop, within 180 days after the date of enactment of the America Competes Reauthorization Act of 2013, and update at least every five years, a strategic plan to guide the activities of the Office of Innovation and Entrepreneurship which shall—

''(A) specify and prioritize near-term and long-term goals, objectives, and policies to accelerate innovation and advance the commercialization of research and development, including federally funded research and development, set forth the anticipated time for achieving the objectives, and identify metrics for use in assessing progress toward such objectives;

''(B) describe how the Department of Commerce is working in conjunction with other Federal agencies to foster innovation and commercialization across the United States; and

''(C) provide a summary of the activities, including the development of metrics to evaluate regional innovation strategies undertaken through the Regional Innovation Research and Information Program established under section 27(e).'';

(3) by amending subsection (c) to read as follows:

''(c) ADVISORY COMMITTEE.—

''(1) ESTABLISHMENT.—The Secretary shall establish or designate an advisory committee, which shall meet at least twice each fiscal year, to provide advice to the Secretary on carrying out the duties and responsibilities of the Office of Innovation and Entrepreneurship.

''(2) REPORT TO CONGRESS.—The advisory committee shall prepare a report, to be submitted to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate every 3 years. The first report shall be submitted not later than 1 year after the date of enactment of the America Competes Reauthorization Act of 2013 and shall include—

''(A) an assessment of the strategic plan developed under subsection (b)(5) and the progress made in implementing the plan and the duties of the Office of Innovation and Entrepreneurship;

''(B) an assessment of how the Office of Innovation and Entrepreneurship is working

with other Federal agencies to meet the goals and duties of the office; and

''(C) any recommendations for how the Office of Innovation and Entrepreneurship could be improved.''; and

(4) by adding at the end the following:

''(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary $5,000,000 for each of fiscal years 2014 through 2018 to carry out this section.''.

SEC. 502. FEDERAL LOAN GUARANTEES FOR INNOVATIVE TECHNOLOGIES IN MANUFACTURING.

Section 26(t) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3721(t)) is amended by striking ''fiscal years 2011 through 2013'' and inserting ''fiscal years 2014 through 2018''.

SEC. 503. REGIONAL INNOVATION PROGRAM.

Section 27 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3722) is amended—

(1) in subsection (b), by adding at the end the following:

''(8) FUNDING.—The Secretary may accept funds from other Federal agencies to support grants and activities under this subsection.''; and

(2) in subsection (i), by striking ''fiscal years 2011 through 2013'' and inserting ''fiscal years 2014 through 2018''.

SEC. 504. INNOVATION VOUCHER PILOT PROGRAM.

Section 25 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3720) as amended by section 501 of this Act, is further amended by adding at the end the following:

''(e) INNOVATION VOUCHER PILOT PROGRAM.—

''(1) IN GENERAL.—The Secretary, acting through the Office of Innovation and Entrepreneurship and in conjunction with the States, shall establish an innovation voucher pilot program to accelerate innovative activities and enhance the competitiveness of small and medium-sized manufacturers in the United States. The pilot program shall—

''(A) foster collaborations between small and medium-sized manufacturers and research institutions; and

''(B) enable small and medium-sized manufacturers to access technical expertise and capabilities that will lead to the development of innovative products or manufacturing processes, including through—

''(i) research and development, including proof of concept, technical development, and compliance testing activities;

''(ii) early-stage product development, including engineering design services; and

''(iii) technology transfer and related activities.

''(2) AWARD SIZE.—The Secretary shall competitively award vouchers worth up to $20,000 to small and medium-sized manufacturers for use at eligible research institutions to acquire the services described in paragraph (1)(B).

''(3) STREAMLINED PROCEDURES.—The Secretary shall streamline and simplify the application, administrative, and reporting procedures for vouchers administered under the program.

''(4) REGULATIONS.—Prior to awarding any vouchers under the program, the Secretary shall promulgate regulations—

''(A) establishing criteria for the selection of recipients of awards under this subsection;

''(B) establishing procedures regarding financial reporting and auditing—

''(i) to ensure that awards are used for the purposes of the program; and

"(ii) that are in accordance with sound accounting practices; and

"(C) describing any other policies, procedures, or information necessary to implement this subsection, including those intended to streamline and simplify the program in accordance with paragraph (3).

"(5) TRANSFER AUTHORITY.—The Secretary may transfer funds appropriated to the Department of Commerce to other Federal agencies for the performance of services authorized under this subsection.

"(6) ADMINISTRATIVE COSTS.—All of the amounts appropriated to carry out this subsection for a fiscal year shall be used for vouchers awarded under this subsection, except that the Secretary may set aside a percentage of such amounts for eligible research institutions performing the services described in paragraph (1)(B) to defray administrative costs associated with the services. The Secretary shall establish a single, fixed percentage for such purposes that will apply to all eligible research institutions.

"(7) OUTREACH.—The Secretary may use centers established under section 25 of the National In-

stitute of Standards and Technology Act (15 U.S.C. 278k) to provide information about the program established under this subsection and to conduct outreach to potential applicants, as appropriate.

''(8) REPORTS TO CONGRESS.—

''(A) PLAN.—Not later than 180 days after the date of enactment of the America Competes Reauthorization Act of 2013, the Secretary shall transmit to Congress a plan that will serve as a guide for the activities of the program. The plan shall include a description of the specific objectives of the program and the metrics that will be used in assessing progress toward those objectives.

''(B) OUTCOMES.—Not later than 3 years after the date of enactment of the America Competes Reauthorization Act of 2013, the Secretary shall transmit to Congress a report containing—

''(i) a summary of the activities carried out under this subsection;

''(ii) an assessment of the impact of such activities on the innovative capacity of small and medium-sized manufacturers re-

ceiving assistance under the pilot program; and

"(iii) any recommendations for administrative and legislative action that could optimize the effectiveness of the pilot program.

"(9) COORDINATION AND NONDUPLICATION.—To the maximum extent practicable, the Secretary shall ensure that the activities carried out under this subsection are coordinated with, and do not duplicate the efforts of, other programs within the Federal Government.

