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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense **Date:** February 2016

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: Research, Development, Test & Evaluation, Defense-Wide / BA 1: Basic Research					PE 0601120D8Z / National Defense Education Program (NDEP)							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	54.619	54.355	69.345	-	69.345	113.084	116.158	116.848	117.895	Continuing	Continuing
P120: National Defense Education Program (NDEP)	-	54.619	54.355	69.345	-	69.345	113.084	116.158	116.848	117.895	Continuing	Continuing

A. Mission Description and Budget Item Justification

The National Defense Education Program (NDEP) ensures the Department of Defense (DoD) will have access to high-quality science, technology, engineering, and mathematics (STEM) personnel vital to national defense now and in the future. NDEP’s portfolio provides a pathway to the best and the brightest minds through a continuum of DoD workforce development approaches, which include: (1) increasing STEM proficiency in the Nation’s talent pool by improving the capacity to address ever-changing future Defense workforce needs; (2) shaping the Department as a STEM workplace of choice for scientists and engineers through public communications and outreach; (3) leading the Departmental STEM strategic efforts and coordinating STEM efforts in alignment with the workforce and mission requirements; and (4) identifying approaches for innovative solutions in support of the Nation’s current and future defense challenges.

NDEP aligns to the DoD Science and Technology (S&T) priorities and is coordinated with the Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) program. It is synchronized with the Federal Five-Year STEM Education Strategic Plan, the DoD STEM Strategic Plan, the DoD Strategic Workforce Plan, and the DoD Agency Strategic Plan. 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 STEM academic disciplines, and moves graduates directly into DoD’s workforce following graduation. As part of the SMART experience, scholars engage in internships that allow for hands-on research and work experiences in DoD facilities, thereby enhancing their educational experience. Since its inception as a pilot program in FY 2005, SMART has awarded approximately 1,800 students from bachelor to doctoral levels and, to date, approximately 950 have completed program studies and are currently employed in the DoD workforce. SMART ensures that DoD has a steady infusion of high-quality technical talent, prepared in areas of critical importance to DoD, ready to apply their technical knowledge, skills, and abilities to fulfill DoD’s mission.

STEM Education and Outreach fosters conditions for STEM activities to support and cultivate STEM talent to build a future force that is representative of the nation’s diverse population, and reaches underserved populations to meet national defense needs and future defense challenges. Initiatives include investing, promoting and participating in national-level STEM programs and initiatives, and providing STEM authentic hands-on experiences for students and teachers across the nation.

STEM Operations manages activities to implement the Department’s strategic plan for STEM education and outreach. STEM Operations provides the necessary program management and oversight, research studies support, and official responses to Congressional and non-Congressional inquiries. STEM Operations develops and maintains systems and standards to support STEM policy implementation, oversight, and assessment. Other STEM Operations activities include providing support to STEM education and outreach programs, implementing the Communications Plan, and collaborating across the Federal government and public domain through inter-agency and inter-departmental working groups, and partnerships.

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Section 233 of the National Defense Authorization Act (NDAA) for FY 2015, and the Consolidated and Further Continuing Appropriations Act, 2015, directed the Secretary of the Defense to establish a Pilot Program to enhance the preparation of dependents of members of the armed forces for Careers in STEM (Military Child Pilot Program) and to provide assistance to STEM teachers at elementary or secondary schools at which a significant number of military dependents are enrolled. In FY 2016, the Military Child Pilot Program will continue to receive support; this will continue through FY 2021, in accordance with legislative direction.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	58.405	49.453	49.398	-	49.398
Current President's Budget	54.619	54.355	69.345	-	69.345
Total Adjustments	-3.786	4.902	19.947	-	19.947
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.764	-			
• Military Child Pilot Program	-	-	20.375	-	20.375
• FY15 Reprog. for Cancelled Account	-0.022	-	-	-	-
• Other Reprogrammings	-2.000	-	-	-	-
• FFRDC Reduction	-	-0.098	-	-	-
• Economic Assupmtions	-	-	-0.428	-	-0.428

Change Summary Explanation

Change in FY 2017 reflects program increase for the Military Child Pilot Program.

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Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601120D8Z / <i>National Defense Education Program (NDEP)</i>				Project (Number/Name) P120 / <i>National Defense Education Program (NDEP)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P120: <i>National Defense Education Program (NDEP)</i>	-	54.619	54.355	69.345	-	69.345	113.084	116.158	116.848	117.895	Continuing	Continuing

A. Mission Description and Budget Item Justification

The National Defense Education Program (NDEP) ensures the Department of Defense (DoD) will have access to high-quality science, technology, engineering, and mathematics (STEM) personnel vital to national defense now and in the future. NDEP’s portfolio provides a pathway to the best and the brightest minds through a continuum of DoD workforce development approaches, which include: (1) increasing STEM proficiency in the Nation’s talent pool by improving the capacity to address ever-changing future Defense workforce needs; (2) shaping the Department as a STEM workplace of choice for scientists and engineers through public communications and outreach; (3) leading the Departmental STEM strategic efforts and coordinating STEM efforts in alignment with the workforce and mission requirements; and (4) identifying approaches for innovative solutions in support of the Nation’s current and future defense challenges.

NDEP aligns to the DoD Science and Technology (S&T) priorities and is coordinated with the Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) program. It is synchronized with the Federal Five-Year STEM Education Strategic Plan, the DoD STEM Strategic Plan, the DoD Strategic Workforce Plan, and the DoD Agency Strategic Plan. 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 STEM academic disciplines, and moves graduates directly into DoD’s workforce following graduation. As part of the SMART experience, scholars engage in internships that allow for hands-on research and work experiences in DoD facilities, thereby enhancing their educational experience. Since its inception as a pilot program in FY 2005, SMART has awarded approximately 1,800 students from bachelor to doctoral levels and, to date, approximately 950 have completed program studies and are currently employed in the DoD workforce. SMART ensures that DoD has a steady infusion of high-quality technical talent, prepared in areas of critical importance to DoD, ready to apply their technical knowledge, skills, and abilities to fulfill DoD’s mission.

STEM Education and Outreach fosters conditions for STEM activities to support and cultivate STEM talent to build a future force that is representative of the nation’s diverse population and reaches underserved populations to meet the national defense needs and future defense challenges. Initiatives include investing, promoting and participating in national-level STEM programs and initiatives, and providing STEM authentic hands-on experiences for students and teachers across the nation.

STEM Operations manages activities to implement the Department’s strategic plan for STEM education and outreach. STEM Operations provides the necessary program management and oversight, research studies support, and official responses to Congressional and non-Congressional inquiries. STEM Operations develops and maintains systems and standards to support STEM policy implementation, oversight, and assessment. Other STEM Operations activities include providing support to STEM education and outreach programs, implementing the Communications Plan, and collaborating across the Federal government and public domain through inter-agency and inter-departmental working groups, and partnerships.

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Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601120D8Z / <i>National Defense Education Program (NDEP)</i>	Project (Number/Name) P120 / <i>National Defense Education Program (NDEP)</i>
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Section 233 of the National Defense Authorization Act (NDAA) for FY 2015, and the Consolidated and Further Continuing Appropriations Act, 2015, directed the Secretary of the Defense to establish a Pilot Program to enhance the preparation of dependents of members of the Armed Forces for careers in STEM (Military Child Pilot Program) and to provide assistance to STEM teachers at elementary or secondary schools at which a significant number of military dependents are enrolled. In FY 2016, the Military Child Pilot Program will continue to receive support; this will continue through FY 2021, in accordance with legislative direction.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
<p>Title: Science, Mathematics, and Research for Transformation (SMART) Defense Education Program</p> <p>Description: SMART is a scholarship-for-service program that provides support to high performing U.S. graduate and undergraduate students in 19 academic science, technology, engineering, and mathematics (STEM) disciplines identified as areas of future workforce needed by DoD.</p> <p>The disciplines align with the Department's Science and Technology (S&T) priorities and emerging scientific research areas. The disciplines include: 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 choose to remain in the DoD workforce beyond their required service commitment. A total of 572 participants have successfully completed the program through their DoD commitment; 77 percent of those participants are still employed by DoD.</p> <p>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: (1) retention scholars who are current DoD employees; and (2) recruitment scholars who are college students enrolled in undergraduate and graduate programs, and represent new talent for the Department. Internships provide SMART scholars with an opportunity to engage in hands-on research, and work experiences in defense laboratories, thereby enhancing their educational experience.</p> <p>Since FY 2005, approximately 1,800 students have participated in the SMART program at approximately 160 sponsoring facilities. As of August 2014, approximately 950 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.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Developed a SMART DoD Instruction (DoDI) in accordance with Directive Type Memorandum (DTM) 13-007 which is currently in the Issuance Portal. • Began transitioning the SMART program execution to the Services with Navy as the Lead Service. 	37.802	40.000	53.571

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> Continued to examine the effectiveness of efforts to increase the number of eligible applicants from underrepresented groups such as women, minorities, veterans, and persons with disabilities. Encouraged SMART participation from Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs) and underrepresented groups. Continued to assess SMART mentoring and workforce development initiatives for current participants and the effectiveness of the transition process. Transitioned approximately 144 participants into the DoD workforce. Increased the number of candidate spots and selected new participants based on available funding. Documented effectiveness of SMART program with metrics such as: (1) percentage of SMART scholars retained post-service commitment; and (2) percentage of SMART participants enrolled at HBCU/MIs. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Provide oversight of the execution of the SMART program, per SMART DoDI. Fully transition the SMART program execution to the Services. Assess the SMART scholar inception process into DoD facilities and laboratories. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> Increase new SMART awards to better meet DoD STEM workforce requirements. Provide oversight of the SMART program, per SMART DoDI. Continue assessment of the SMART scholar inception process into DoD facilities and laboratories. 				
<p>Title: Pilot Program to Enhance the Preparation of Dependents of Members of the Armed Forces for Careers in STEM (Military Child Pilot Program)</p> <p>Description: The Military Child Pilot Program was established by the FY 2015 National Defense Authorization Act (NDAA), Section 233. The objectives are to enhance the preparation of dependents of members of the armed forces for careers in STEM and to provide assistance to STEM teachers at elementary or secondary schools at which a significant number of military dependents are enrolled. The Department's methodology includes: (1) providing support to the National Math and Science Initiative (NMSI) program in collaboration with the DoD Education Activity (DoDEA) to expand the number of covered schools to support the national goal; and (2) coordinating with the DoD components, Federal and local government partners, and private sector organizations to compliment the NMSI program.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Established a Department-wide, coordinated effort, to create, implement, and assess the pilot program in accordance with the FY 2015 NDAA and the Consolidated and Further Continuing Appropriations Act of 2015. 		13.000	8.889	11.111

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> Established outcome-based metrics and internal and external assessments to evaluate the merits and benefits of activities conducted under the pilot program with respect to the needs of the Department. This was done in conjunction with DoDEA. Strengthened partnership with DoDEA and NMSI, supporting approximately 150 covered schools. Strengthened partnership with the U.S. Department of Education such that DoD may be able to leverage their assessment expertise as related to educational programs as a method of external assessment of the program. Developed an initial white paper describing the overarching approach to program implementation. Provided support for the National Math and Science Initiative's College Readiness Program for Military Families event. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Continue implementation and assessment of a pilot program with DoDEA and NMSI in preparation for preliminary report due December FY 2016. Implement and assess a Department-wide pilot program in coordination with the DoD components, Federal and local government partners, and private sector organizations. Expand access for military-connected children to attend classes in STEM, supporting the national goal of 200 covered schools by April 2016. Implement activities to improve the quality of STEM educational and training opportunities for students and teachers, including the development and improvement of curricula. Expand focus of the program to provide activities that engage and fill gaps in STEM education for overseas students. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> Continue implementation and assessment of a pilot program. Continue to expand access for military-connected children to attend classes in STEM, supporting the national goal. Implement activities to improve the quality of STEM educational and training opportunities for students and teachers, including the development and improvement of curricula. Submit to the Committees on Armed Services of the U.S. Senate and the House of Representatives a progress report on activities carried out under the pilot program. 				
Title: STEM Education and Outreach		2.238	2.133	1.330
<p>Description: STEM Education and Outreach fosters conditions for STEM activities to support and cultivate STEM talent to build a future force that is representative of the nation's diverse population and reaches underserved populations to meet national defense needs and future defense challenges. Initiatives include investing, promoting and participating in national-level STEM programs and initiatives, and providing STEM authentic hands-on experiences for students and teachers across the nation.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Provided authentic hands-on experiences to a total of 17,452 students and 1,645 teachers across 905 different schools. 				

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> Participated in White House Office of Science and Technology Policy activities. Participated in the Federal Co-STEM Interagency Working Group executing Federal objectives in STEM. Initiated DoD STEM Communications Campaign. Provided support and coordinated Departmental participation in local and national STEM events. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Increase FY 2015 NDEP Education and Outreach numbers to provide authentic hands-on experiences to students and teachers at various schools. Lead and participate in inter- and intra-departmental collaboration with program partners to achieve Federal and DoD STEM objectives. