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HOUSE OF REPRESENTATIVES
REPORT
115–473

SUPPORTING VETERANS IN STEM CAREERS ACT

DECEMBER 18, 2017.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. SMITH of Texas, from the Committee on Science, Space, and Technology, submitted the following

R E P O R T

[To accompany H.R. 4323]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 4323) to promote veteran involvement in STEM education, computer science, and scientific research, and for other purposes, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

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COMMITTEE STATEMENT AND VIEWS

PURPOSE AND SUMMARY

H.R. 4323, the "Supporting Veterans in STEM Careers Act," is sponsored by Rep. Neal Dunn and Rep. Mark Takano. The purpose of H.R. 4323 is to promote veteran involvement in Science, Tech-

nology, Engineering, and Mathematics (STEM) education and careers, computer science, and scientific research.

BACKGROUND AND NEED FOR LEGISLATION

According to the U.S. Bureau of Labor and Statistics, STEM employment was projected to grow to more than 9 million between 2012 and 2022, an increase of about 1 million jobs over 2012 employment levels.

In the next five years, between one million and 1.5 million members of the U.S. Armed Forces will leave the military, according to the Department of Defense. Many of these veterans will be seeking new careers. By a great margin, veterans cite finding employment as their number-one need when returning home.

Research shows that many military veterans have skills and training that align with STEM careers, particularly in information technology (IT). However, research also reveals several systemic barriers veterans face as they re-enter the workforce, including a lack of formal STEM education, career guidance, and the difficult task of transferring military credits to college credits.

LEGISLATIVE HISTORY

On March 9, 2017, the Research and Technology Subcommittee held a hearing entitled, "National Science Foundation Part 1: Overview and Oversight." Witnesses were: Dr. France Córdova, Director, National Science Foundation; Ms. Allison Lerner, Inspector General, National Science Foundation.

On March 21, 2017, the Research and Technology Subcommittee held a hearing entitled, "National Science Foundation Part II: Future Opportunities and Challenges for Science." Witnesses were: Dr. Joan Ferrini-Mundy, Acting Chief Operating Officer, National Science Foundation; Dr. Maria Zuber, Chair, National Science Board; Dr. Jeffrey Spies, Co-Founder and Chief Technology Officer, Center for Open Science and Assistant Professor, University of Virginia; Dr. Keith Yamamoto, Vice Chancellor for Science Policy and Strategy, University of California, San Francisco.

On July 26, 2017, the Research and Technology Subcommittee held a hearing entitled, "STEM and Computer Science Education: Preparing the 21st Century Workforce." Witnesses were: Mr. James Brown, Executive Director, STEM Education Coalition; Mr. Pat Yongpradit, Chief Academic Officer, Code.org; Dr. A. Paul Alivisatos, Executive Vice Chancellor & Provost, Vice Chancellor for Research, and Professor of Chemistry and Materials Science & Engineering, University of California, Berkeley; Ms. Dee Mooney, Executive Director, Micron Technology Foundation.

On November 15, the full Committee approved by voice vote H.R. 4323, the Supporting Veterans in STEM Careers Act.

COMMITTEE VIEWS

The Committee encourages the Director of the White House Office of Science and Technology Policy (OSTP), when establishing the veterans and military families subcommittee of the Committee on STEM Education of the cabinet-level National Science and Technology Council (NSTC), to ensure it includes representation from the U.S. Department of Veterans Affairs and other agencies and of-

fices with expertise in veterans and military spouse issues. The Committee also encourages the OSTP Director to establish a public-private interface to seek input from relevant stakeholders in the subcommittee charter.

SECTION-BY-SECTION

Sec. 1. Short title

Supporting Veterans in STEM Careers Act.

Sec. 2. Definitions

This section defines the terms "director," "foundation," "STEM," and "veteran."

Sec. 3. Supporting veterans in STEM education and computer science

This section requires the Director of the National Science Foundation (NSF) to encourage veterans to study and pursue STEM and computer science careers. This section also instructs the NSF Director to submit a report to Congress, not later than 90 days after enactment, detailing a plan for how NSF can enhance its outreach efforts to veterans. Further, this section requires the National Science Board to provide, in its annual indicators of the state of U.S. science and engineering, data on veterans' science and engineering education programs and careers.

This section also amends the Robert Noyce Teacher Scholarship Program, the National Science Foundation Authorization Act of 2002, and the Cyber Security Research and Development Act of 2002 by adding language to include veteran outreach. Lastly, this section requires the OSTP Director to establish a subcommittee under the NSTC Committee on STEM Education to coordinate Federal programs and policies for transitioning and training veterans and military spouses for STEM careers.

EXPLANATION OF AMENDMENTS

There were no amendments to this bill.

COMMITTEE CONSIDERATION

On November 15, 2017, the Committee met in open session and ordered reported favorably the bill, H.R. 4323, by voice vote, a quorum being present.

APPLICATION OF LAW TO THE LEGISLATIVE BRANCH

Section 102(b)(3) of Public Law 104–1 requires a description of the application of this bill to the legislative branch where the bill relates to the terms and conditions of employment or access to public services and accommodations. This bill would promote veteran involvement in STEM education, computer science, and scientific research. As such this bill does not relate to employment or access to public services and accommodations.

STATEMENT OF OVERSIGHT FINDINGS AND RECOMMENDATIONS OF THE COMMITTEE

In compliance with clause 3(c)(1) of rule XIII and clause (2)(b)(1) of rule X of the Rules of the House of Representatives, the Committee's oversight findings and recommendations are reflected in the descriptive portions of this report.

STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

H.R. 4323 would promote veteran involvement in STEM education, computer science, and scientific research.