"(10) ELIGIBLE RESEARCH INSTITUTIONS DEFINED.—For the purposes of this subsection, the term 'eligible research institution' means—

"(A) an institution of higher education, as such term is defined in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a));

"(B) a Federal laboratory;

"(C) a federally funded research and development center; or

"(D) a Hollings Manufacturing Extension Center established under section 25 of the Na-

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

''(11) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out the pilot program in this subsection $5,000,000 for each of fiscal years 2014 through 2018.''.

SEC. 505. FEDERAL ACCELERATION OF STATE TECHNOLOGY COMMERCIALIZATION PILOT PROGRAM.

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

''SEC. 28. FEDERAL ACCELERATION OF STATE TECHNOLOGY COMMERCIALIZATION PILOT PROGRAM.

''(a) AUTHORITY.—

''(1) ESTABLISHMENT.—The Secretary shall establish a Federal Acceleration of State Technology Commercialization Pilot Program or FAST Commercialization Pilot Program to award grants to States, or consortia thereof, for the purposes described in paragraph (2). Awards under this section shall be made through a competitive, merit-based process.

''(2) PURPOSE.—The purpose of the program under this section is to advance United States productivity and global competitiveness by accelerating commercialization of innovative technology by leveraging Federal support for State commercialization efforts. The program shall provide matching funds to a State, or consortium thereof, for the acceleration of commercialization activities and the promotion of small manufacturing enterprises in the United States.

''(b) APPLICATION.—Applications for awards under this section shall be submitted in such a manner, at such a time, and containing such information as the Secretary shall require, including—

''(1) a description of the current state of technology commercialization in the State or States, including successes and barriers to commercialization; and

''(2) a description of the State's or consortium's plan for increasing commercialization of new technologies, products, processes, and services.

''(c) SELECTION CRITERIA.—The Secretary shall establish criteria for the selection of awardees, which shall consider at a minimum a review of efforts during the fiscal year prior to submitting an application to—

''(1) promote manufacturing; and

''(2) commercialize new technologies, products, processes, and services, including activities to translate federally funded research and technologies to small manufacturing enterprises.

''(d) MATCHING REQUIREMENT.—A State or consortium receiving a grant under this section shall provide non-Federal cash contributions in an amount equal to 50 percent of the total cost of the project for which the grant is provided.

''(e) COORDINATION AND NONDUPLICATION.—In carrying out the program under this section, the Secretary shall ensure that grants made under the program are coordinated with, and do not duplicate, the efforts of other commercialization programs within the Federal Government.

''(f) EVALUATION.—

''(1) IN GENERAL.—Not later than 3 years after the date of enactment of the America Competes Reauthorization Act of 2013, the Secretary shall enter into a contract with an independent entity, such as the National Academy of Sciences, to conduct an evaluation of the program established under subsection (a).

''(2) REQUIREMENTS.—The evaluation shall—

''(A) assess whether the program is achieving its goals;

''(B) include any recommendations for how the program may be improved; and

''(C) include a recommendation as to whether the program should be continued or terminated.

''(g) DEFINITIONS.—In this section—

''(1) the term 'State' has the meaning given that term in section 3 of the Public Works and Economic Development Act of 1965 (42 U.S.C. 3122); and

''(2) the term 'commercialization' has the meaning given that term in section 9(e)(10) of the Small Business Act (15 U.S.C. 638(e)(10)).

''(h) DURATION.—Each award shall be for a 5-year period.

''(i) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary $50,000,000 for each of fiscal years 2014 through 2016 to carry out this section.''.

TITLE VI—DEPARTMENT OF ENERGY

Subtitle A—Office of Science

SEC. 601. SHORT TITLE.

This subtitle may be cited as the ''Department of Energy Office of Science Authorization Act of 2013''.

SEC. 602. DEFINITIONS.

Except as otherwise provided, in this subtitle:

(1) DEPARTMENT.—The term ''Department'' means the Department of Energy.

(2) DIRECTOR.—The term ''Director'' means the Director of the Office of Science.

(3) OFFICE OF SCIENCE.—The term ''Office of Science'' means the Department of Energy Office of Science.

(4) UNDER SECRETARY.—The term ''Under Secretary'' means the Under Secretary for Science and Energy.

(5) SECRETARY.—The term ''Secretary'' means the Secretary of Energy.

SEC. 603. MISSION OF THE OFFICE OF SCIENCE.

Section 209 of the Department of Energy Organization Act (42 U.S.C. 7139) is amended by adding at the end the following:

''(c) MISSION.—The mission of the Office of Science shall be the delivery of scientific discoveries, capabilities, and major scientific tools to transform the understanding of nature and to advance the energy, economic, and national security of the United States.

''(d) DUTIES.—In support of this mission, the Director shall carry out programs on basic energy sciences, biological and environmental research, advanced scientific computing research, fusion energy sciences, high energy physics, and nuclear physics through activities focused on—

''(1) Science for Discovery to unravel nature's mysteries through activities which range from the study of subatomic particles, atoms, and molecules that make up the materials of our everyday world to the study of DNA, proteins, cells, and entire biological systems;

''(2) Science for National Need by—

''(A) advancing a clean energy agenda through research on energy production, storage, transmission, efficiency, and use; and

''(B) advancing our understanding of the Earth and its climate through research in atmospheric and environmental sciences and climate change; and

''(3) National Scientific User Facilities to deliver the 21st century tools of science, engineering, and technology and provide the Nation's researchers with the most advanced tools of modern science including accelerators, colliders, supercomputers, light sources and neutron sources, and facilities for studying complex molecular systems and the nanoworld.

''(e) SUPPORTING ACTIVITIES.—The activities described in subsection (d) shall include providing for relevant facilities and infrastructure, programmatic analysis, interagency coordination, and education and outreach activities.

''(f) USER FACILITIES.—The Director shall carry out the construction, operation, and maintenance of user facilities to support the activities described in subsection (d). As practicable, these facilities shall serve the needs of the Department, industry, the academic community, and other relevant activities for the purposes of advancing the missions of the Department.

''(g) OTHER AUTHORIZED ACTIVITIES.—In addition to the activities authorized under the Department of Energy Office of Science Authorization Act of 2013, the Office of Science shall carry out other such activities as it is authorized or required to carry out by law.

