114TH CONGRESS
2D SESSION

S. 2784

To ensure that Federal science agencies and institutions of higher education receiving Federal research and development funding are fully engaging the entire national talent pool, and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 12, 2016

Ms. HIRONO (for herself, Mr. PETERS, Mrs. MURRAY, Mrs. GILLIBRAND, Mr. BLUMENTHAL, Mr. MARKEY, Ms. CANTWELL, Mr. BOOKER, Mr. SCHATZ, Mr. MERKLEY, and Ms. MIKULSKI) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

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A BILL

To ensure that Federal science agencies and institutions of higher education receiving Federal research and development funding are fully engaging the entire national talent pool, 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; FINDINGS.

(a) SHORT TITLE.—This Act may be cited as the ''STEM Opportunities Act of 2016''.

(b) FINDINGS.—Congress finds as follows:

(1) Utilizing the talent and potential of all sectors of the United States population is essential to ensuring the best and brightest minds contribute to our Nation's innovation and global competitiveness. Substantial research has found that increasing diversity in the workplace can increase productivity, improve decisionmaking, foster creativity, drive innovation, and increase economic growth.

(2) Research shows that women and minorities who are interested in science, technology, engineering, and mathematics (STEM) careers are disproportionately lost at nearly every transition in their career trajectories. If the percentage of women and minorities earning degrees in STEM fields does not keep pace with their share of the population, the United States could face an acute shortfall in the overall number of students who earn degrees in STEM fields. United States companies are increasingly seeking students with STEM skills, and the United States will struggle to maintain a competitive edge in the 21st century global economy if it does not maintain its leadership in STEM.

(3) In 2012, underrepresented minority groups comprised 36.4 percent of the college-age population of the United States, but only 14.7 percent of stu-

dents earning bachelor's degrees in STEM fields. The Higher Education Research Institute at the University of California, Los Angeles, found that, while freshmen from underrepresented minority groups express an interest in pursuing a STEM undergraduate degree at the same rate as all other freshmen, only 22.1 percent of Latino students, 18.4 percent of African-American students, and 18.8 percent of Native American students studying in STEM fields complete their degree within 5 years, compared to approximately 33 percent and 42 percent 5-year completion rates for White and Asian students, respectively.

(4) According to 3-year estimates from the 2013 American Community Survey, Southeast Asian Americans and Pacific Islanders have higher poverty rates and lower educational attainment rates than the overall population in the United States. Aggregated data on Asian Americans and Pacific Islanders (referred to in this section as ''AAPI''), on average, masks educational inequalities that exist for some AAPI members, particularly Southeast Asians, Pacific Islanders, and Native Hawaiians.

(5) According to the 2015 Women, Minorities, and Persons with Disabilities in Science and Engi-

neering Report developed by the National Science Foundation (referred to in this section as the ''NSF''), women earned only 19 percent of all bachelor's degrees awarded in engineering and 18 percent in computer science. In terms of advancing through higher levels of STEM education, women persist at a similar rate of completion through doctorate degrees in certain STEM fields. However, in other fields such as the physical sciences, their persistence numbers decrease by as much as 1 in 4.

(6) Minorities currently make up 37.9 percent of our Nation's total population, yet Black and Hispanic faculty only hold about 6.5 percent of all tenured and tenure-track positions and 5 percent of full professor positions. Many of the numbers for American Indian, Alaskan Native, Native Hawaiian, or other Pacific Islander representation at different faculty ranks are too small for the NSF to report publicly. Women's participation in STEM similarly drops at the faculty level. While women account for 50.8 percent of the Nation's total population, they hold only 25 percent of all tenured and tenure-track positions and 17 percent of full professor positions in STEM fields in our Nation's universities and 4-year colleges.

(7) Research has found that all women of color, including Asian American women, face a ''double bind'' in pursuing STEM careers, encountering challenges faced both by women and by ethnic minorities, and are underrepresented in upper management and leadership in STEM academia, industry, and government. A 2015 NSF report found that Black and Hispanic women together only hold about 4.4 percent of all tenured and tenure-track positions and 1.5 percent of full professor positions. While Asian American women make up 6.1 percent of all tenured and tenure-track positions, their representation drops to 1.9 percent at the full professor position.