DUPLICATION OF FEDERAL PROGRAMS

No provision of H.R. 4323 establishes or reauthorizes a program of the Federal Government known to be duplicative of another Federal program, a program that was included in any report from the Government Accountability Office to Congress pursuant to section 21 of Public Law 111–139, or a program related to a program identified in the most recent Catalog of Federal Domestic Assistance.

DISCLOSURE OF DIRECTED RULE MAKINGS

The Committee estimates that enacting H.R. 4323 does not direct the completion of any specific rule makings within the meaning of 5 U.S.C. 551.

FEDERAL ADVISORY COMMITTEE ACT

The Committee finds that the legislation does not establish or authorize the establishment of an advisory committee within the definition of 5 U.S.C. App., Section 5(b).

UNFUNDED MANDATE STATEMENT

Section 423 of the Congressional Budget and Impoundment Control Act (as amended by Section 101(a)(2) of the Unfunded Mandates Reform Act, P.L. 104–4) requires a statement as to whether the provisions of the reported include unfunded mandates. In compliance with this requirement the Committee has received a letter from the Congressional Budget Office included herein.

EARMARK IDENTIFICATION

H.R. 4323 does not include any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9 of rule XXI.

COMMITTEE ESTIMATE

Clause 3(d)(2) of rule XIII of the Rules of the House of Representatives requires an estimate and a comparison by the Committee of the costs that would be incurred in carrying out H.R. 4323. However, clause 3(d)(3)(B) of that rule provides that this requirement does not apply when the Committee has included in its report a timely submitted cost estimate of the bill prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act.

BUDGET AUTHORITY AND CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

With respect to the requirements of clause 3(c)(2) of rule XIII of the Rules of the House of Representatives and section 308(a) of the Congressional Budget Act of 1974 and with respect to requirements of clause (3)(c)(3) of rule XIII of the Rules of the House of Representatives and section 402 of the Congressional Budget Act of 1974, the Committee has received the following cost estimate for H.R. 4323 from the Director of Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, December 5, 2017.

Hon. LAMAR SMITH,
Chairman, Committee on Science, Space, and Technology,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 4323, the Supporting Veterans in STEM Careers Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Janani Shankaran.

Sincerely,

KEITH HALL,
Director.

Enclosure.

H.R. 4323—Supporting Veterans in STEM Careers Act

H.R. 4323 would modify the requirements and selection criteria of certain National Science Foundation (NSF) programs that promote wider participation by veterans. The bill also would require the Office of Science and Technology Policy (OSTP) to establish a subcommittee under the existing Committee on Science, Technology, Engineering, and Mathematics (STEM) Education to coordinate federal programs for transitioning veterans into careers in STEM and to develop a strategic plan to address barriers to STEM careers for veterans.

Using information from the NSF and OSTP, CBO estimates that implementing the bill would cost $1 million over the 2018–2022 period; such spending would be subject to the availability of appropriated funds. Most of those costs would be for OSTP personnel to manage additional subcommittee activities and to prepare the strategic plan.

Enacting H.R. 4323 would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply.

CBO estimates that enacting H.R. 4323 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2028.

H.R. 4323 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act.

The CBO staff contact for this estimate is Janani Shankaran. The estimate was approved by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, and existing law in which no change is proposed is shown in roman):

NATIONAL SCIENCE FOUNDATION AUTHORIZATION ACT OF 2002

* * * * * * *

SEC. 10. ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM.

(a) SCHOLARSHIP PROGRAM.—

(1) IN GENERAL.—The Director shall carry out a program to award grants to eligible entities to recruit and train mathematics and science teachers and to provide scholarships and stipends to individuals participating in the program. Such program shall be known as the "Robert Noyce Teacher Scholarship Program".

(2) MERIT REVIEW.—Grants shall be provided under this section on a competitive, merit-reviewed basis.

(3) USE OF GRANTS.—A grant provided under this section shall be used by the eligible entity—

(A) to develop and implement a program to recruit and prepare undergraduate students majoring in science, technology, engineering, and mathematics at the eligible entity (and participating institutions of higher education of the consortium, if applicable) to become qualified as mathematics and science teachers, through—

(i) administering scholarships in accordance with subsection (c);

(ii) offering academic courses and early clinical teaching experiences designed to prepare students participating in the program to teach in elementary schools and secondary schools, including such preparation as is necessary to meet requirements for teacher certification or licensing;

(iii) offering programs to students participating in the program, both before and after the students receive their baccalaureate degree, to enable the students to become better mathematics and science teachers, to fulfill the service requirements of this section, and to exchange ideas with others in the students' fields; and

(iv) providing summer internships for freshman and sophomore students participating in the program; or

(B) to develop and implement a program to recruit and prepare science, technology, engineering, or mathematics professionals to become qualified as mathematics and science teachers, through—

(i) administering stipends in accordance with subsection (d);

(ii) offering academic courses and clinical teaching experiences designed to prepare stipend recipients to teach in elementary schools and secondary schools served by a high need local educational agency, including such preparation as is necessary to meet requirements for teacher certification or licensing; and

(iii) offering programs to stipend recipients, both during and after matriculation in the program for which the stipend is received, to enable recipients to become better mathematics and science teachers, to fulfill the service requirements of this section, and to exchange ideas with others in the students' fields.

(4) ELIGIBILITY REQUIREMENT.—

(A) IN GENERAL.—To be eligible to receive a grant under this section, an eligible entity shall ensure that specific faculty members and staff from the science, technology, engineering, and mathematics departments and specific education faculty of the eligible entity (and participating institutions of higher education of the consortium, if applicable) are designated to carry out the development and implementation of the program.