''(h) COORDINATION AND JOINT ACTIVITIES WITH OTHER DEPARTMENT OF ENERGY PROGRAMS.—The Under Secretary shall ensure the coordination of activities under the Department of Energy Office of Science Authorization Act of 2013 with the other activities of the Department, and shall support joint activities among the programs of the Department.''.

SEC. 604. BASIC ENERGY SCIENCES PROGRAM.

(a) PROGRAM.—As part of the activities authorized under the amendment made by section 603, the Director shall carry out a program in basic energy sciences, including materials sciences and engineering, chemical sciences, physical biosciences, and geosciences, for the purpose of providing the scientific foundations for new energy technologies.

(b) BASIC ENERGY SCIENCES USER FACILITIES.—

(1) IN GENERAL.—The Director shall carry out a subprogram to support and oversee the construction, operation, and maintenance of national user facilities that support the program under this section. As practicable, these facilities shall serve the needs of the Department, industry, the academic community, and other relevant entities to create and examine new materials and chemical processes for the purposes of advancing new energy technologies and

improving the competitiveness of the United States. These facilities shall include—

(A) x-ray light sources;

(B) neutron sources;

(C) electron beam microcharacterization centers;

(D) nanoscale science research centers; and

(E) other facilities the Director considers appropriate, consistent with section 209(f) of the Department of Energy Organization Act (42 U.S.C. 7139(f)).

(2) FACILITY RESEARCH AND DEVELOPMENT.—The Director shall carry out research and development on advanced accelerator and storage ring technologies relevant to the Basic Energy Sciences user facilities, in consultation with the Office of Science's High Energy Physics and Nuclear programs.

(3) FACILITY CONSTRUCTION AND UPGRADES.—Consistent with the Office of Science's project management practices, the Director shall support construction of—

(A) an upgrade of the Advanced Photon Source to improve brightness and performance;

(B) a Second Target Station at the Spallation Neutron Source to double user capacity and expand the range of useful neutron energies produced; and

(C) the Linear Coherent Light Source II to increase user capacity, expand the x-ray wavelength range, and improve user control capabilities of the Linear Coherent Light Source.

(c) LIGHT SOURCE LEADERSHIP INITIATIVE.—

(1) ESTABLISHMENT OF INITIATIVE.—In support of the program authorized in subsection (b), the Director shall establish an initiative to sustain and advance global leadership of light source user facilities.

(2) STRATEGY.—Not later than 9 months after the date of enactment of this Act, and biennially thereafter, the Director shall prepare, in consultation with relevant stakeholders, and submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a light source leadership strategy that—

(A) identifies, prioritizes, and describes plans for the development, construction, and operation of light sources over the next decade;

(B) describes plans for optimizing management and use of existing light source facilities; and

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

(3) COMMENTS AND RECOMMENDATIONS.—Not later than 45 days after submission of the plan described in paragraph (2), the Basic Energy Sciences Advisory Committee shall provide the Director and the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate comments on and recommendations for improving the plan.

(4) PROPOSED BUDGET.—The Director shall transmit annually to Congress a proposed budget corresponding to the activities identified in the plan.

(d) ENERGY FRONTIER RESEARCH CENTERS.—

(1) IN GENERAL.—The Director shall carry out a grant program to provide awards, on a competitive, merit-reviewed basis, to multi-institutional collaborations or other appropriate entities to conduct fundamental and use-inspired energy research to ac-

celerate scientific breakthroughs related to needs identified in—

(A) the Grand Challenges report of the Department's Basic Energy Sciences Advisory Committee;

(B) the report of the Department's Basic Energy Sciences Advisory Committee entitled ''From Quanta to the Continuum: Opportunities for Mesoscale Science'';

(C) the Basic Energy Sciences Basic Research Needs workshop report;

(D) energy-related Grand Challenges for Engineering, as described by the National Academy of Engineering; or

(E) other relevant reports identified by the Director.

(2) COLLABORATIONS.—A collaboration receiving a grant under this subsection may include multiple types of institutions and private sector entities.

(3) SELECTION AND DURATION.—

(A) IN GENERAL.—A collaboration under this subsection shall be selected for a period of 5 years. An Energy Frontier Research Center already in existence and supported by the Director on the date of enactment of this Act may

continue to receive support for a period of 5 years beginning on the date of establishment of that center.

(B) REAPPLICATION.—After the end of the period described in subparagraph (A), a grantee may reapply for selection for a second period of 5 years on a competitive, merit-reviewed basis.

(C) TERMINATION.—The Director may terminate an underperforming center at any time.

(4) NO FUNDING FOR CONSTRUCTION.—No funding provided pursuant to this subsection may be used for the construction of new buildings or facilities.

SEC. 605. BIOLOGICAL AND ENVIRONMENTAL RESEARCH.

(a) IN GENERAL.—As part of the activities authorized under section 209 of the Department of Energy Organization Act (42 U.S.C. 7139), and coordinated with the activities authorized under section 604 and section 606, the Director shall carry out a program of research, development, and demonstration in the areas of biological systems science and climate and environmental science, including subsurface science, to support the energy and environmental missions of the Department.

(b) BIOLOGICAL SYSTEMS SCIENCE ACTIVITIES.—

(1) ACTIVITIES.—As part of the activities authorized under subsection (a), the Director shall carry out research, development, and demonstration activities in fundamental, structural, computational, and systems biology to increase systems-level understanding of the complex biological systems, which shall include activities to—

(A) accelerate breakthroughs and new knowledge that will enable cost-effective sustainable production of—

(i) biomass-based liquid transportation fuels;

(ii) bioenergy; and

(iii) biobased materials,

that support the energy and environmental missions of the Department;

(B) improve understanding of the global carbon cycle, including processes for removing carbon dioxide from the atmosphere, through photosynthesis and other biological processes, for sequestration and storage; and

(C) understand the biological mechanisms used to destroy, immobilize, or remove contaminants from subsurface environments.

(2) BIOENERGY RESEARCH CENTERS.—

(A) IN GENERAL.—In carrying out activities under paragraph (1), the Director shall support at least 3 bioenergy research centers to accelerate advanced research and development of biomass-based liquid transportation fuels, bioenergy, and biobased materials that support the energy and environmental missions of the Department and are produced from a variety of regionally diverse feedstocks.

