Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*				R-1 ITEM NOMENCLATURE PE 0601120D8Z: *National Defense Education Program (NDEP)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	75.323	109.911	101.591	-	101.591	93.310	83.438	86.925	87.400	Continuing	Continuing
P120: *National Defense Education Program (NDEP)*	75.323	109.911	101.591	-	101.591	93.310	83.438	86.925	87.400	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of the National Defense Education Program (NDEP) is to inspire, develop, and attract the current and next generations of Science, Technology, Engineering, and Mathematics (STEM) talent essential to deliver innovative solutions for DoD and the Nation's current and future challenges. NDEP is aligned with the DoD-wide STEM Education and Outreach Strategic Plan.

A major goal of NDEP is to develop a continuum of high quality STEM experiential, service-wide, engagements for K-12 students through early career world-class researchers that directly involve DoD SMEs. NDEP is designed to address current and projected national and DoD STEM talent needs, strengthen scientific and technological capabilities including current warfighting systems and military personnel needs, and enhance the quality of DoD's workforce.

NDEP consists of three components: a) K-12, b) Science, Mathematics and Research for Transformation (SMART), and c) the National Security Science and Engineering Faculty Fellowship (NSSEFF).

The K–12 component links DoD scientists and engineers with students and teachers and supports national competitions to create locally-based, content-rich environments and robust learning opportunities for students and teachers with an understanding of the real-world application of STEM skills. In 2010, 1,750 DoD scientists and engineers from more than 48 DoD laboratories in 26 states engaged more than 180,000 students and 8,000 teachers in outreach and informal education initiatives.

SMART awards highly competitive scholarships to STEM undergraduate and graduate students and moves them directly into DoD's workforce upon their graduation. Since 2006, SMART has supported more than 850 students from bachelor to Ph.D. levels, and nearly 300 have transitioned into the DoD workforce.

NSSEFF creates and develops the current and next generation of scientists and engineers for national security by supporting innovative basic science and engineering research within academia. Undergraduate through post-doctoral students at academic institutions work with world-class scientists and engineers referred to as NSSEFF Fellows. Since 2008, 29 distinguished university researchers have been awarded NSSEFF grants that have resulted in teams of more than 150 students, postdoctoral scholars and faculty.

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	**R-1 ITEM NOMENCLATURE** PE 0601120D8Z: *National Defense Education Program (NDEP)*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	89.980	109.911	122.947	-	122.947
Current President's Budget	75.323	109.911	101.591	-	101.591
Total Adjustments	-14.657	-	-21.356	-	-21.356
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-1.701	-			
• SBIR/STTR Transfer	-2.189	-			
• Other Internal Adjustments	-10.767	-	-14.788	-	-14.788
• Defense Efficiency - Reports, Studies, Boards, and Commissions	-	-	-5.715	-	-5.715
• Defense Efficiency - Contractor Staff Support	-	-	-0.701	-	-0.701
• Economic Assumptions	-	-	-0.152	-	-0.152

Change Summary Explanation

FY 2012 Defense Efficiency. Defense Efficiency – Report, Studies, Boards and Commissions. The Department of Defense reform agenda, reflects a reduction of in the number and cost of reports, studies, DoD Boards and DoD Commissions below the aggregate level reported in the previous budget submission.

Defense Efficiency – Contractor Staff Support. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in the previous budget submission for contracts that augment staff functions.

The program also reflects a $ 0.152 M reduction for economic assumptions and a $14.789 M reduction for a realignment for other departmental priorities.

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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
P120: *National Defense Education Program (NDEP)*	75.323	109.911	101.591	-	101.591	93.310	83.438	86.925	87.400	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of National Defense Education Program (NDEP) is to inspire, develop, and attract the current and next generations of Science, Technology, Engineering, and Mathematics (STEM) talent essential to deliver innovative solutions for DoD and the Nation's current and future challenges. NDEP is aligned with the DoD-wide STEM Education and Outreach Strategic Plan.