(B) INCLUSION OF MASTER TEACHERS.—An eligible entity (and participating institutions of higher education of the consortium, if applicable) receiving a grant under this section may also include master teachers in the development of the pedagogical content of the program and in the supervision of students participating in the program in their clinical teaching experiences.

(C) ACTIVE PARTICIPANTS.—No eligible entity (or participating institution of higher education of the consortium, if applicable) shall be eligible for a grant under this section unless faculty from the science, technology, engineering, and mathematics departments of the eligible entity (and participating institutions of higher education of the consortium, if applicable) are active participants in the program.

(5) AWARDS.—In awarding grants under this section, the Director shall ensure that the eligible entities (and participating institutions of higher education of the consortia, if applicable) represent a variety of types of institutions of higher education. In support of this goal, the Director shall broadly disseminate information about when and how to apply for grants under this section, including by conducting outreach to—

(A) historically Black colleges and universities that are part B institutions, as defined in section 322(2) of the Higher Education Act of 1965 (20 U.S.C. 1061(2)); **[**and**]**

(B) minority institutions, as defined in section 365(3) of the Higher Education Act of 1965 (20 U.S.C. 1067k(3))**[**.**]***; and*

(C) higher education programs that serve or support veterans.

(6) SUPPLEMENT NOT SUPPLANT.—Grant funds provided under this section shall be used to supplement, and not supplant, other Federal or State funds available for the type of activities supported by the grant.

(b) SELECTION PROCESS.—

(1) APPLICATION.—An eligible entity seeking funding 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. The application shall include, at a minimum—

(A) in the case of an applicant that is submitting an application on behalf of a consortium of institutions of higher education, a description of the participating institutions of higher education and the roles and responsibilities of each such institution;

(B) a description of the program that the applicant intends to operate, including the number of scholarships and summer internships or the size and number of stipends the applicant intends to award, the type of activities proposed for the recruitment of students to the program, and the selection process that will be used in awarding the scholarships or stipends;

(C) evidence that the applicant has the capability to administer the program in accordance with the provisions of this section, which may include a description of any existing programs at the applicant eligible entity (and participating institutions of higher education of the consortium, if applicable) that are targeted to the education of mathematics and science teachers and the number of teachers graduated annually from such programs;

(D) a description of the academic courses and clinical teaching experiences required under subparagraphs (A)(ii) and (B)(ii) of subsection (a)(3), as applicable, including—

(i) a description of the undergraduate program that will enable a student to graduate within 5 years with a major in science, technology, engineering, or mathematics and to obtain teacher certification or licensing;

(ii) a description of the clinical teaching experiences proposed; and

(iii) evidence of agreements between the applicant and the schools or local educational agencies that are identified as the locations at which clinical teaching experiences will occur;

(E) a description of the programs required under subparagraphs (A)(iii) and (B)(iii) of subsection (a)(3), including activities to assist new teachers in fulfilling the teachers' service requirements under this section;

(F) an identification of the applicant eligible entity's science, technology, engineering, and mathematics faculty and its education faculty (and such faculty of participating institutions of higher education of the consortium, if applicable) who will carry out the development and implementation of the program as required under subsection (a)(4); and

(G) a description of the process the applicant will use to fulfill the requirements of subsection (f).

(2) REVIEW OF APPLICATIONS.—In evaluating the applications submitted under paragraph (1), the Director shall consider, at a minimum—

(A) the ability of the applicant (and the participating institutions of higher education of the consortium, if applicable) to effectively carry out the program;

(B) the extent to which the applicant's science, technology, engineering, and mathematics faculty and its education faculty (and such faculty of participating institutions of higher education of the consortium, if applicable) have worked or will work collaboratively to design new or revised curricula that recognize the specialized pedagogy required to teach science, technology, engineering, and mathematics effectively in elementary schools and secondary schools;

(C) the extent to which the applicant (and the participating institutions of higher education of the consortium, if applicable) is committed to making the program a central organizational focus;

(D) the degree to which the proposed programming will enable scholarship or stipend recipients to become successful mathematics and science teachers;

(E) the number and academic qualifications of the students who will be served by the program; and

(F) the ability of the applicant (and the participating institutions of higher education of the consortium, if applicable) to recruit students who would otherwise not pursue a career in teaching in elementary schools or secondary schools [and students], *students* who are individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b)*, and veterans*.

(c) SCHOLARSHIP REQUIREMENTS.—

(1) IN GENERAL.—Scholarships under this section shall be available only to students who—

(A) are majoring in science, technology, engineering, or mathematics; and

(B) have attained at least junior status in a baccalaureate degree program.

(2) SELECTION.—Individuals shall be selected to receive scholarships primarily on the basis of academic merit, with consideration given to financial need and to the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b) *and veterans*.

(3) AMOUNT.—The Director shall establish for each year the amount to be awarded for scholarships under this section for that year, which shall be not less than $10,000 per year, except that no individual shall receive for any year more than the cost of attendance at that individual's institution. Full-time students may receive annual scholarships through the completion of a baccalaureate degree program, not to exceed a maximum of 3 years. Part-time students may receive scholarships that are prorated according to such students' enrollment status, not to exceed 6 years of scholarship support.

(4) SERVICE OBLIGATION.—If an individual receives a scholarship under this section, such individual shall be required to complete, within 8 years after graduation from the bacca-

laureate degree program for which the scholarship was awarded, 2 years of service as a mathematics or science teacher for each full scholarship award received, with a maximum service requirement of 6 years. Service required under this paragraph shall be performed in a high need local educational agency.

(d) STIPENDS.—

(1) IN GENERAL.—Stipends under this section shall be available only to science, technology, engineering, or mathematics professionals who, while receiving the stipend, are enrolled in a program established under subsection (a)(3)(B).