(B) SELECTION AND DURATION.—A center established under subparagraph (A) shall be selected on a competitive, merit-reviewed basis for a period of 5 years beginning on the date of establishment of that center. A center already in existence on the date of enactment of this Act may continue to receive support for a period of 5 years beginning on the date of establishment of that center.

(C) TERMINATION.—The Director may terminate an underperforming center at any time.

(3) REPEAL.—Section 977 of the Energy Policy Act of 2005 (42 U.S.C. 16317) is repealed.

(c) CLIMATE AND ENVIRONMENTAL SCIENCE ACTIVITIES.—

(1) IN GENERAL.—As part of the activities authorized under subsection (a), and in coordination with activities carried out under subsection (b), the Director shall carry out climate and environmental science research, which shall include activities to—

(A) understand, observe, and model the response of Earth's atmosphere and biosphere to increased concentrations of greenhouse gas emissions and any associated changes in climate;

(B) understand the processes for immobilization, or removal of, and understand the movement of, energy production-derived contaminants such as radionuclides and heavy metals, and understand the process of sequestration and destruction of carbon dioxide in subsurface environments, including at facilities of the Department; and

(C) inform potential mitigation and adaptation options for increased concentrations of greenhouse gas emissions and any associated changes in climate.

(2) SUBSURFACE BIOGEOCHEMICAL RESEARCH.—

(A) IN GENERAL.—As part of the activities described in paragraph (1), the Director shall carry out research to advance a fundamental understanding of coupled physical, chemical, and biological processes for controlling the movement of sequestered carbon and subsurface environmental contaminants.

(B) COORDINATION.—

(i) DIRECTOR.—The Director shall carry out activities under this paragraph in accordance with priorities established by the Under Secretary to support and accelerate the decontamination of relevant facilities managed by the Department.

(ii) UNDER SECRETARY.—The Under Secretary shall ensure the coordination of activities of the Department, including activities under this paragraph, to support and accelerate the decontamination of relevant of relevant facilities managed by the Department.

(3) CLIMATE AND EARTH MODELING.—As part of the activities described in paragraph (1), the Director, in collaboration with the Advanced Scientific Computing Research program described in section

606, shall carry out research to develop, evaluate, and use high-resolution regional climate, global climate, and Earth models to inform decisions on reducing the impacts of a changing climate. Such modeling shall include greenhouse gas emissions, land use, and interaction among human and Earth systems.

(4) LOW DOSE RADIATION RESEARCH PROGRAM.—

(A) IN GENERAL.—The Director shall carry out a research program on low dose radiation. The purpose of the program is to enhance the scientific understanding of and reduce uncertainties associated with the effects of exposure to low dose radiation in order to inform improved risk management methods.

(B) STUDY.—Not later than 60 days after the date of enactment of this Act, the Director shall enter into an agreement with the National Academies to conduct a study assessing the current status and development of a long-term strategy for low dose radiation research. The study shall be conducted in coordination with Federal agencies that perform ionizing radiation-effects research.

(C) CONTENTS.—The study performed under subparagraph (B) shall—

(i) identify current scientific challenges for understanding the long-term effects of ionizing radiation;

(ii) assess the status of current low dose radiation research in the United States and internationally;

(iii) formulate overall scientific goals for the future of low dose radiation research in the United States;

(iv) recommend a long-term strategic and prioritized research agenda to address scientific research goals for overcoming the identified scientific challenges in coordination with other research efforts;

(v) define the essential components of a research program that would address this research agenda within the universities and the National Laboratories; and

(vi) assess the cost-benefit effectiveness of such a program.

(D) 5-YEAR RESEARCH PLAN.—Not later than 90 days after the completion of the study performed under subparagraph (C), the Sec-

retary shall deliver to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a 5-year research plan that responds to the study's findings and recommendations and identifies and prioritizes research needs.

SEC. 606. ADVANCED SCIENTIFIC COMPUTING RESEARCH PROGRAM.

(a) IN GENERAL.—As part of the activities authorized under section 209 of the Department of Energy Organization Act (42 U.S.C. 7139), the Director shall carry out a research, development, demonstration, and commercial application program to advance computational and networking capabilities for data-driven discovery and to analyze, model, simulate, and predict complex phenomena relevant to the development of new energy technologies and the competitiveness of the United States.

(b) COORDINATION.—

(1) DIRECTOR.—The Director shall carry out activities under this section in accordance with priorities established by the Under Secretary to determine and meet the computational and networking research and facility needs of the Office of Science

and all other relevant energy technology and energy efficiency programs within the Department.

(2) UNDER SECRETARY.—The Under Secretary shall ensure the coordination of the activities of the Department, including activities under this section, to determine and meet the computational and networking research and facility needs of the Office of Science and all other relevant energy technology and energy efficiency programs within the Department.

(c) RESEARCH TO SUPPORT ENERGY APPLICATIONS.—

(1) IN GENERAL.—As part of the activities authorized under subsection (a), the program shall support research in high-performance computing and networking relevant to energy applications including modeling, simulation, and advanced data analytics for basic and applied energy research programs carried out by the Secretary.

(2) REPORT.—Not later than one year after the date of enactment of this Act, the Secretary shall transmit to the Congress a plan to integrate and leverage the expertise and capabilities of the program described in subsection (a), as well as other relevant computational and networking research programs and resources supported by the Federal Government,

to advance the missions of the Department's applied energy and energy efficiency programs.

(d) APPLIED MATHEMATICS AND SOFTWARE DEVELOPMENT FOR HIGH-END COMPUTING SYSTEMS.—The Director shall carry out activities to develop, test, and support mathematics, models, and algorithms for complex systems, as well as programming environments, tools, languages, and operating systems for high-end computing systems (as defined in section 2 of the Department of Energy High-End Computing Revitalization Act of 2004 (15 U.S.C. 5541)).

