Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Office of Secretary Of Defense											Date: March 2014	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*					R-1 Program Element (Number/Name) PE 0601120D8Z / *National Defense Education Program (NDEP)*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	-	73.667	77.241	45.488	-	45.488	48.212	48.308	49.197	52.466	Continuing	Continuing
P120: *National Defense Education Program (NDEP)*	-	73.667	77.241	45.488	-	45.488	48.212	48.308	49.197	52.466	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

Note

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program is realigned from PE 0601120D8Z to PE 0601110D8Z, Basic Research Initiatives, beginning in FY 2015.

A. Mission Description and Budget Item Justification

The National Defense Education Program (NDEP) engages the full science, technology, engineering, and mathematics (STEM) continuum to ensure the Department of Defense (DoD) will have access to high-quality STEM personnel vital to national defense now and in the future. STEM degree production compared to U.S. employment projections show that there is likely to be a significant shortage of STEM professionals, especially in computing, information technology, and electronics engineering, DoD mission critical occupations for which NDEP's continuum of initiatives provides a pool of exceptional talent. NDEP's portfolio provides short, medium, and long-term solutions to the perfect storm of workforce challenges, which include: (1) impending retirement of 33 percent of DoD's STEM workforce; (2) low college readiness rate and interest in STEM majors; and (3) challenges that DoD, like other Federal employers, face in recruiting and retaining high-quality STEM talent in a competitive environment.

NDEP aligns to the DoD Science and Technology (S&T) priorities and the integrated STEM/Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) program, synchronized with the Federal 5-Year STEM Strategic Plan, the DoD STEM Strategic and Implementation Plans and the DoD Strategic Workforce Plan (in progress). NDEP components engage in assessment and evaluation as required by the Office of Management and Budget and the Government Accountability Office.

Science, Mathematics, and Research for Transformation (SMART) awards highly competitive scholarships-for-service to undergraduate and graduate students in 19 academic STEM disciplines and moves graduates directly into DoD's workforce following graduation. Internships engage SMART scholars in hands-on, authentic research and work experiences in DoD facilities, thereby enhancing their educational experience and building a public service commitment to the Department's mission. Since its inception as a pilot program in FY 2005, SMART has supported ~1,455 students from bachelor to doctoral levels and to date ~900 have completed program studies and transitioned into the DoD workforce. SMART ensures that DoD has a steady infusion of high-quality U.S. technical talent, prepared in areas of critical importance to DoD, ready to apply their technical knowledge, skills, and abilities to fulfill DoD's mission.

National Security Science and Engineering Faculty Fellowship (NSSEFF) currently supports 29 world-class researchers (NSSEFF Fellows) in scientific areas of critical importance to DoD and ensures the cultivation of exceptional future talent. The NSSEFF Fellows work with ~100 undergraduate students, ~270 graduate students, and ~150 post-doctoral scholars at their respective academic institutions. Three cohorts of NSSEFF Fellows, with the first selected in FY 2008, provides a critical

resource for connections between academia and the DoD science and engineering enterprise. Fellows' work spans all seven DoD S&T priorities and defines a broad set of emerging scientific research areas, critical to the development of future DoD technologies. NSSEFF Fellows serve as speakers at DoD events, reviewers on panels for DoD science, and as collaborators with scientists and engineers at DoD's laboratories and other research facilities. The NSSEFF program is realigned to PE 0601110D8Z Basic Research Initiatives in FY 2015.

NDEP Pre-Kindergarten (PK)-12 engages, develops, and attracts STEM talent for future DoD military and civilian workforce needs via 68 local sites and nine national organizations. NDEP PK-12 leverages the DoD's STEM expertise to connect students, teachers, schools, and public sector and industry partners with DoD subject matter experts (SMEs) primarily in those communities adjacent to DoD laboratories and bases where the talent pool resides. Authentic STEM experiences for teachers and students include hands-on activities that are aligned with DoD's technical workforce requirements. Since FY 2007, NDEP PK-12 has increased the number of DoD facilities that directly engage local education authorities (LEAs) to: (1) build student interest in STEM fields and disciplines and in careers specific to DoD; (2) develop DoD-relevant science, engineering and mathematics skills; and (3) provide future talent to fulfill DoD's demand for highly skilled STEM professionals. NDEP PK-12 has utilized 4,100 exceptional DoD STEM professionals to reach 500,000 students and 8,300 teachers in 30 states. As one specific example, DoD SMEs contributed over 8,000 hours to lead FIRST Robotics Competition teams, with over 90 percent of team members reporting that the hands-on experience taught them about how science and technology can be used to solve real-world science and engineering problems. The PK-12 program is terminated in FY 2014, though portions may transfer to the Department of Education.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	87.979	84.271	96.906	-	96.906
Current President's Budget	73.667	77.241	45.488	-	45.488
Total Adjustments	-14.312	-7.030	-51.418	-	-51.418
• Congressional General Reductions	-	-7.000			
• Congressional Directed Reductions	-7.826	-			
• Congressional Rescissions	-0.116	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.042	-			
• SBIR/STTR Transfer	-2.294	-			
• Realignment of the NSSEFF Program	-	-	-33.193	-	-33.193
• Strategic Efficiency Savings	-	-	-18.225	-	-18.225
• FFRDC Adjustments	-	-0.030	-	-	-
• Other Program Adjustments	-0.034	-	-	-	-