(2) SELECTION.—Individuals shall be selected to receive stipends under this section primarily on the basis of academic merit and professional achievement, with consideration given to financial need and to the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b) *and veterans*.

(3) AMOUNT AND DURATION.—Stipends under this section shall be not less than $10,000 per year, except that no individual shall receive for any year more than the cost of attendance at such individual's institution. Individuals may receive a maximum of 1 year of stipend support, except that if an individual is enrolled in a part-time program, such amount shall be prorated according to the length of the program.

(4) SERVICE OBLIGATION.—If an individual receives a stipend under this section, such individual shall be required to complete, within 4 years after graduation from the program for which the stipend was awarded, 2 years of service as a mathematics or science teacher. Service required under this paragraph shall be performed in a high need local educational agency.

(e) CONDITIONS OF SUPPORT.—As a condition of acceptance of a scholarship or stipend under this section, a recipient of a scholarship or stipend shall enter into an agreement with the eligible entity—

(1) accepting the terms of the scholarship or stipend pursuant to subsection (c) or subsection (d);

(2) agreeing to provide the eligible entity with annual certification of employment and up-to-date contact information and to participate in surveys conducted by the eligible entity as part of an ongoing assessment program; and

(3) establishing that if the service obligation required under this section is not completed, all or a portion of the scholarship or stipend received under this section shall be repaid in accordance with subsection (g).

(f) COLLECTION FOR NONCOMPLIANCE.—

(1) MONITORING COMPLIANCE.—An eligible entity receiving a grant under this section shall, as a condition of participating in the program, enter into an agreement with the Director to monitor the compliance of scholarship or stipend recipients with their respective service requirements.

(2) COLLECTION OF REPAYMENT.—

(A) IN GENERAL.—In the event that a scholarship or stipend recipient is required to repay the scholarship or stipend under subsection (g), the eligible entity shall—

(i) be responsible for determining the repayment amounts and for notifying the recipient and the Director of the amount owed; and

(ii) collect such repayment amount within a period of time as determined under the agreement described in paragraph (1), or the repayment amount shall be treated as a loan in accordance with subparagraph (C).

(B) RETURNED TO TREASURY.—Except as provided in subparagraph (C), any such repayment shall be returned to the Treasury of the United States.

(C) RETAIN PERCENTAGE.—An eligible entity may retain a percentage of any repayment the eligible entity collects to defray administrative costs associated with the collection. The Director shall establish a single, fixed percentage that will apply to all eligible entities.

(g) FAILURE TO COMPLETE SERVICE OBLIGATION.—

(1) GENERAL RULE.—If an individual who has received a scholarship or stipend under this section—

(A) fails to maintain an acceptable level of academic standing in the educational institution in which the individual is enrolled, as determined by the Director;

(B) is dismissed from such educational institution for disciplinary reasons;

(C) withdraws from the program for which the award was made before the completion of such program;

(D) declares that the individual does not intend to fulfill the service obligation under this section; or

(E) fails to fulfill the service obligation of the individual under this section,

such individual shall be liable to the United States as provided in paragraph (2).

(2) AMOUNT OF REPAYMENT.—

(A) LESS THAN ONE YEAR OF SERVICE.—If a circumstance described in paragraph (1) occurs before the completion of 1 year of a service obligation under this section, the total amount of awards received by the individual under this section shall be repaid or such amount shall be treated as a loan to be repaid in accordance with subparagraph (C).

(B) MORE THAN ONE YEAR OF SERVICE.—If a circumstance described in subparagraph (D) or (E) of paragraph (1) occurs after the completion of 1 year of a service obligation under this section—

(i) for a scholarship recipient, the total amount of scholarship awards received by the individual under this section, reduced by the ratio of the number of years of service completed divided by the number of years of service required, shall be repaid or such amount shall be treated as a loan to be repaid in accordance with subparagraph (C); and

(ii) for a stipend recipient, one-half of the total amount of stipends received by the individual under this section shall be repaid or such amount shall be treated as a loan to be repaid in accordance with subparagraph (C).

(C) REPAYMENTS.—The loans described under subparagraphs (A) and (B) shall be payable to the Federal Government, consistent with the provisions of part B or D of title IV of the Higher Education Act of 1965, and shall be subject to repayment in accordance with terms and conditions specified by the Director (in consultation with the Secretary of Education) in regulations promulgated to carry out this paragraph.

(3) EXCEPTIONS.—The Director may provide for the partial or total waiver or suspension of any service or payment obligation by an individual under this section whenever compliance by the individual with the obligation is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be unconscionable.

(h) DATA COLLECTION.—An eligible entity receiving a grant under this section shall supply to the Director any relevant statistical and demographic data on scholarship and stipend recipients the Director may request, including information on employment required under this section.

(i) DEFINITIONS.—In this section—

(1) the term "cost of attendance" has the meaning given such term in section 472 of the Higher Education Act of 1965 (20 U.S.C. 1087ll);

(2) the term "eligible entity" means—

(A) an institution of higher education; or

(B) an institution of higher education that receives grant funds on behalf of a consortium of institutions of higher education;

(3) the term "fellowship" means an award to an individual under section 10A;

(4) the term "high need local educational agency" has the meaning given such term in section 201 of the Higher Education Act of 1965 (20 U.S.C. 1021);

(5) the term "mathematics and science teacher" means a science, computer science, technology, engineering, or mathematics teacher at the elementary school or secondary school level;

(6) the term "scholarship" means an award under subsection (c);

(7) the term "science, technology, engineering, or mathematics professional" means a person who holds a baccalaureate, master's, or doctoral degree in science, technology, engineering, or mathematics, and is working in or had a career in such field or a related area; and

(8) the term "stipend" means an award under subsection (d).