(e) EXASCALE COMPUTING PROGRAM.—Section 3 of the Department of Energy High-End Computing Revitalization Act of 2004 (15 U.S.C. 5542) is amended—

(1) in subsection (a)—

(A) in paragraph (1), by striking ''program'' and inserting ''coordinated program across the Department'';

(B) by striking ''and'' at the end of paragraph (1);

(C) by striking the period at the end of paragraph (2) and inserting ''; and''; and

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

''(3) partner with universities, National Laboratories, and industry to ensure the broadest possible application of the technology developed in this program to other challenges in science, engineering, medicine, and industry.'';

(2) in subsection (b)(2), by striking ''vector'' and all that follows through ''architectures'' and inserting ''computer technologies that show promise of substantial reductions in power requirements and substantial gains in parallelism of multicore processors, concurrency, memory and storage, bandwidth, and reliability''; and

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

''(d) EXASCALE COMPUTING PROGRAM.—

''(1) IN GENERAL.—The Secretary shall conduct a coordinated research program to develop exascale computing systems to advance the missions of the Department.

''(2) EXECUTION.—The Secretary shall, through competitive merit review, establish two or more National Laboratory-industry-university partnerships to conduct integrated research, development, and engineering of multiple exascale architectures, and—

''(A) conduct mission-related co-design activities in developing such exascale platforms;

''(B) develop those advancements in hardware and software technology required to fully realize the potential of an exascale production system in addressing Department target applications and solving scientific problems involving predictive modeling and simulation and large-scale data analytics and management; and

''(C) explore the use of exascale computing technologies to advance a broad range of science and engineering.

''(3) ADMINISTRATION.—In carrying out this program, the Secretary shall—

''(A) provide, on a competitive, merit-reviewed basis, access for researchers in United States industry, institutions of higher education, National Laboratories, and other Federal agencies to these exascale systems, as appropriate; and

''(B) conduct outreach programs to increase the readiness for the use of such platforms by domestic industries, including manufacturers.

''(4) REPORTS.—

"(A) INTEGRATED STRATEGY AND PROGRAM MANAGEMENT PLAN.—The Secretary shall submit to Congress, not later than 90 days after the date of enactment of the Department of Energy Office of Science Authorization Act of 2013, a report outlining an integrated strategy and program management plan, including target dates for prototypical and production exascale platforms, interim milestones to reaching these targets, functional requirements, roles and responsibilities of National Laboratories and industry, acquisition strategy, and estimated resources required, to achieve this exascale system capability. The report shall include the Secretary's plan for Departmental organization to manage and execute the Exascale Computing Program, including definition of the roles and responsibilities within the Department to ensure an integrated program across the Department. The report shall also include a plan for ensuring balance and prioritizing across ASCR subprograms in a flat or slow-growth budget environment.

"(B) STATUS REPORTS.—At the time of the budget submission of the Department for

each fiscal year, the Secretary shall submit a report to Congress that describes the status of milestones and costs in achieving the objectives of the exascale computing program.

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

''(i) the proposed facility's cost projections and capabilities to significantly accelerate the development of new energy technologies;

''(ii) technical risks and challenges that must be overcome to achieve successful completion and operation of the facility; and

''(iii) an independent assessment of the scientific and technological advances expected from such a facility relative to those expected from a comparable investment in expanded research and applications at terascale-class and petascale-class computing facilities, including an evaluation of where investments should be made

in the system software and algorithms to enable these advances.''.

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

''(1) CO-DESIGN.—The term 'co-design' means the joint development of application algorithms, models, and codes with computer technology architectures and operating systems to maximize effective use of high-end computing systems.

''(2) DEPARTMENT.—The term 'Department' means the Department of Energy.

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

''(4) HIGH-END COMPUTING SYSTEM.—The term 'high-end computing system' means a computing system with performance that substantially exceeds that of systems that are commonly available for advanced scientific and engineering applications.

''(5) 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)).

''(6) NATIONAL LABORATORY.—The term 'National Laboratory' means any one of the seventeen laboratories owned by the Department.

''(7) SECRETARY.—The term 'Secretary' means the Secretary of Energy.

''(8) SOFTWARE TECHNOLOGY.—The term 'software technology' includes optimal algorithms, programming environments, tools, languages, and operating systems for high-end computing systems.''.

SEC. 607. FUSION ENERGY RESEARCH PROGRAM.

(a) PROGRAM.—As part of the activities authorized under section 209 of the Department of Energy Organization Act (42 U.S.C. 7139), the Director shall carry out a fusion energy sciences research and enabling technology development program to effectively address the scientific and engineering challenges to building a cost-competitive fusion power plant and a competitive fusion power industry in the United States. As part of this program, the Director shall carry out research activities to expand the fundamental understandings of plasmas and matter at very high temperatures and densities.

(b) ITER.—The Director shall coordinate and carry out the responsibilities of the United States with respect to the ITER international fusion project pursuant to the Agreement on the Establishment of the International Fu-

sion Energy Organization for the Joint Implementation of the ITER Project.

(c) IDENTIFICATION OF PRIORITIES.—

(1) REPORT.—Not later than 18 months after the date of enactment of this Act, the Secretary shall transmit to the Congress a report on the Department's proposed research and development activities in magnetic fusion over the 10 years following the date of enactment of this Act under at least three realistic budget scenarios. The report shall—

(A) identify specific areas of fusion energy research enabling technology development in which the United States can and should establish or solidify a lead in the global fusion energy development effort; and

(B) identify priorities for initiation of facility construction and facility decommissioning under each of those scenarios.

(2) REVIEW.—The report shall be reviewed by the Fusion Energy Sciences Advisory Committee prior to its transmittal to Congress. The Secretary shall provide the Fusion Energy Sciences Advisory Committee with the opportunity and sufficient resources to submit its own recommendations and ad-

ditional views on the Department's final report to Congress.

(d) FUSION MATERIALS RESEARCH AND DEVELOPMENT.—The Director, in coordination with the Assistant Secretary for Nuclear Energy of the Department, shall carry out research and development activities to identify, characterize, and create materials that can endure the neutron, plasma, and heat fluxes expected in a commercial fusion power plant. As part of the activities authorized under subsection (c), the Secretary shall—

(1) provide an assessment of the need for a facility or facilities that can examine and test potential fusion and next generation fission materials and other enabling technologies relevant to the development of commercial fusion power plants; and

(2) provide an assessment of whether a single new facility that substantially addresses magnetic fusion, inertial fusion, and next generation fission materials research needs is feasible, in conjunction with the expected capabilities of facilities operational as of the date of enactment of this Act.

(e) INERTIAL FUSION ENERGY RESEARCH AND DEVELOPMENT PROGRAM.—The Secretary shall carry out a program of research and technology development in iner-

tial fusion for energy applications, including ion beam, laser, and pulsed power fusion systems.

SEC. 608. HIGH ENERGY PHYSICS PROGRAM.

(a) IN GENERAL.—As part of the activities authorized under section 209 of the Department of Energy Organization Act (42 U.S.C. 7139), the Director shall carry out a research program on the elementary constituents of matter and energy and the nature of space and time.

(b) NEUTRINO RESEARCH.—As part of the program described in subsection (a), the Director shall carry out research activities on rare decay processes and the nature of the neutrino, which may—

(1) include collaborations with the National Science Foundation or international collaborations on relevant research projects; and

(2) utilize components of existing accelerator facilities to produce neutrino beams of sufficient intensity to explore research priorities identified by the High Energy Physics Advisory Panel or the National Academy of Sciences.

(c) DARK ENERGY AND DARK MATTER RESEARCH.—As part of the program described in subsection (a), the Director shall carry out research activities on the nature of dark energy and dark matter. These activities shall be consistent with the research priorities identified

by the High Energy Physics Advisory Panel or the National Academy of Sciences, and may include—

(1) collaborations with the National Aeronautics and Space Administration, the National Science Foundation, or international collaborations on relevant research projects; and

(2) the development of space-based, land-based, and underground facilities and experiments.

(d) ACCELERATOR RESEARCH AND DEVELOPMENT.—As part of the program described in subsection (a), the Director shall carry out research and development in advanced accelerator concepts and technologies, including laser technologies, to reduce the necessary scope and cost for the next generation of particle accelerators.

(e) UNDERGROUND RESEARCH FACILITIES STEWARDSHIP.—

(1) IN GENERAL.—As part of the program described in subsection (a), and coordinated with the activities authorized under section 609, the Director shall—

(A) construct, operate, and maintain facilities necessary to underground research conducted by the Department; and

(B) carry out a competitive grant program to conduct research in underground science and engineering.

(2) REPORT.—Not later than 180 days after the date of enactment of this Act, the Director shall transmit to Congress a report describing the underground research priorities of the Department, taking into consideration previous reports by the High Energy Physics Advisory Panel, the National Research Council, the Department, the National Science Foundation, and other appropriate entities.

(3) COORDINATION WITH OTHER FEDERAL AGENCIES.—The Director shall conduct outreach programs and may form partnerships to improve the utilization of and ensure access to underground research facilities by other Federal agencies.

(4) TRANSFER OF STEWARDSHIP.—If the Department determines that one or more underground research facilities are no longer required to carry out the program described in subsection (a), the Secretary may designate another appropriate steward of underground research facilities. If such stewardship is transferred, the Secretary shall provide notification to Congress within 30 days.

(f) INTERNATIONAL COLLABORATION.—The Director, as practicable and in coordination with other appropriate Federal agencies as necessary, shall ensure the access of United States researchers to the most advanced accelerator facilities and research capabilities in the world, including the Large Hadron Collider.

SEC. 609. NUCLEAR PHYSICS PROGRAM.

(a) PROGRAM.—As part of the activities authorized under section 209 of the Department of Energy Organization Act (42 U.S.C. 7139), the Director shall carry out a research program, and support relevant facilities, to discover and understand various forms of nuclear matter.

(b) FACILITY CONSTRUCTION.—Consistent with the Office of Science's project management practices, the Director shall continue to support the construction of the Facility for Rare Isotope Beams.

(c) ISOTOPE DEVELOPMENT AND PRODUCTION FOR RESEARCH APPLICATIONS.—

(1) IN GENERAL.—The Director shall carry out a program for the production of isotopes that the Secretary determines are needed for research, including—

(A) the development of techniques to produce isotopes; and

(B) support for infrastructure required for isotope research and production.

(2) COORDINATION.—In making the determination described in paragraph (1), the Secretary shall—

(A) ensure that, consistent with Federal Register notice 30 Fed. Reg. 3247 1965, isotope production activities do not compete with private industry unless critical national interests necessitate the Federal Government's involvement; and

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

SEC. 610. SCIENCE LABORATORIES INFRASTRUCTURE PROGRAM.

(a) PROGRAM.—The Director shall carry out a program to improve the safety, efficiency, and mission readiness of infrastructure at Office of Science laboratories. The program shall include projects to—

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

(2) replace facilities that are no longer cost effective to renovate or operate;

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

(4) remove excess facilities to allow safe and efficient operations; and

(5) construct modern facilities to conduct advanced research in controlled environmental conditions.

(b) APPROACH.—In carrying out this section, the Director shall utilize all available approaches and mechanisms, including capital line items, minor construction projects, energy savings performance contracts, utility energy service contracts, alternative financing, and expense funding, as appropriate.

SEC. 611. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary for the activities of the Office of Science—

(1) $5,247,000,000 for fiscal year 2014;

(2) $5,410,389,600 for fiscal year 2015;

(3) $5,680,909,080 for fiscal year 2016;

(4) $5,964,954,534 for fiscal year 2017; and

(5) $6,263,202,261 for fiscal year 2018.

Subtitle B—ARPA–E

SEC. 621. SHORT TITLE.

This subtitle may be cited as the ''ARPA–E Reauthorization Act of 2013''.

SEC. 622. ARPA–E AMENDMENTS.

Section 5012 of the America COMPETES Act (42 U.S.C. 16538) is amended—

(1) by redesignating subsection (n) as subsection (o) and inserting after subsection (m) the following new subsection:

''(n) PROTECTION OF PROPRIETARY INFORMATION.—The following categories of information collected by the Advanced Research Projects Agency—Energy from recipients of financial assistance awards shall be considered privileged and confidential and not subject to disclosure pursuant to section 552 of title 5, United States Code:

''(1) Plans for commercialization of technologies developed under the award, including business plans, technology to market plans, market studies, and cost and performance models.

''(2) Investments provided to an awardee from third parties, such as venture capital, hedge fund, or private equity firms, including amounts and percentage of ownership of the awardee provided in return for such investments.