(8) A large body of research has found that both males and females in STEM report facing significant challenges in balancing their work and life demands on a regular basis. Furthermore, research has found that family characteristics, such as marital status and the presence of children at home, are related to women's chances of earning tenure or holding other leadership positions. A 2015 NSF report found that women scientists and engineers were far more likely than men to cite family responsibilities as a reason for unemployment, including 27.2 percent of White women, 48.6 percent of Asian

women, and 24.4 percent of underrepresented minority women.

(9) Decades of cognitive psychology research reveal that most people carry implicit, or unconscious biases, that can unintentionally influence people's attitudes, beliefs, behaviors, and decisionmaking processes. Research has shown that these subtle biases can impact classroom experiences, workplace environment and culture, peer review processes, hiring, promotion and evaluation, and even affect the performance of women and minorities in STEM fields.

(10) NSF's ADVANCE program was created in 2001 under President George W. Bush's Administration to increase the representation and advancement of women in academic science and engineering careers, thereby developing a more diverse science and engineering workforce. The ADVANCE program has supported comprehensive, institution-wide projects at institutions of higher education to transform institutional practices and climate. However, additional funding and mechanisms are needed for ADVANCE to assist in increasing the representation and advancement of other groups that are also underrepresented in STEM fields. In addition, an ADVANCE Center of Excellence could institu-

tionalize and scale up the best practices and policies from United States institutions of higher education that are receiving ADVANCE grants.

(11) NSF currently administers the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (referred to in this section as ''PAESMEM'') on behalf of the Office of Science Technology and Policy to recognize individuals and organizations who have demonstrated excellence in mentoring in STEM fields. While a large body of research has shown that mentoring is key for the retention and success of underrepresented groups in STEM, underrepresented STEM academics and professionals are often disproportionately burdened by service and mentoring responsibilities, which can harm their chances of receiving tenure or other promotions. Furthermore, access to positive mentorship is not always available to STEM professionals at early stages of their careers. By recognizing and rewarding exemplary STEM mentors at earlier points in their careers, PAESMEM has the potential to encourage professionals to take on positive mentoring responsibilities in the context of other career development challenges and pressures that occur. Furthermore, awards such

as PAESMEM can encourage institutions to develop a culture that prioritizes the development of positive mentoring relationships.

(12) The Federal Government provides more than 60 percent of research funding at institutions of higher education and, through its grant-making policies, has had significant influence on institution of higher education policies, including policies related to institutional culture and structure.

(13) Throughout United States history, many leaders have worked to improve opportunities in STEM for women, minorities, and the public at large. Those leaders include the following:

(A) Florence R. Sabin was a pioneering medical researcher and an outstanding teacher and professor of anatomy. In 1917, at Johns Hopkins University she became the first female full professor at an American medical college. She was also the first female president of the American Association of Anatomists, and the first permanent female member of the National Academy of Sciences. Her work shed light on the bacteria that cause tuberculosis, the origin of red blood cells, and many other medical advances.

(B) Roland B. Scott was a pediatrician, allergist, and pioneer in the research on Sickle Cell Disease, serving as the Chairman of Pediatrics at Howard University from 1949 to 1973. He founded and ran Howard University's Center for Sickle Cell Disease, and helped enact the Sickle Cell Anemia Control Act to establish research and treatment centers. He mentored many Black medical students and researchers, and continued to make house calls to help Black patients, who were often denied care in segregated hospitals in the District of Columbia. He authored more than 250 scientific papers, and his many awards include the Jacobi Award from the American Academy of Pediatrics.

(C) Carl Sagan was an American astronomer and science writer and popularizer. His early research focused on understanding the physical conditions and atmospheres of the planets, and he helped select the landing sites for the Viking probes sent to explore Mars. He won the 1978 Pulitzer Prize, and he twice received the National Aeronautics and Space Administration's Distinguished Public Service

Medal. In 1980, he founded the Planetary Society to promote space exploration, and also began hosting the television series Cosmos, which was seen by hundreds of millions of people across the globe.

SEC. 2. DEFINITIONS.

In this Act:

(1) DIRECTOR.—Except as provided in section 4, the term ''Director'' means the Director of the National Science Foundation.

(2) 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).

(3) FEDERAL SCIENCE AGENCY.—The term ''Federal science agency'' means any Federal agency with not less than $100,000,000 in research and development expenditures in fiscal year 2014.

(4) 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)).

(5) RACE.—The term ''race'' refers to the same disaggregated race response categories as the decennial census of the population.

(6) STEM.—The term ''STEM'' means the academic and professional disciplines of science, technology, engineering, and mathematics, including computer science.