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Science, Mathematics And Research for Transformation (SMART) Defense Education Program	31.167	56.201	53.285

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Description: SMART Defense Education Program awards undergraduate and graduate scholarships to students earning degrees in science, engineering and mathematics disciplines of critical importance to national security and the DoD. SMART is designed to ensure that DoD has a high quality, world-class STEM workforce to meet DoD's needs and enhance DoD's innovative capacities. As a scholarship-for-service program, SMART participants commit to one year of DoD employment for each year of academic support received. SMART students transition primarily into DoD laboratories. In addition to quality talent, the SMART program assists in increasing the scientific and technical knowledge base in subjects of importance to national security through the various master's theses and doctoral dissertations completed in DoD-relevant topic areas. ***FY 2010 Accomplishments:*** • Awarded 300 additional new scholarships to undergraduate and graduate students, which increased the number of scholarships awarded in 2009 by 15%. • Sustained the trend of selecting high quality students. The average GPA for 2010 awardees: 3.73. • Increased the number of applications reviewed by 70% (2600). • The demand for SMART scholars by DoD facilities increased by 18%. • Transitioning 140 SMART graduates (71 BS, 38 MS, and 31 PhD) into DoD workforce. • Increased the number of DoD sponsoring facilities by 11%. • Increased the percentage of reviewers from HBCUs/MSIs from 1% to 3%. • Developed a management information system for historical and current participants (approximately 900). ***FY 2011 Plans:*** • Emphasize outreach to eligible applicants from underrepresented groups such as women and minorities, veterans, and individuals separating from the Services. • Increase the number of eligible applicants as well as reviewers from Historically-Black Colleges and Universities and Minority-Serving Institutions (HBCU/MSIs). • Develop and institute best practices for mentoring and workforce development initiatives for current participants. • Transition approximately 250 SMART participants into the DoD workforce. • Select new participants based on available funding. ***FY 2012 Plans:*** • Examine the effectiveness of efforts to increase the number of eligible applicants from underrepresented groups such as women and minorities, veterans, and individuals separating from the Services. • Increase the number of eligible applicants as well as application reviewers from HBCUs/MSIs.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
• Assess the mentoring and workforce development initiatives for current participants. • Transition approximately 250 participants into the DoD workforce. • Select new participants based on available funding.			
Title: National Security Science and Engineering Faculty Fellowship (NSSEFF)	32.452	36.124	31.000
Description: NSSEFF helps to ensure that our Nation has an active, long-term and aggressive research portfolio that attracts the foremost creative, innovative and productive university researchers and their students. Objectives of the program are to: •Support scientific research that may lead to extraordinary outcomes •Educate and train outstanding student and post-doctoral researchers for the defense and national security workforce •Foster long-term relationships between outstanding university researchers and the DoD •Familiarize select university researchers and their students with DoD's current and future challenges •Increase the number of exceptionally talented technical experts that are contributing to DoD's mission and upon whom DoD may draw to serve on advisory boards, panels, and groups The program funds distinguished university researchers for the purpose of conducting innovative basic research in areas of interest to DoD. Ensuring that students are actively engaged in conducting research funded by the DoD is an important priority. ***FY 2010 Accomplishments:*** • Selected 11 NSSEFF Fellows following a merit review of nearly 700 eligible white papers by over 100 reviewers from government and academia. • Offered internship opportunities for NSSEFF students in DoD laboratories across the three Services. • Organized a conference for NSSEFF-sponsored students and postdoctoral researchers with over 40 students and postdoctoral scholars presenting their research contributions to senior DoD leadership, program managers, and technical experts. • Provided students with visits to the Army Research Laboratory (ARL), the Naval Research Laboratory (NRL), and the Air Force Research Laboratory (AFRL) to gain enhanced understanding of DoD challenges, meet with DoD laboratory researchers, and discuss career opportunities. • Provided expertise to DoD through Fellows' participation in DoD symposia, attendance at DoD program reviews, and as reviewers for subsequent rounds of NSSEFF. • Described Fellows' research activities through the DoD's "Armed with Science" blog. • Piloted research experience for NSSEFF students. ***FY 2011 Plans:*** • Identify additional opportunities to engage students with DoD scientific and technical professionals.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
• Integrate NSSEFF Fellows' research activities and outcomes into DoD's research community through participation in presentations, symposia, and program reviews. • Implement a revised NSSEFF strategic communication plan to further promote Fellows and students as points of expertise and strengthen the bridge between the DoD and academia. ***FY 2012 Plans:*** • Select the next cohort of Fellows. • Engage undergraduate students through post-doctoral students with DoD scientists and engineers to strengthen their understanding of topic areas of importance to DoD. • Continue to foster engagement opportunities for students and Fellows with DoD's scientific and technical community.			
Title: K-12 ***Description:*** K-12 inspires and develops our Nation's future STEM workforce and its citizenry in disciplines of critical importance to national and DoD STEM needs. Through collaborative partnerships in local communities across the United States, DoD STEM professionals serve as content experts with skills and talent to provide meaningful and effective informal school-based and after-school experiential STEM learning opportunities. DoD experts enrich the communities near military, laboratory, and other DoD facilities by serving as role models in encouraging the pursuit of higher education studies and careers in STEM, providing mentorship to students currently underrepresented in STEM career fields, and increasing the emphasis on 21st Century Learning Skills including adaptability, complex communication and social skills, non-routine problem solving, self-management and self-development, and systems thinking (National Research Council 2010). ***FY 2010 Accomplishments:*** • Provided outreach to more than 180,000 students and their parents and over 8,000 teachers, and engaged parents in DoD schools and communities. • Partnered with local schools in 26 states to conduct K-12 STEM hands-on and outreach activities. • Facilitated the engagement of more than 1,750 DoD laboratory scientific experts with teachers and students inside and outside of the classroom for immersive learning experiences. • Continued support of academic competition opportunities for students. • Increased the number DoD professionals serving as mentors and coaches from 43 to 111 teams. • Increased the number of students participating in competitions, the number of teams and training workshops for teams, the use of DoD laboratory space for competition entry development, and efforts to recruit new teams and students. • Supported the use of DoD equipment to enable students' learning experiences.	11.704	17.586	17.306