''(3) Additional financial support that the awardee plans to invest or has invested into the technology developed under the award, or that the awardee is seeking from third parties.

''(4) Revenue from the licensing or sale of new products or services resulting from the research conducted under the award.''; and

(2) in paragraph (2) of subsection (o), as so redesignated by paragraph (1) of this section, by—

(A) striking ''and'' at the end of subparagraph (D);

(B) striking the period at the end of subparagraph (E) and inserting a semicolon; and

(C) adding at the end the following:

''(F) $379,000,000 for fiscal year 2014;

''(G) $397,950,000 for fiscal year 2015;

''(H) $417,847,500 for fiscal year 2016;

''(I) $438,739,875 for fiscal year 2017; and

''(J) $460,676,869 for fiscal year 2018.''.

Subtitle C—Energy Innovation

SEC. 641. ENERGY INNOVATION HUBS.

(a) AUTHORIZATION OF PROGRAM.—

(1) IN GENERAL.—The Secretary of Energy shall carry out a program to enhance the Nation's economic, environmental, and energy security by making grants to consortia for establishing and operating Energy Innovation Hubs to conduct and support, whenever practicable at one centralized lo-

cation, multidisciplinary, collaborative research, development, demonstration, and commercial application of advanced energy technologies.

(2) TECHNOLOGY DEVELOPMENT FOCUS.—The Secretary shall designate for each Hub a unique advanced energy technology focus.

(3) COORDINATION.—The Secretary shall ensure the coordination of, and avoid unnecessary duplication of, the activities of Hubs with those of other Department of Energy research entities, including the National Laboratories, the Advanced Research Projects Agency-Energy, Energy Frontier Research Centers, and within industry. Such coordination shall include convening and consulting with representatives of staff of the Department of Energy, representatives from Hubs and the qualifying entities that are members of the consortia operating the Hubs, and representatives of such other entities as the Secretary considers appropriate, to share research results, program plans, and opportunities for collaboration.

(b) CONSORTIA.—

(1) ELIGIBILITY.—To be eligible to receive a grant under this section for the establishment and operation of a Hub, a consortium shall—

(A) be composed of no fewer than 2 qualifying entities;

(B) operate subject to a binding agreement entered into by its members that documents—

(i) the proposed partnership agreement, including the governance and management structure of the Hub;

(ii) measures to enable cost-effective implementation of the program under this section;

(iii) a proposed budget, including financial contributions from non-Federal sources;

(iv) a plan for managing intellectual property rights; and

(v) an accounting structure that enables the Secretary to ensure that the consortium has complied with the requirements of this section; and

(C) operate as a nonprofit organization.

(2) APPLICATION.—A consortium seeking to establish and operate a Hub under this section, acting through a prime applicant, shall transmit to the Secretary an application at such time, in such form, and accompanied by such information as the Sec-

retary shall require, including a detailed description of the elements of the consortium agreement required under paragraph (1)(B). If the consortium members will not be located at one centralized location, such application shall include a communications plan that ensures close coordination and integration of the Hub's activities.

(c) SELECTION AND SCHEDULE.—The Secretary shall select consortia for grants for the establishment and operation of Hubs through competitive selection processes. In selecting consortia, the Secretary shall consider the information a consortium must disclose according to subsection (b), as well as any existing facilities a consortium will provide for Hub activities. Grants made to a Hub shall be for a period not to exceed 5 years, after which the grant may be renewed, subject to a competitive selection process. A Hub already in existence on the date of enactment of this Act may continue to receive support for a period of 5 years beginning on the date of establishment of that Hub.

(d) HUB OPERATIONS.—

(1) IN GENERAL.—Each Hub shall conduct or provide for multidisciplinary, collaborative research, development, demonstration, and commercial application of advanced energy technologies within the

technology development focus designated under subsection (a)(2). Each Hub shall—

(A) encourage collaboration and communication among the member qualifying entities of the consortium and awardees by conducting activities whenever practicable at one centralized location;

(B) develop and publish on the Department of Energy's website proposed plans and programs;

(C) submit an annual report to the Secretary summarizing the Hub's activities, including detailing organizational expenditures, and describing each project undertaken by the Hub; and

(D) monitor project implementation and coordination.

(2) CONFLICTS OF INTEREST.—

(A) PROCEDURES.—Hubs shall maintain conflict of interest procedures, consistent with those of the Department of Energy, to ensure that employees and consortia designees for Hub activities who are in decisionmaking capacities disclose all material conflicts of interest, includ-

ing financial, organizational, and personal conflicts of interest.

(B) DISQUALIFICATION AND REVOCATION.—The Secretary may disqualify an application or revoke funds distributed to a Hub if the Secretary discovers a failure to comply with conflict of interest procedures established under subparagraph (A).

(3) PROHIBITION ON CONSTRUCTION.—

(A) IN GENERAL.—No funds provided pursuant to this section may be used for construction of new buildings or facilities for Hubs. Construction of new buildings or facilities shall not be considered as part of the non-Federal share of a Hub cost-sharing agreement.

(B) TEST BED AND RENOVATION EXCEPTION.—Nothing in this subsection shall prohibit the use of funds provided pursuant to this section, or non-Federal cost share funds, for the construction of a test bed or renovations to existing buildings or facilities for the purposes of research if the Secretary determines that the test bed or renovations are limited to a scope and scale necessary for the research to be conducted.

(e) TERMINATION.—The Secretary may terminate an underperforming Hub at any time.

(f) DEFINITIONS.—For purposes of this section:

(1) ADVANCED ENERGY TECHNOLOGY.—The term ''advanced energy technology'' means—

(A) an innovative technology—

(i) that produces energy from solar, wind, geothermal, biomass, tidal, wave, ocean, or other renewable energy resources;

(ii) that produces nuclear energy;

(iii) for carbon capture and sequestration;

(iv) that enables advanced vehicles, vehicle components, and related technologies that result in significant energy savings;

(v) that generates, transmits, distributes, utilizes, or stores energy more efficiently than conventional technologies, including through Smart Grid technologies; or

(vi) that enhances the energy independence and security of the United States by enabling improved or expanded supply and production of domestic energy re-

sources, including coal, oil, and natural gas; or

(B) research, development, demonstration, and commercial application activities necessary to ensure the long-term, secure, and sustainable supply of energy critical elements.