(7) SYSTEMIC FACTORS.—The term ''systemic factors'' refers to factors that social, behavioral, and organizational research has shown can impede the success of underrepresented groups in STEM. These factors include implicit bias, stereotype threat, and caregiving responsibilities.

(8) UNDERREPRESENTED GROUPS.—The term ''underrepresented groups'' refers to groups of people who are represented in a STEM discipline at a rate lower than their proportion in the general population, including Women, Blacks or African-Americans, Hispanics or Latinos, Native Americans, Alaskan Natives, Native Hawaiians, Pacific Islanders, subgroups of Asian Americans, and persons with disabilities.

(9) WORK-LIFE ACCOMMODATION.—The term ''work-life accommodation'' means institutional policies and practices designed to create healthy and supportive environments to help students, trainees, employees, contractors, or grantees effectively balance their work and personal responsibilities and

thereby maximize performance. These include flexible work schedules, leave, and stop-the-clock policies for parents and caregivers, as well as support for mental health and wellness.

SEC. 3. PURPOSES.

The purposes of this Act are as follows:

(1) To collect data necessary to increase the understanding of factors that influence the participation and career trajectories of underrepresented groups in STEM fields.

(2) To coordinate the development of trainings and policies across Federal science agencies to improve inclusion of underrepresented groups in STEM.

(3) To identify, implement, and disseminate best practices for addressing the systemic factors that can affect the inclusion of underrepresented groups in STEM.

(4) To provide grants for evidence-based efforts to recruit, retain, and advance members from underrepresented groups in STEM education and the workforce.

(5) To recognize and reward teachers, faculty members, and organizations who demonstrate a com-

mitment to encouraging the participation of underrepresented groups in STEM fields.

SEC. 4. STEM INCLUSION INTERAGENCY WORKING GROUP.

(a) IN GENERAL.—The Director of the Office of Science and Technology Policy (referred to in this section as the ''Director'') shall establish the ''STEM Inclusion Interagency Working Group'' (referred to in this Act as the ''working group'') under the authority of the National Science and Technology Council Committee on Science. The working group shall focus on creating a more diverse and inclusive STEM workforce, and shall be responsible for the following:

(1) Collecting and reporting information on Federal funding for STEM.

(2) Reviewing and coordinating training efforts across Federal science agencies to address factors that impede inclusion in STEM of underrepresented groups.

(3) Reviewing and coordinating policies across Federal science agencies to address factors that can impede the inclusion of underrepresented groups in STEM.

(4) Assessing the effectiveness of the trainings and policies implemented by Federal science agencies in increasing the recruitment, retention, and success

of underrepresented groups in STEM across the Federal science agencies.

(b) MEMBERSHIP.—

(1) IN GENERAL.—The working group shall consist of not less than 7 members.

(2) APPOINTMENT.—Each agency with a representative on the National Science and Technology Council Committee on Science shall nominate a representative to serve on the working group, and the Director shall select not less than 6 of such nominees to serve for not more than 5 years on the working group.

(3) EXPERT IN EMPLOYEE TRAINING.—One member of the working group shall be nominated by the Director of the Office of Personnel Management and approved by the Director and shall be an expert in employee training.

(4) CHAIR; MEETINGS.—One member of the working group shall be designated by the Director to serve as the Chair of the working group for not more than 2 years. The working group shall meet at such times and places as designated by the Chair.

(c) STAKEHOLDER INPUT.—In carrying out the responsibilities under subsection (a), the working group shall take into account input and recommendations from

non-Federal stakeholders, including the President's Council of Advisors on Science and Technology, federally funded and nonfederally funded researchers, institutions of higher education, scientific disciplinary societies and associations, nonprofit research institutions, industry (including small businesses), federally funded research and development centers, nongovernmental organizations, the Committee on Science, Technology, Engineering, and Math Education (CoSTEM), the Interagency Title IX Working Group, and others with a stake in reducing barriers for developing a diverse and inclusive Federal STEM workforce.

(d) ACTIVITIES.—The working group shall engage in the following activities:

(1) COLLECTION OF DATA.—

(A) IN GENERAL.—Each Federal science agency shall annually collect standardized record-level information on demographics, including gender, race, ethnicity, disability, citizenship status, age, and years since completion of degree, as well as 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 edu-

cation and Federal laboratories supported by such agency. The working group shall coordinate the collection and reporting of this data gathered by the Federal science agencies with the relevant Federal statistical agencies.

(B) UNIFORMITY AND STANDARDIZATION.—The working group, with the approval of the Director, shall establish a policy to ensure uniformity and standardization of the data collection required under subparagraph (A) and interoperability of data reporting as required under subparagraph (D).

(C) RECORD-LEVEL DATA.—

(i) REQUIREMENT.—Beginning not later than 2 years after the date of enactment of this Act and annually thereafter, each Federal science agency shall submit to the working group record-level data collected under subparagraph (A) in the form required by the working group and consistent with the policy established under subparagraph (B).

(ii) PREVIOUS DATA.—As part of the first submission under clause (i), each Federal science agency, to the extent prac-

ticable, shall also submit comparable record data for the 5 years preceding the date of submission.

(iii) AVOIDING DUPLICATION OF EFFORTS.—The working group shall work collaboratively with other relevant Federal agencies to gather the information required under clauses (i) and (ii) through existing data collection and reporting efforts to the extent possible.

(D) REPORTING.—Not later than 2 years after the date of enactment of this Act and every 2 years thereafter, the working group, in collaboration with the relevant Federal statistical agencies, shall provide to the National Science Board all statistical summary data collected under this paragraph. Not later than 6 months after receiving the summary data, the National Science Board shall publish a report that includes statistical summary data, findings, and policy recommendations in a report as required under section 4(j)(2) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)(2)). All statistical summary data shall be disaggregated and cross-tabulated by race,

ethnicity, disability, gender, age, and number of years since receiving doctoral degree, provided that such data does not reveal personally identifiable information about an individual.

(2) COORDINATION AND IMPLEMENTATION OF TRAINING ACROSS FEDERAL SCIENCE AGENCIES TO CREATE A MORE DIVERSE AND INCLUSIVE STEM WORKFORCE.—

(A) IN GENERAL.—Not later than 6 months after the date of enactment of this Act, the working group, with the approval of the Director, shall recommend a uniform policy for a minimum frequency of trainings and a set of model training curricula for Federal science agencies to use to educate Federal STEM employees and program managers, senior managers at Federal laboratories, and other federally funded intramural and extramural researchers about methods for addressing the systemic factors that can limit the recruitment, retention, and success of underrepresented groups at all stages of the STEM pipeline. The training policies and curricula shall address the following:

(i) Training at least biannually on reducing implicit bias in hiring, promotion, evaluation, the grant review process, and the workplace in general.

(ii) Methods to reduce the experience of stereotype threat.

(iii) Prevention of sexual harassment in the workplace.

(iv) Other evidence-based training on systemic factors that the working group determines can impede the inclusion of underrepresented groups in STEM and in the workplace.

(B) INTERAGENCY COORDINATION.—The working group shall ensure that training policies and curricula are coordinated across Federal science agencies and jointly supported as appropriate.

(C) EXISTING GUIDANCE.—In developing the policy and training curricula under subparagraph (A), the working group shall utilize guidance and best practices already developed or collected by the Office of Science and Technology Policy, the National Aeronautics and Space Administration, the National Science

Foundation, the Office of Personnel Management, the Office of Management and Budget, the Department of Energy, the Department of Education, or from any other appropriate source.

(D) DISSEMINATION OF GUIDANCE.—The working group shall broadly disseminate the training policies and curricula under subparagraph (A) to institutions of higher education that receive Federal research funding, scientific disciplinary societies and associations, nonprofit research institutions, industry (including small businesses), and federally funded research and development centers, nongovernmental organizations, and others with a stake in increasing the inclusion of underrepresented groups in STEM. The dissemination process shall include the creation of a public website.

(E) ESTABLISHMENT OF TRAINING POLICIES AND CURRICULA.—

(i) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, each Federal science agency shall—

(I) adopt training policies and curricula based on the model policies under subparagraph (A);

(II) adapt such model training policies and curricula to their agency, as appropriate; and

(III) report to the Director of the Office of Science and Technology Policy on the training policies and curricula and implementation plan of the agency.

(ii) ENSURING QUALITY.—The Director of the Office of Science and Technology Policy shall—

(I) ensure the quality of the training policies and curricula described under clause (i) for each Federal science agency to meet the minimum frequency and requirements under subparagraph (A);

(II) require updates, if necessary; and

(III) approve such training policies and curricula not later than 15

months after the date of enactment of this Act.

(F) INTERAGENCY COORDINATION.—The working group shall ensure that training policies and curricula are jointly supported across Federal science agencies, as appropriate.

(3) COORDINATION AND IMPLEMENTATION OF POLICIES AND PRACTICES ACROSS FEDERAL SCIENCE AGENCIES TO CREATE A MORE DIVERSE AND INCLUSIVE STEM WORKFORCE.—

(A) GUIDANCE TO ALL FEDERAL SCIENCE AGENCIES.—The working group shall gather, develop, and disseminate evidence-based practices and recommend model policies for achieving greater inclusion of underrepresented groups in STEM to all Federal science agencies and provide guidance on reviewing and updating policies and practices that can impede the inclusion of underrepresented groups in STEM within each agency. The model policies and practices shall address the following:

(i) Work-life accommodation, including flexibility for caregivers on the timing of research grants.

(ii) Procedures for handling claims of sexual harassment.

(iii) Reducing implicit bias in hiring, promotion, evaluation, the grant review process, and the workplace in general.

(iv) Other policies and practices to address systemic factors that the working group determines can impede the inclusion of underrepresented groups in STEM and the workplace.

(B) ESTABLISHMENT OF POLICIES AND PRACTICES.—

(i) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, each Federal science agency shall—

(I) work with the Office of Personnel Management to adopt the model policies and practices under subparagraph (A);

(II) adapt such model policies and practices to their agency, as appropriate; and

(III) report to the Director of the Office of Science and Technology Pol-

icy on the policy and practice implementation plan of the agency.

(ii) ENSURING QUALITY.—The Director of the Office of Science and Technology Policy shall—

(I) ensure the quality of the policies and practices described under clause (i) for each Federal science agency meet the minimum requirements under subparagraph (A);

(II) require updates, if necessary; and

(III) approve such policies and practices not later than 15 months after the date of enactment of this Act.

(C) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act and every 2 years thereafter, the working group shall report to Congress on what steps all Federal science agencies have taken to implement policies and practices to address systemic factors that impede inclusion of underrepresented groups in agency workplaces, and how effective those policies and practices have been

in increasing participation of underrepresented groups in the agencies.

SEC. 5. STRENGTHENING THE NATIONAL SCIENCE FOUNDATION ADVANCE PROGRAM.

(a) STRENGTHENING THE NATIONAL SCIENCE FOUNDATION ADVANCE PROGRAM.—

(1) IN GENERAL.—The Director shall strengthen the goals and activities of the ADVANCE program as in effect on the date of enactment of this Act to focus on increasing the recruitment, retention, and success of all women in STEM, including minorities and persons with disabilities.

(2) RECOGNITION FOR EXCELLENCE IN STEM INCLUSION.—The Director shall support the exploration, development, evaluation, and implementation of a system to recognize institutions of higher education that have demonstrated success in promoting inclusion for underrepresented groups in STEM.

(b) ESTABLISHMENT OF ADVANCE CENTER OF EXCELLENCE FOR INCLUSION IN STEM.—

(1) IN GENERAL.—The Director shall build on the success of the ADVANCE program by awarding a grant for the establishment of at least one Center of Excellence for Inclusion in STEM (referred to in this section as a ''Center'')—

(A) to collect, maintain, and disseminate information on increasing the inclusion of all underrepresented groups in STEM, including women, minorities, and persons with disabilities; and

(B) to scale-up the success of ADVANCE funded initiatives and other federally funded initiatives to support women, minorities, and persons with disabilities in STEM careers by providing technical assistance, collecting, maintaining, and disseminating best practices, and providing related training at federally funded institutions of higher education.

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Director shall establish a Center through a competitive grant award consistent with standard National Science Foundation practice.

(B) CRITERIA.—Grants and subgrants awarded under this subsection shall be awarded on a merit-reviewed, competitive basis. The Director shall establish criteria for the award of a grant or subgrant under this subsection that includes requiring a grant or subgrant recipient to transfer all Center program information to

any awardee that receives a subsequent grant or subgrant under this subsection.

(C) PUBLIC DOMAIN.—All program information developed, collected, or maintained by a Center, with the exception of personally identifiable information, is and shall remain part of the public domain.

(D) DURATION.—At least one Center established under this subsection shall be operational at all times during the 15 years following the initial Center program award.

(3) GENERAL OPERATION.—A Center established under this subsection shall carry out the following activities:

(A) Collect, maintain, and broadly disseminate information from ADVANCE funded initiatives and from broader STEM communities on systemic factors affecting the participation of underrepresented groups in STEM, and best practices for addressing those factors.