(j) MATHEMATICS AND SCIENCE SCHOLARSHIP GIFT FUND.—In accordance with section 11(f) of the National Science Foundation Act of 1950 (42 U.S.C. 1870(f)), the Director is authorized to accept donations from the private sector to supplement but not supplant scholarships, stipends, internships, or fellowships associated with programs under this section or section 10A.

(k) ASSESSMENT OF TEACHER SERVICE AND RETENTION.—Not later than 4 years after the date of enactment of the America COMPETES Act, the Director shall transmit to the Committee on

Health, Education, Labor, and Pensions of the Senate and the Committee on Science and Technology of the House of Representatives a report on the effectiveness of the programs carried out under this section and section 10A. The report shall include the proportion of individuals receiving scholarships, stipends, or fellowships under the program who—

(1) fulfill the individuals' service obligation required under this section or section 10A;

(2) remain in the teaching profession beyond the individuals' service obligation; and

(3) remain in the teaching profession in a high need local educational agency beyond the individuals' service obligation.

(l) EVALUATION.—Not less than 2 years after the date of enactment of the America COMPETES Act, the Director, in consultation with the Secretary of Education, shall conduct an evaluation to determine whether the scholarships, stipends, and fellowships authorized under this section and section 10A have been effective in increasing the numbers of high-quality mathematics and science teachers teaching in high need local educational agencies and whether there continue to exist significant shortages of such teachers in high need local educational agencies.

SEC. 10A. NATIONAL SCIENCE FOUNDATION TEACHING FELLOWSHIPS AND MASTER TEACHING FELLOWSHIPS.

(a) IN GENERAL.—

(1) GRANTS.—

(A) IN GENERAL.—As part of the Robert Noyce Teacher Scholarship Program established under section 10, the Director shall establish a separate program to award grants to eligible entities to enable such entities to administer fellowships in accordance with this section.

(B) DEFINITIONS.—The terms used in this section have the meanings given the terms in section 10.

(2) FELLOWSHIPS.—Fellowships under this section shall be available only to—

(A) science, technology, engineering, or mathematics professionals, including retiring professionals in those fields, who shall be referred to as "National Science Foundation Teaching Fellows" and who, in the first year of the fellowship, are enrolled in a master's degree program leading to teacher certification or licensing; and

(B) mathematics and science teachers, who shall be referred to as "National Science Foundation Master Teaching Fellows" and who possess a master's or bachelor's degree in their field.

(b) ELIGIBILITY.—In order to be eligible to receive a grant under this section, an eligible entity shall enter into a partnership that shall include—

(1) a department within an institution of higher education participating in the partnership that provides an advanced program of study in mathematics and science;

(2)(A) a school or department within an institution of higher education participating in the partnership that provides a teacher preparation program; or

(B) a 2-year institution of higher education that has a teacher preparation offering or a dual enrollment program with an institution of higher education participating in the partnership;

(3) not less than 1 high need local educational agency and a public school or a consortium of public schools served by the agency; and

(4) 1 or more nonprofit organizations that have a demonstrated record of capacity to provide expertise or support to meet the purposes of this section.

(c) USE OF GRANTS.—Grants awarded under this section shall be used by the eligible entity (and participating institutions of higher education of the consortium, if applicable) to develop and implement a program for National Science Foundation Teaching Fellows or National Science Foundation Master Teaching Fellows, through—

(1) administering fellowships in accordance with this section, including providing the teaching fellowship salary supplements described in subsection (f);

(2) in the case of National Science Foundation Teaching Fellowships—

(A) offering academic courses and clinical teaching experiences leading to a master's degree and designed to prepare individuals to teach in elementary schools and secondary schools, including such preparation as is necessary to meet the requirements for certification or licensing; 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 activities, 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 the case of National Science Foundation Master Teaching Fellowships for teachers with master's degrees in their field—

(A) offering academic courses and leadership training to prepare individuals to become master teachers in elementary schools 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 activities, to fulfill the service requirements of this section, including the requirements of subsection (e), and to exchange ideas with others in their fields; and

(4) in the case of National Science Foundation Master Teaching Fellowships for teachers with bachelor's degrees in their field and working toward a master's degree—

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

(d) SELECTION PROCESS.—

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

(2) APPLICATIONS.—An eligible entity desiring 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. The application shall include, at a minimum—

(A) in the case of an applicant that is submitting an application on behalf of a consortium of institutions of higher education, a description of the participating institutions of higher education and the roles and responsibilities of each such institution;

(B) a description of the program that the applicant intends to operate, including the number of fellowships the applicant intends to award, the type of activities proposed for the recruitment of students to the program, and the amount of the teaching fellowship salary supplements to be provided in accordance with subsection (f);

(C) evidence that the applicant has the capability to administer the program in accordance with the provisions of this section, which may include a description of any existing programs at the applicant eligible entity (and participating institutions of higher education of the consortium, if applicable) that are targeted to the education of mathematics and science teachers and the number of teachers graduated annually from such programs;

(D) in the case of National Science Foundation Teaching Fellowships, a description of—

(i) the selection process that will be used in awarding fellowships, including a description of the rigorous measures to be used, including the rigorous, nationally recognized assessments to be used, in order to determine whether individuals applying for fellowships have advanced content knowledge of science, technology, engineering, or mathematics;

(ii) the academic courses and clinical teaching experiences described in subsection (c)(2)(A), including—

(I) a description of an educational program that will enable a student to obtain a master's degree and teacher certification or licensing within 1 year; and

(II) evidence of agreements between the applicant and the schools or local educational agencies that are identified as the locations at which clinical teaching experiences will occur;

(iii) a description of the programs described in subsection (c)(2)(B), including activities to assist individuals in fulfilling their service requirements under this section;

(E) evidence that the eligible entity will provide the teaching supplements required under subsection (f); and

(F) a description of the process the applicant will use to fulfill the requirements of section 10(f).