(2) ENERGY CRITICAL ELEMENT.—The term ''energy critical element'' means any of a class of chemical elements that have a high risk of a supply disruption and are critical to one or more new, energy-related technologies such that a shortage of such element would significantly inhibit large-scale deployment of technologies that produce, transmit, store, or conserve energy.

(3) HUB.—The term ''Hub'' means an Energy Innovation Hub established in accordance with this section.

(4) QUALIFYING ENTITY.—The term ''qualifying entity'' means—

(A) an institution of higher education;

(B) an appropriate State or Federal entity, including the Department of Energy Federally Funded Research and Development Centers;

(C) a nongovernmental organization with expertise in advanced energy technology re-

search, development, demonstration, or commercial application; or

(D) any other relevant entity the Secretary considers appropriate.

SEC. 642. PARTICIPATION IN THE INNOVATION CORPS PROGRAM.

The Secretary of Energy shall enter into an agreement with the Director of the National Science Foundation to enable researchers funded by the Department of Energy to participate in the Innovation Corps program authorized by section 307.

SEC. 643. TECHNOLOGY TRANSFER.

(a) AMENDMENTS.—Section 1001 of the Energy Policy Act of 2005 (42 U.S.C. 16391) is amended—

(1) in subsection (e) by adding at the end the following: ''Distribution of awards from the Fund shall be made, on a merit-reviewed basis, under the direction of the Technology Transfer Coordinator appointed under subsection (a).'';

(2) by redesignating subsections (f) and (g) as subsections (h) and (i), respectively; and

(3) by inserting after subsection (e) the following new subsections:

''(f) AGREEMENTS FOR COMMERCIALIZING TECHNOLOGY.—

''(1) IN GENERAL.—The Secretary may permit the directors of the National Laboratories to exercise Agreements for Commercializing Technology authority and execute agreements with non-Federal entities to sponsor research and development activities at the National Laboratories.

''(2) ELIGIBILITY.—The Secretary shall permit the directors of the National Laboratories to execute agreements authorized by this section with non-Federal entities, including non-Federal entities that have received Federal funding.

''(3) CONTINUATION OF AUTHORITY.—The Secretary shall continue to provide Agreements for Commercializing Technology authority for at least 2 years after the date of enactment of this Act.

''(4) REPORT.—Upon completion of the Agreements for Commercializing Technology pilot program, the Secretary shall submit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources of the Senate that includes the results of the pilot program and explains the Department's decision whether or not to continue permitting the directors of the National Lab-

oratories to exercise Agreements for Commercializing Technology authority.

''(g) INCLUSION OF TECHNOLOGY MATURATION IN AUTHORIZED TECHNOLOGY TRANSFER ACTIVITIES.—The Secretary shall permit the directors of the National Laboratories to use funds appropriated to support technology transfer to carry out technology maturation activities to identify and improve potential commercial application opportunities and demonstrate applications of research and technologies arising from National Laboratory activities.''.

(b) DELEGATION OF AUTHORITY FOR TECHNOLOGY TRANSFER AGREEMENTS.—

(1) AUTHORITY.—The Secretary of Energy shall delegate to directors of the National Laboratories signature authority for any technology transfer agreement with a total cost of not more than $500,000, including both National Laboratory contributions and the project recipient cost share contribution.

(2) AGREEMENTS INCLUDED.—The agreements to which this subsection applies include—

(A) Cooperative Research and Development Agreements;

(B) non-Federal Work for Others Agreements; and

(C) Agreements for Commercializing Technology.

SEC. 644. ELIMINATION OF COST SHARING REQUIREMENT FOR RESEARCH AND DEVELOPMENT ACTIVITIES CONDUCTED BY UNIVERSITIES AND NONPROFIT INSTITUTIONS.

Section 988(b) of the Energy Policy Act of 2005 (42 U.S.C. 16352(b)) in amended—

(1) in paragraph (1), by striking ''Except as provided in paragraphs (2) and (3)'' and inserting ''Except as provided in paragraphs (2), (3) and (4)''; and

(2) by adding at the end the following new paragraph:

''(4) EXEMPTIONS.—

''(A) IN GENERAL.—Paragraph (1) shall not apply to a research or development activity performed by universities and other nonprofit institutions.

''(B) DEFINITION.—In this paragraph, the term 'nonprofit institution' has the meaning given that term in section 4(3) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3703(3)).''.

SEC. 645. PILOT RACE TO THE TOP FOR ENERGY EFFICIENCY AND GRID MODERNIZATION PROGRAM.

The Secretary of Energy shall carry out a pilot program to promote innovative technologies and practices at the State, local, or tribal level or by electric cooperatives to increase energy efficiency, increase distributed electricity generation, and modernize the grid. The Department shall provide—

(1) informational resources as appropriate to potential applicants; and

(2) technical assistance awards to carry out these activities on a competitive merit-reviewed basis.

[SEC. 646. EXTERNAL REGULATION.

[(a) IN GENERAL.—The Secretary shall coordinate with the Occupational Safety and Health Administration and Nuclear Regulatory Commission to provide for the efficient external regulation of nuclear safety and occupational and health responsibilities at any nonmilitary energy laboratory owned or operated by the Department.]

[(b) DECOMMISSIONING.—Not later than 1 year after the date of enactment of this Act, the Secretary shall enter into a memorandum of understanding with the Nuclear Regulatory Commission establishing decommis-

sioning procedures and requirements for nonmilitary energy laboratories owned or operated by the Department.]

[(c) MEMORANDA OF UNDERSTANDING.—Not later than 1 year after the date of enactment of this Act, the Nuclear Regulatory Commission and the Occupational Safety and Health Administration shall enter into and transmit to the Congress a memorandum of understanding to govern the exercise of their respective authorities over nuclear safety and occupational safety and health of nonmilitary energy laboratories owned or operated by the Department.]

[(d) PLAN.—Not later than 18 months after the date of enactment of this Act, the Secretary shall transmit to the Congress a plan for the termination of the Department's regulatory and enforcement responsibilities for nonmilitary energy laboratories owned or operated by the Department.]