(B) Collaborate with Federal science agencies and professional associations to share best practices on work-life accommodation policies and practices.

(C) Collaborate 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 that support the needs of faculty, students, post-doctoral fellows, staff, and trainees.

(D) Provide educational opportunities, including workshops and trainings for STEM faculty to improve their mentoring, instructing, and advising of students from underrepresented groups.

(E) Provide training at least biannually on the impact of implicit bias on hiring, promotion, evaluation, grant review processes, and the workplace in general.

(F) Develop evidence-based workshops and training on improving inclusion of underrepresented groups in STEM. Such workshops and training may be carried out by awarding subgrants to institutions of higher education (or consortia of such institutions), nonprofit organizations, professional societies, or other entities that the Center determines eligible for participation. An eligible entity that carries out a workshop under this subparagraph shall collect

data on the rates of attendance by invitees in workshops, including information on the home institution, rank, and department of attendees, conduct attitudinal surveys on workshop attendees before and after the workshops, and collect follow-up data on any relevant institutional policy or practice changes reported by attendees not later than 1 year after attendance in such a workshop.

(G) Other efforts that the Center determines are necessary to further the inclusion of underrepresented groups in STEM.

(c) NATIONAL CONFERENCE AND REPORT TO CONGRESS.—

(1) IN GENERAL.—Not later than 4 years after the date of enactment of this Act, a Center shall hold a national conference on the effectiveness of the activities supported under this section.

(2) INVITEES.—Conference invitees shall include community colleges, business and industry, secondary school systems, 4-year institutions of higher education, nonprofit organizations, Federal science agencies and education agencies, Federal laboratories, and Congress.

(3) FOCUS.—The conference shall focus on advancing collaborative capacity within, across, and beyond ADVANCE awardees.

(4) CONFERENCE PARTICIPANTS.—Conference participants shall share recent research and program progress, evaluate opportunities for inter-project collaboration, exchange and disseminate ideas within the community, and provide program management the opportunity to assess the overall balance of the portfolio and evaluate future research and program priorities.

(5) CONFERENCE REPORT.—A conference report, including program progress, shall be available to the public and provided to Congress not later than 6 months after the end of the conference.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated—

(1) $20,000,000 in each of fiscal years 2017 through 2021 for the ADVANCE program at the National Science Foundation, including activities described in subsection (a); and

(2) $6,000,000 in each of fiscal years 2017 through 2021 to carry out subsections (b) and (c).

SEC. 6. DATA COLLECTION TO DETERMINE SUCCESS IN BROADENING STEM FACULTY.

(a) COLLECTION OF DATA.—Not later than 2 years after the date of enactment of this Act, and every 2 years thereafter, the Director 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, and shall consider, by gender, race, ethnicity, disability, citizenship status, age, and years since completion of doctoral degree—

(1) the number and percentage of faculty;

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

(3) faculty years in rank; and

(4) the number and percentage of faculty hired in the 2 years preceding the date of the survey, by rank.

(b) PUBLICATION OF RESULTS.—Not later than 6 months after the completion of the data collection described in subsection (a), the Director shall provide all relevant data and information to the National Science Board. Not later than 6 months after receiving such data and information, the National Science Board shall publish a report that includes statistical summary data, findings, and policy recommendations resulting from the feasibility study described in subsection (c), in a report as required

by section 4(j)(2) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)(2)). All statistical summary data shall be disaggregated and cross-tabulated by race, ethnicity, gender, age, disability, and number of years since receiving doctoral degree, provided that such data does not reveal personally identifiable information about an individual.

(c) SURVEY STUDY.—Not later than 2 years after the date of enactment of this Act, the Director shall evaluate the feasibility of a survey or other data collection instrument to collect institution-level data on—

(1) the demographics of faculty, including postdoctoral positions, by broad fields of STEM at different types of institutions of higher education, and shall consider, by gender, race, ethnicity, disability, citizenship status, age, and years since completion of doctoral degree—

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

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

(C) the number and percentage of faculty in leadership positions;

(D) the size and composition of the various components included in the start-up package for new faculty hires;

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

(F) the number and percentage of post-doctoral fellows or trainees who are not employed in a STEM position at an academic institution 5 years after their fellowship or traineeship began; and

(2) the demographics of STEM pre-doctoral students, by broad fields of STEM at different types of institutions of higher education, and shall consider, by gender, race, ethnicity, disability, citizenship status, age, and socioeconomic status—

(A) the number and percentage of pre-doctoral students who leave their program before becoming Ph.D. candidates;

(B) the number and percentage of Ph.D. candidates who leave their program before receiving their Ph.D.; and

(C) the number of years to attrition in pre-doctoral program.