Change Summary Explanation

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program is realigned to PE 0601110D8Z, Basic Research Initiatives, in FY 2015.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Office of Secretary Of Defense	Date: March 2014
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601120D8Z *I National Defense Education Program (NDEP)*

The reduction is a strategic efficiency approach to reduce funding and staffing. As a result, we provide a better alignment of funding and provide support to a smaller military force.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Office of Secretary Of Defense											Date: March 2014	
Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601120D8Z / *National Defense Education Program (NDEP)*				Project (Number/Name) P120 / *National Defense Education Program (NDEP)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
P120: *National Defense Education Program (NDEP)*	-	73.667	77.241	45.488	-	45.488	48.212	48.308	49.197	52.466	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

Note

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program is realigned from PE 0601120D8Z to PE 0601110D8Z, Basic Research Initiatives, beginning in FY 2015.

A. Mission Description and Budget Item Justification

The National Defense Education Program (NDEP) engages the full science, technology, engineering, and mathematics (STEM) continuum to ensure the Department of Defense (DoD) will have access to high-quality STEM personnel vital to national defense now and in the future. STEM degree production compared to U.S. employment projections show that there is likely to be a significant shortage of STEM professionals, especially in computing, information technology, and electronics engineering, DoD mission critical occupations for which NDEP's continuum of initiatives provides a pool of exceptional talent. NDEP's portfolio provides short, medium, and long-term solutions to the perfect storm of workforce challenges, which include: (1) impending retirement of 33 percent of DoD's STEM workforce; (2) low college readiness rate and interest in STEM majors; and (3) challenges that DoD, like other Federal employers, face in recruiting and retaining high-quality STEM talent in a competitive environment.

NDEP aligns to the DoD Science and Technology (S&T) priorities and the integrated STEM/Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) program, synchronized with the Federal 5-Year STEM Strategic Plan, the DoD STEM Strategic and Implementation Plans and the DoD Strategic Workforce Plan (in progress). NDEP components engage in assessment and evaluation as required by the Office of Management and Budget and the Government Accountability Office.

Science, Mathematics, and Research for Transformation (SMART) awards highly competitive scholarships-for-service to undergraduate and graduate students in 19 academic STEM disciplines and moves graduates directly into DoD's workforce following graduation. Internships engage SMART scholars in hands-on, authentic research and work experiences in DoD facilities, thereby enhancing their educational experience and building a public service commitment to the Department's mission. Since its inception as a pilot program in FY 2005, SMART has supported ~1,455 students from bachelor to doctoral levels and to date ~900 have completed program studies and transitioned into the DoD workforce. SMART ensures that DoD has a steady infusion of high-quality U.S. technical talent, prepared in areas of critical importance to DoD, ready to apply their technical knowledge, skills, and abilities to fulfill DoD's mission.

National Security Science and Engineering Faculty Fellowship (NSSEFF) program supports world-class researchers in scientific areas of critical importance to DoD and ensures the cultivation of exceptional future talent. The NSSEFF provides a critical resource for connections between academia and the DoD science and engineering enterprise. NSSEFF Fellows' work spans all seven DoD S&T priorities and defines a broad set of emerging scientific research areas, critical to the development of future DoD technologies. NSSEFF Fellows serve as speakers at DoD events, reviewers on panels for DoD science, and as collaborators with scientists and engineers at DoD's laboratories and other research facilities. The NSSEFF program is realigned to PE 0601110D8Z Basic Research Initiatives in FY 2015.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Office of Secretary Of Defense		Date: March 2014
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601120D8Z / *National Defense Education Program (NDEP)*	**Project (Number/Name)** P120 / *National Defense Education Program (NDEP)*

NDEP Pre-Kindergarten (PK)-12 engages, develops, and attracts STEM talent for future DoD military and civilian workforce needs via 68 local sites and nine national organizations. NDEP PK-12 leverages the DoD's STEM expertise to connect students, teachers, schools, and public sector and industry partners with DoD subject matter experts (SMEs) primarily in those communities adjacent to DoD laboratories and bases where the talent pool resides. Authentic STEM experiences for teachers and students include hands-on activities that are aligned with DoD's technical workforce requirements. Since FY 2007, NDEP PK-12 has increased the number of DoD facilities that directly engage local education authorities (LEAs) to: (1) build student interest in STEM fields and disciplines and in careers specific to DoD; (2) develop DoD-relevant science, engineering and mathematics skills; and (3) provide future talent to fulfill DoD's demand for highly skilled STEM professionals. NDEP PK-12 has utilized 4,100 exceptional DoD STEM professionals to reach 500,000 students and 8,300 teachers in 30 states. As one specific example, DoD SMEs contributed over 8,000 hours to lead FIRST Robotics Competition teams, with over 90 percent of team members reporting that the hands-on experience taught them about how science and technology can be used to solve real-world science and engineering problems. The PK-12 program is terminated in FY 2014, though portions may transfer to the Department of Education.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: Science, Mathematics, and Research for Transformation (SMART) Defense Education Program	40.267	46.345	45.488
Description: SMART is a scholarship-for-service program that provides support to high performing U.S. graduate and undergraduate students in 19 academic STEM disciplines identified as areas of future workforce need by DoD. The disciplines align with the Department's seven S&T priorities and emerging scientific research areas. The disciplines are: Aeronautical and Astronautical Engineering; Biosciences; Chemical Engineering; Chemistry; Civil Engineering; Cognitive, Neural, and Behavioral Sciences; Computer Science; Electrical Engineering; Geosciences; Industrial and Systems Engineering; Information Sciences; Materials Science and Engineering; Mathematics; Mechanical Engineering; Naval Architecture and Ocean Engineering; Nuclear Engineering; Oceanography; Operations Research; and Physics. Upon completion of their degree, students fulfill a service commitment to DoD on a one-to-one payback per year of education funded. In part, SMART's success is measured by participants that remain in the DoD workforce beyond their required service commitment: 84 percent who have completed their service commitment are still employed by DoD beyond their original service commitment. Oversight of the SMART program falls under the Office of the Assistant Secretary of Defense for Research and Engineering (OASD(R&E)). Two types of individuals participate in the program: retention scholars who are current DoD employees and recruitment scholars who are college students enrolled in undergraduate and graduate programs and represent new talent for the DoD. Internships provide SMART scholars with an opportunity to engage in hands-on research and work experiences in DoD labs, thereby enhancing their educational experience and building a public service commitment to the Department's mission. Since FY 2005, ~1,455 students have participated in SMART at ~ 160 sponsoring facilities. As of August 2013, ~900 SMART scholars have transitioned into the service commitment phase. To date, these scholars have transitioned as civilian employees into the Air Force, Army, Navy, and other DoD components.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Office of Secretary Of Defense		Date: March 2014
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601120D8Z / *National Defense Education Program (NDEP)*	**Project (Number/Name)** P120 / *National Defense Education Program (NDEP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: • 142 SMART students were selected for FY 2013. • Received signature on the SMART Defense Education Program Directive-type Memorandum (DTM) 13-007, which in accordance with the authority in DoD Directive 5134.01, implements the provisions of section 2192a of Title 10 United States Code to establish policy, assign responsibilities, and prescribe procedures for executing the program. • Assessed the mentoring and workforce development initiatives for current participants and the effectiveness of the transition process. • Transitioned approximately 100 participants into the DoD workforce. • Coordinated with the HBCU/MI program to increase the number of eligible applicants as well as application reviewers from HBCU/MIs. ***FY 2014 Plans:*** • Establish a SMART DoD Instruction per DTM 13-007. • Continue to examine the effectiveness of efforts to increase the number of eligible applicants from underrepresented groups, such as women and minorities, veterans, and individuals preparing to separate from the military. • Examine SMART participation and growth of degrees conferred at HBCU/MIs. • Continue to assess SMART mentoring and workforce development initiatives for current participants and the effectiveness of the transition process. • Transition ~100 participants into the DoD workforce. • Increase the number of candidate spots and select new participants based on available funding. • Continue to document effectiveness of SMART program with metrics including: (1) percentage of SMART participants enrolled at HBCU/MIs; (2) percentage of eligible SMART participants transitioned to the DoD workforce; and (3) percentage of SMART scholars retained post-service commitment. ***FY 2015 Plans:*** • Continue to examine the effectiveness of efforts to increase the number of eligible applicants from underrepresented groups such as women and minorities, veterans, and individuals preparing to separate from the military. • Examine SMART participation and growth of degrees conferred at HBCU/MIs. • Continue to assess SMART mentoring and workforce development initiatives for current participants and the effectiveness of the transition process. • Transition ~100 participants into the DoD workforce. • Increase the number of candidate spots and select new participants based on available funding.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Office of Secretary Of Defense		Date: March 2014
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601120D8Z / *National Defense Education Program (NDEP)*	**Project (Number/Name)** P120 / *National Defense Education Program (NDEP)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
• Continue to document effectiveness of SMART program with metrics including: (1) percentage of SMART participants enrolled at HBCU/MIs; (2) percentage of eligible SMART participants transitioned to the DoD workforce; and (3) percentage of SMART scholars retained post-service commitment.			
Title: National Security Science and Engineering Faculty Fellowship (NSSEFF) ***Description:*** NSSEFF ensures that DoD has a research portfolio that supports the foremost creative, innovative, and productive university researchers. The objectives of the program are to: • Conduct innovative, unclassified, basic scientific and engineering research on topics of interest to DoD. • Foster research collaborations between science and engineering faculty members and DoD. • Provide university researchers with an overview of DoD's missions, employed technologies, and current and future challenges. • Increase the cadre of ready and relevant technical expertise which DOD can call upon. ***FY 2013 Accomplishments:*** • Provided continuing support for current NSSEFF Fellows. • Conducted a program review and report on Fellows' progress. • Prepared a report documenting the results of the program review. ***FY 2014 Plans:*** • Continue support for current NSSEFF Fellows. • Conduct a NSSEFF program review and report on Fellows' progress. Use this venue to identify and facilitate new connections between Fellows and DoD scientists and engineers. • Develop a new competition solicitation. • Organize and conduct two scientific workshops to further develop the collaborative relationships between DoD researchers and NSSEFF Fellows in areas of scientific or technological importance to DoD. • Develop metrics for NSSEFF program effectiveness as both a high prestige scientific program for national leaders in their fields, and as an effective means for long-term engagement of the Principal Investigators and their research teams with DoD scientific staff.	21.400	30.896	-
Title: PK-12 ***Description:*** A highly-skilled workforce is critical to the long-term viability of the DoD S&T enterprise, therefore, the declining performance and interest of U.S. students in DoD STEM fields poses a risk to national security in the long term. Today's first graders will be the 2030 bachelor's degree talent pool for DoD. The portfolio of NDEP PK-12 activities inspires and develops a diverse, high-quality talent pool for the future DoD STEM workforce aligned with STEM skill needs. Consistent with the goals of the Federal STEM Education 5-Year Strategic Plan, these activities include: (1) develop STEM skills (including STEM pedagogical	12.000	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
skills), practices, or knowledge of STEM for students, educators and education leaders; (2) increase awareness of DoD STEM opportunities; and (3) develop evidence-based STEM education models and practices. The PK-12 program is terminated in FY 2014, though portions may transfer to the Department of Education. ***FY 2013 Accomplishments:*** • Performed strategic planning activities to foster connectivity of NDEP PK-12 initiatives to the DoD civilian and military STEM workforce, optimized NDEP STEM investments, updated and improved DoD STEM policy related to NDEP, and achieved greater coordination among NDEP Defense Component participants. • Increased the quality and duration of engagements led by DoD scientists and engineers (S&Es) in communities near DoD laboratories and bases. For example, the number of supported FIRST Robotics teams increased by 84 percent over previous fiscal years, expanded to include students in grades K-3. DoD S&Es volunteered more than 26,000 hours to mentor the 322 teams. • Engaged evaluation expertise to build assessment and evaluation capabilities for NDEP PK-12 investments in alignment with the Federal STEM Education 5-Year Strategic Plan and in concert with Office of Management and Budget and General Accountability Office guidance on assessment and evaluation. • Built upon existing, sustainable partnerships among higher education institutions and PK-12 school systems to increase capacity for long-term sustainability. • Leveraged and maximized the FY 2013 NDEP PK-12 investment through the implementation of effective practices for the engagement of local partners with DoD S&Es.			
Accomplishments/Planned Programs Subtotals	73.667	77.241	45.488

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

• The increase in the direct and indirect connectivity of NDEP participants (SMART, NSSEFF, and PK-12 students) with DoD.
• SMART PhD scholars research productivity: (1) number of research papers; (2) number of research citations.
• The increase in the number of SMART scholars who are transitioned into the DoD workforce.

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• The increase in the number of SMART scholars who are retained by DoD post-service commitment.
• The increase in the number of eligible SMART/NSSEFF applicants from HBCU/MIs.
• The increase in the number of SMART/NSSEFF application reviewers from HBCU/MIs.
• Benchmark the performance of SMART PhD scholars (i.e., time to degree) with those of their peers in the general U.S. PhD population.
• Increase directly and indirectly the connectivity of NSSEFF Fellows with the broad DoD S&T enterprise, including inclusion in special DoD task forces, advisory panels, and the broad set of engagements of PIs, postdocs, and students.
• The increase in the direct support and/or advancement of research into DoD S&T emphasis areas and emerging research areas by: (1) recognized transformational discoveries, insights, and other measures of scientific progress, such as scientifically relevant publications in peer reviewed journals; and (2) new patents filed/awarded in these areas.
• The number of co-authored papers between NSSEFF Fellows and DoD S&Es.