(3) CRITERIA.—In evaluating the applications submitted under paragraph (2), the Director shall consider, at a minimum—

(A) the ability of the applicant (and participating institutions of higher education of the consortium, if applicable) to effectively carry out the program and to meet the requirements of subsection (f);

(B) the extent to which the mathematics, science, or engineering faculty and the education faculty at the eligible entity (and participating institutions of higher education of the consortium, if applicable) have worked or will work collaboratively to design new or revised curricula that recognizes the specialized pedagogy required to teach science, technology, engineering, and mathematics effectively in elementary schools and secondary schools;

(C) the extent to which the applicant (and participating institutions of higher education of the consortium, if applicable) is committed to making the program a central organizational focus;

(D) the degree to which the proposed programming will enable participants to become highly effective mathematics and science teachers and prepare such participants to assume leadership roles in their schools, in addition to their regular classroom duties, including serving as mentor or master teachers, developing curriculum, and assisting in the development and implementation of professional development activities;

(E) the number and quality of the individuals that will be served by the program; and

(F) in the case of the National Science Foundation Teaching Fellowship, the ability of the applicant (and participating institutions of higher education of the consortium, if applicable) to recruit individuals who would otherwise not pursue a career in teaching **[**and individuals**]***, individuals* identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1855a or 1855b)*, and veterans*.

(4) SELECTION OF FELLOWS.—

(A) IN GENERAL.—Individuals shall be selected to receive fellowships under this section primarily on the basis of—

(i) professional achievement;

(ii) academic merit;

(iii) content knowledge of science, technology, engineering, or mathematics, as demonstrated by their performance on an assessment in accordance with paragraph (2)(D)(i); and

(iv) in the case of National Science Foundation Master Teaching Fellows, demonstrated success in improving student academic achievement in science, technology, engineering, or mathematics.

(B) PROMOTING PARTICIPATION OF CERTAIN INDIVIDUALS.—Among individuals demonstrating equivalent qualifications, consideration may be given to the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b) *and veterans*.

(e) DUTIES OF NATIONAL SCIENCE FOUNDATION TEACHING FELLOWS AND MASTER TEACHING FELLOWS.—A National Science Foundation Teaching Fellow or a National Science Foundation Master Teaching Fellow, while fulfilling the service obligation under subsection (h) and in addition to regular classroom activities, shall take on a leadership role within the school or local educational agency in which the fellow is employed, as defined by the partnership according to such fellow's expertise, including serving as a mentor or master teacher, developing curricula, and assisting in the development and implementation of professional development activities.

(f) TEACHING FELLOWSHIP SALARY SUPPLEMENTS.—

(1) IN GENERAL.—An eligible entity receiving a grant under this section shall provide salary supplements to individuals who participate in the program under this section during the period of their service obligation under subsection (h). A local educational agency through which the service obligation is fulfilled shall agree not to reduce the base salary normally paid to an individual solely because such individual receives a salary supplement under this subsection.

(2) AMOUNT AND DURATION.—

(A) AMOUNT.—Salary supplements provided under paragraph (1) shall be not less than $10,000 per year, except that, in the case of a National Science Foundation Teaching Fellow, while enrolled in the master's degree program as described in subsection (c)(2)(A), such fellow shall receive not more than the cost of attendance at such fellow's institution.

(B) SUPPORT WHILE ENROLLED IN MASTER'S DEGREE PROGRAM.—A National Science Foundation Teaching Fellow may receive a maximum of 1 year of fellowship support while enrolled in a master's degree program as described in subsection (c)(2)(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.

(C) DURATION OF SUPPORT.—An eligible entity receiving a grant under this section shall provide teaching fellowship salary supplements through the period of the fellow's service obligation under subsection (h).

(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.

(h) SERVICE OBLIGATION.—An individual awarded a fellowship under this section shall serve as a mathematics or science teacher in an elementary school or secondary school served by a high need local educational agency for—

(1) in the case of a National Science Foundation Teaching Fellow, 4 years, to be fulfilled within 6 years of completing the master's program described in subsection (c)(2)(A); and

(2) in the case of a National Science Foundation Master Teaching Fellow, 5 years, to be fulfilled within 7 years of the start of participation in the program under subsection (c)(3).

(i) MATCHING REQUIREMENT.—

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

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

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

(2) WAIVER.—The Director may waive all or part of the matching requirement described in paragraph (1) for any fiscal year for an eligible entity receiving a grant under this section, if the Director determines that applying the matching requirement would result in serious hardship or inability to carry out the authorized activities described in this section.

(j) CONDITIONS OF SUPPORT; COLLECTION FOR NONCOMPLIANCE; FAILURE TO COMPLETE SERVICE OBLIGATION; DATA COLLECTION.—

(1) IN GENERAL.—Except as provided in paragraph (2), subsections (e), (f), (g), and (h) of section 10 shall apply to eligible entities and recipients of fellowships under this section, as applicable, in the same manner as such subsections apply to eligible entities and recipients of scholarships and stipends under section 10, as applicable.

(2) AMOUNT OF REPAYMENT.—If a circumstance described in subparagraph (D) or (E) of section 10(g)(1) occurs after the completion of 1 year of a service obligation under this section—

(A) for a National Science Foundation Teaching Fellow, the total amount of fellowship award received by the individual under this section while enrolled in the master's degree program, reduced by one-fourth of the total amount for each year of service completed, plus one-half of the total teaching fellowship salary supplements received by such individual under this section, shall be repaid or such amount shall be treated as a loan to be repaid in accordance with section 10(g)(1)(C); and

(B) for a National Science Foundation Master Teaching Fellow, the total amount of teaching fellowship salary supplements received by the individual under this section, reduced by one-half, shall be repaid or such amount shall be

treated as a loan to be repaid in accordance with section 10(g)(1)(C).

(k) STEM TEACHER SERVICE AND RETENTION.—

(1) IN GENERAL.—The Director shall develop and implement practices for increasing the proportion of individuals receiving fellowships under this section who—

(A) fulfill the service obligation required under subsection (h); and

(B) remain in the teaching profession in a high need local educational agency beyond the service obligation.

(2) PRACTICES.—The practices described under paragraph (1) may include—

(A) partnering with nonprofit or professional associations or with other government entities to provide individuals receiving fellowships under this section with opportunities for professional development, including mentorship programs that pair those individuals with currently employed and recently retired science, technology, engineering, mathematics, or computer science professionals;

(B) increasing recruitment from high need districts;

(C) establishing a system to better collect, track, and respond to data on the career decisions of individuals receiving fellowships under this section;

(D) conducting research to better understand factors relevant to teacher service and retention, including factors specifically impacting the retention of teachers who are individuals identified in sections 33 and 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a, 1885b); and

(E) conducting pilot programs to improve teacher service and retention.

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CYBER SECURITY RESEARCH AND DEVELOPMENT ACT

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SEC. 5. NATIONAL SCIENCE FOUNDATION COMPUTER AND NETWORK SECURITY PROGRAMS.

(a) COMPUTER AND NETWORK SECURITY CAPACITY BUILDING GRANTS.—

(1) IN GENERAL.—The Director shall establish a program to award grants to institutions of higher education (or consortia thereof) to establish or improve undergraduate and master's degree programs in computer and network security, to increase the number of students, including the number of students from groups historically underrepresented in these fields *and students who are veterans*, who pursue undergraduate or master's degrees in fields related to computer and network security, and to provide students with experience in government or industry related to their computer and network security studies.

(2) MERIT REVIEW.—Grants shall be awarded under this subsection on a merit-reviewed competitive basis.

(3) USE OF FUNDS.—Grants awarded under this subsection shall be used for activities that enhance the ability of an insti-

tution of higher education (or consortium thereof) to provide high-quality undergraduate and master's degree programs in computer and network security and to recruit and retain increased numbers of students to such programs. Activities may include—

(A) revising curriculum to better prepare undergraduate and master's degree students for careers in computer and network security;

(B) establishing degree and certificate programs in computer and network security;

(C) creating opportunities for undergraduate students to participate in computer and network security research projects;

(D) acquiring equipment necessary for student instruction in computer and network security, including the installation of testbed networks for student use;

(E) providing opportunities for faculty to work with local or Federal Government agencies, private industry, nonprofit research institutions, or other academic institutions to develop new expertise or to formulate new research directions in computer and network security;

(F) establishing collaborations with other academic institutions or academic departments that seek to establish, expand, or enhance programs in computer and network security;

(G) establishing student internships in computer and network security at government agencies or in private industry;

(H) establishing collaborations with other academic institutions to establish or enhance a web-based collection of computer and network security courseware and laboratory exercises for sharing with other institutions of higher education, including community colleges;

(I) establishing or enhancing bridge programs in computer and network security between community colleges and universities; [and]

(J) creating opportunities for veterans to transition to careers in computer and network security; and

[(J)] *(K)* any other activities the Director determines will accomplish the goals of this subsection.

(4) SELECTION PROCESS.—

(A) APPLICATION.—An institution of higher education (or a consortium thereof) seeking funding under this subsection shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum—

(i) a description of the applicant's computer and network security research and instructional capacity, and in the case of an application from a consortium of institutions of higher education, a description of the role that each member will play in implementing the proposal;

(ii) a comprehensive plan by which the institution or consortium will build instructional capacity in computer and information security;

(iii) a description of relevant collaborations with government agencies or private industry that inform the instructional program in computer and network security;

(iv) a survey of the applicant's historic student enrollment and placement data in fields related to computer and network security and a study of potential enrollment and placement for students enrolled in the proposed computer and network security program; and

(v) a plan to evaluate the success of the proposed computer and network security program, including post-graduation assessment of graduate school and job placement and retention rates as well as the relevance of the instructional program to graduate study and to the workplace.

(B) AWARDS.—(i) The Director shall ensure, to the extent practicable, that grants are awarded under this subsection in a wide range of geographic areas and categories of institutions of higher education, including minority serving institutions.

(ii) The Director shall award grants under this subsection for a period not to exceed 5 years.

(5) ASSESSMENT REQUIRED.—The Director shall evaluate the program established under this subsection no later than 6 years after the establishment of the program. At a minimum, the Director shall evaluate the extent to which the program achieved its objectives of increasing the quality and quantity of students, including students from groups historically underrepresented in computer and network security related disciplines, pursuing undergraduate or master's degrees in computer and network security.

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

(A) $15,000,000 for fiscal year 2003;
(B) $20,000,000 for fiscal year 2004;
(C) $20,000,000 for fiscal year 2005;
(D) $20,000,000 for fiscal year 2006; and
(E) $20,000,000 for fiscal year 2007.

(b) SCIENTIFIC AND ADVANCED TECHNOLOGY ACT OF 1992.—

(1) GRANTS.—The Director shall provide grants under the Scientific and Advanced Technology Act of 1992 (42 U.S.C. 1862i) for the purposes of section 3(a) and (b) of that Act, except that the activities supported pursuant to this subsection shall be limited to improving education in fields related to computer and network security.

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

(A) $1,000,000 for fiscal year 2003;
(B) $1,250,000 for fiscal year 2004;
(C) $1,250,000 for fiscal year 2005;

(D) $1,250,000 for fiscal year 2006; and

(E) $1,250,000 for fiscal year 2007.

(c) GRADUATE TRAINEESHIPS IN COMPUTER AND NETWORK SECURITY RESEARCH.—

(1) IN GENERAL.—The Director shall establish a program to award grants to institutions of higher education to establish traineeship programs for graduate students who pursue computer and network security research leading to a doctorate degree by providing funding and other assistance, and by providing graduate students with research experience in government or industry related to the students' computer and network security studies.

(2) MERIT REVIEW.—Grants shall be provided under this subsection on a merit-reviewed competitive basis.

(3) USE OF FUNDS.—An institution of higher education shall use grant funds for the purposes of—

(A) providing traineeships to students who are citizens, nationals, or lawfully admitted permanent resident aliens of the United States and are pursuing research in computer or network security leading to a doctorate degree;

(B) paying tuition and fees for students receiving traineeships under subparagraph (A);

(C) establishing scientific internship programs for students receiving traineeships under subparagraph (A) in computer and network security at for-profit institutions, nonprofit research institutions, or government laboratories; and

(D) other costs associated with the administration of the program.

(4) TRAINEESHIP AMOUNT.—Traineeships provided under paragraph (3)(A) shall be in the amount of $25,000 per year, or the level of the National Science Foundation Graduate Research Fellowships, whichever is greater, for up to 3 years.

(5) SELECTION PROCESS.—An institution of higher education seeking funding under this subsection shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum, a description of—

(A) the instructional program and research opportunities in computer and network security available to graduate students at the applicant's institution; and

(B) the internship program to be established, including the opportunities that will be made available to students for internships at for-profit institutions, nonprofit research institutions, and government laboratories.

(6) REVIEW OF APPLICATIONS.—In evaluating the applications submitted under paragraph (5), the Director shall consider—

(A) the ability of the applicant to effectively carry out the proposed program;

(B) the quality of the applicant's existing research and education programs;

(C) the likelihood that the program will recruit increased numbers of students, including students from groups historically underrepresented in computer and network secu-

rity related disciplines *or veterans,*, to pursue and earn doctorate degrees in computer and network security;

(D) the nature and quality of the internship program established through collaborations with government laboratories, nonprofit research institutions, and for-profit institutions;

(E) the integration of internship opportunities into graduate students' research; and

(F) the relevance of the proposed program to current and future computer and network security needs.

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

(A) $10,000,000 for fiscal year 2003;

(B) $20,000,000 for fiscal year 2004;

(C) $20,000,000 for fiscal year 2005;

(D) $20,000,000 for fiscal year 2006; and

(E) $20,000,000 for fiscal year 2007.

(d) GRADUATE RESEARCH FELLOWSHIPS PROGRAM SUPPORT.—Computer and network security shall be included among the fields of specialization supported by the National Science Foundation's Graduate Research Fellowships program under section 10 of the National Science Foundation Act of 1950 (42 U.S.C. 1869).

(e) CYBER SECURITY FACULTY DEVELOPMENT TRAINEESHIP PROGRAM.—

(1) IN GENERAL.—The Director shall establish a program to award grants to institutions of higher education to establish traineeship programs to enable graduate students to pursue academic careers in cyber security upon completion of doctoral degrees.

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

(3) APPLICATION.—Each institution of higher education desiring to receive a grant under this subsection shall submit an application to the Director at such time, in such manner, and containing such information as the Director shall require.

(4) USE OF FUNDS.—Funds received by an institution of higher education under this paragraph shall—

(A) be made available to individuals on a merit-reviewed competitive basis and in accordance with the requirements established in paragraph (7);

(B) be in an amount that is sufficient to cover annual tuition and fees for doctoral study at an institution of higher education for the duration of the graduate traineeship, and shall include, in addition, an annual living stipend of $25,000; and

(C) be provided to individuals for a duration of no more than 5 years, the specific duration of each graduate traineeship to be determined by the institution of higher education, on a case-by-case basis.

(5) REPAYMENT.—Each graduate traineeship shall—

(A) subject to paragraph (5)(B), be subject to full repayment upon completion of the doctoral degree according to a repayment schedule established and administered by the institution of higher education;

(B) be forgiven at the rate of 20 percent of the total amount of the graduate traineeship assistance received under this section for each academic year that a recipient is employed as a full-time faculty member at an institution of higher education for a period not to exceed 5 years; and

(C) be monitored by the institution of higher education receiving a grant under this subsection to ensure compliance with this subsection.

(6) EXCEPTIONS.—The Director may provide for the partial or total waiver or suspension of any service obligation or payment by an individual under this section whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be unconscionable.

(7) ELIGIBILITY.—To be eligible to receive a graduate traineeship under this section, an individual shall—

(A) be a citizen, national, or lawfully admitted permanent resident alien of the United States; and

(B) demonstrate a commitment to a career in higher education.

(8) CONSIDERATION.—In making selections for graduate traineeships under this paragraph, an institution receiving a grant under this subsection shall consider, to the extent possible, a diverse pool of applicants whose interests are of an interdisciplinary nature, encompassing the social scientific as well as the technical dimensions of cyber security.

(9) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this paragraph $5,000,000 for each of fiscal years 2003 through 2007.

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