(d) PUBLICATION OF RESULTS.—The National Science Board shall develop a companion piece to the Science and Engineering Indicators biennial report on indicators of the state of science and engineering in the United States, as required under section 4(j)(1) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)(1)), regarding the results of the feasibility study described in subsection (c), and make related policy recommendations. All statistical summary data shall be disaggregated and cross-tabulated by race, ethnicity, disability, gender, and age, provided that such data does not reveal personally identifiable information about an individual.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated $3,000,000 in each of fiscal years 2017 through 2019 to carry out this section.

SEC. 7. NATIONAL SCIENCE FOUNDATION SUPPORT FOR BROADENING PARTICIPATION IN STEM.

(a) GRANTS.—The Director shall award competitive grants to institutions of higher education (or consortia of such institutions) to implement or expand evidence-based reforms for the purpose of recruiting, retaining, and advancing students, fellows, trainees, and faculty from underrepresented groups in STEM, and do so, to the ex-

tent practicable, within existing National Science Foundation programs.

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

(c) SELECTION PROCESS.—

(1) APPLICATION.—An institution of higher education (or a consortium of such institutions) seeking a grant under this section shall submit an application to the Director 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 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 assignments that reward faculty contributions to increasing representation from underrepresented 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 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 institutional culture and policy such that greater value is placed on faculty engagement in the retention of students from underrepresented 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.—With respect to applications for a grant under this section that include an expansion of existing reforms beyond a single academic unit, the Director shall give priority in awarding grants 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. The Director shall give priority in awarding grants under this section to applications that target at the broad fields of STEM in which the national rate of representation of underrepresented groups among tenured or tenure-track faculty or non-faculty

researchers at doctorate-granting institutions of higher education is at least 25-percent less than the graduate degree completion rate for underrepresented groups in that broad field of STEM, according to the most recent data available from the National Center for Science and Engineering Statistics.

(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, including 2-year institutions of higher education and minority-serving institutions of higher education.

(d) USE OF FUNDS.—An institution of higher education (or a consortium of such institutions) that receives a grant under this section shall use the grant funds for activities that may include—

(1) implementation or expansion of innovative, research-based approaches to broaden participation of underrepresented 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 groups in STEM fields;

(3) expansion of successful reforms aimed at increasing the number of STEM students from underrepresented 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;

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

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

(6) development of research collaborations between research-intensive institutions of higher education and minority-serving institutions;

(7) programs to help prepare undergraduate students from minority-serving institutions to enter graduate programs at predominately White institutions of higher education;

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

(9) professional development, mentoring, and research training opportunities for graduate students and early career faculty from underrepresented groups;

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

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

(12) institution-wide improvements in workload distribution, such that faculty staff, postdoctoral fellows, trainees, and students from underrepresented groups are not disadvantaged in conducting research, publishing papers, and engaging in other activities required to achieve tenure status or advance their career;

(13) development and implementation of training courses for administrators and search committee members to ensure that candidates from underrepresented groups are not subject to implicit biases in

hiring, promotion, or evaluation processes or procedures;

(14) institutional assessment activities, including data collection and policy review to assess factors that may be impeding or facilitating the recruitment, retention, and success of underrepresented groups at all levels of the university; and

(15) other activities consistent with the purpose described in subsection (a), as determined by the Director.

(e) EDUCATION RESEARCH.—

(1) IN GENERAL.—All grants awarded 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 groups in STEM education at the undergraduate and graduate level across a diverse set of institutions.

(2) DISSEMINATION.—The Director shall coordinate with relevant Federal agencies in disseminating the results of the research under this subsection to ensure that best practices for increasing

the inclusion of underrepresented groups in STEM in institutions of higher education are made readily available to all types of institutions of higher education, other Federal agencies, relevant committees, subcommittees, and working groups of the National Science and Technology Council, non-Federal funders of STEM education, and the general public.

(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated $15,000,000 in each of fiscal years 2017 through 2021 to carry out this section.