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
• Sponsored ten top performing students from high schools through the United States to attend the Research Science Institute (RSI) at the Massachusetts Institute of Technology. These students participated in a six-week internship and conducted scientific research alongside top researchers at MIT. All participants reported the results of their work at the Institute, prepared papers and oral presentations at a level appropriate for an academic conference. • Promoted videos that demonstrate research being conducted at DoD laboratories through online outlets such as YouTube and the DoD blog "Armed with Science," and achieved more than 65,000 views of individual videos and citations by more than 20,000 blogs within two days. ***FY 2011 Plans:*** • Increase the number of DoD laboratory SMEs engaged in partnerships with schools, community colleges, universities and science centers from 2-3 to 5-8 in local communities across the U.S. where DoD scientists and engineers are serving as role models and subject matter experts in school day and after-school activities including summer camps and competitions. • Implement effective outreach strategies through digital and electronic environments to reach students, educators, and families. • Infuse the incorporation of 21st Century Learning Skills (National Research Council, 2010) into program materials to enrich student learning. • Continue to provide summer camp and national competition opportunities for students and teachers. • Continue to utilize diverse and innovative media outlets to feature scientific and technological research conducted at DoD laboratories to encourage student interest in the DoD and STEM disciplines and enhance teachers' instructional content. ***FY 2012 Plans:*** • Leverage and increase the number of partnerships in local communities across the U.S. where DoD scientists and engineers are serving as role models and subject matter experts in school-based and after-school activities including competitions. • Leverage and increase effective outreach strategies through digital and electronic environments to reach today's students, educators, and families. • Leverage and continue to infuse 21st Century Learning Skills (National Research Council, 2010) into program materials to enrich student learning. • Continue to provide after school programs, summer camp and national competition opportunities for students and teachers. • Leverage and continue to utilize diverse and innovative media outlets to feature scientific and technological research conducted at DoD laboratories to encourage student interest in the DoD and STEM disciplines and enhance teachers' instructional content.			
Accomplishments/Planned Programs Subtotals	75.323	109.911	101.591

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C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance Metrics within the National Defense Education Program:

1) Increase the number of STEM undergraduates and graduates that are transitioned into the DoD workforce.

2) Increase directly and indirectly the connectivity of NDEP participants with DoD.