SEC. 8. AUTHORIZATION OF PRESIDENTIAL AWARDS FOR EXCELLENCE IN SCIENCE, MATHEMATICS, AND ENGINEERING MENTORING.

(a) ESTABLISHMENT.—The Director shall administer the Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring program (referred to in this section as the ''PAESMEM'' program) on behalf of the White House Office of Science and Technology Policy to recognize, on an annual basis, outstanding mentoring in STEM fields in primary, secondary, and higher education.

(b) THREE TYPES OF AWARDS.—The following 3 types of PAESMEM program awards shall be provided:

(1) Nominees for the Florence R. Sabin Distinguished PAESMEM program award shall be United

States citizens or lawful permanent residents in industry, academia, primary and secondary education, military, nonprofit organizations, foundations, and government. Distinguished PAESMEM program winners shall have not less than 5 years of sustained, exceptional mentoring with demonstrated impact on underrepresented groups.

(2) Nominees for the Roland B. Scott Early Career Mentor PAESMEM program award shall be United States citizens or lawful permanent residents in industry, academia, primary and secondary education, military, nonprofit organizations, foundations, and government. Consideration for Early Career Mentor PAESMEM program awards shall be given to early career mentors who are scientists, technicians, post-baccalaureate, post-masters, post-doctoral, new STEM faculty, and new STEM K–12 teachers (both pre- and in-service), in public and private sectors. Early Career Mentor PAESMEM program winners shall have not less than 2 years of sustained, exceptional mentoring with demonstrated impact on underrepresented groups.

(3) Nominees for the Carl Sagan Organizational PAESMEM program award shall be a United States educational institution or agency, corporation,

foundation, military or government agency, or non-profit organization. An Organizational PAESMEM program nominee may be a mentoring program or activity within an organization.

(c) REVIEW OF APPLICATIONS.—The Director shall solicit applications across all types of entities until at least 100 applications are received for each of the 3 types of PAESMEM program awards described under subsection (b).

(d) DISTRIBUTION OF AWARDS.—

(1) FREQUENCY.—PAESMEM program winners shall be announced and honored annually, not later than 1 year after the application deadline.

(2) NUMBER.—A minimum of 20 PAESMEM program winners shall be honored annually in each of the categories described under paragraphs (1) through (3) of subsection (b).

(3) MONETARY AWARD.—Except as provided in paragraph (5), each PAESMEM program winner shall receive a monetary award of $10,000 and a Presidential citation.

(4) CONSIDERATION.—The Director, in awarding—

(A) PAESMEM program winners in each of the categories described under paragraphs

(1) and (2) of subsection (b), shall make a fair distribution of awards to individuals who are from underrepresented groups; and

(B) PAESMEM program winners in the category described under subsection (b)(3), shall make awards to all types of entities described under subsection (b)(3).

(5) SUPPLEMENTAL AWARD FOR EARLY CAREER FACULTY.—Annually, not less than 5 of the Roland B. Scott Early Career Mentor PAESMEM program winners shall be reserved for early career faculty at institutions of higher education who have shown promise for making a significant contribution to their field of expertise. Such faculty members shall receive an additional $50,000 award that can be used towards advancing their program of research.

(e) EXEMPTION FROM MERIT REVIEW.—Nominations for PAESMEM program awards shall be exempt from merit review criteria.

(f) LIST OF WINNERS TO CONGRESS.—The Director shall provide Congress with an annual list of PAESMEM program winners, including the name, institution, and a brief synopsis of the impact of the mentoring efforts.

(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated $1,000,000 for each of fiscal years 2017 through 2021 to carry out this section.

SEC. 9. REDUCING GOVERNMENT WASTE AND ADMINISTRATIVE BURDEN AT THE NATIONAL SCIENCE FOUNDATION.

The following reports produced by the National Science Foundation shall be eliminated:

(1) The Mathematics and Science Education Partnerships report on coordination under section 9(c)(4) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n(c)(4)).

(2) The report under section 1008(c) of the America COMPETES Act (42 U.S.C. 6603(c)).

(3) The funding for successful science, technology, engineering, and mathematics education programs report under section 7012(c) of the America COMPETES Act (42 U.S.C. 6603(c)).

(4) The encouraging participation report under section 7031(b) of the America COMPETES Act (42 U.S.C. 1862o–11).

(5) The evaluations report under section 19(a)(3) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–8(a)(3)).

(6) The major research equipment and facilities construction plan report under section 14(a)(2) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–4(a)(2)).

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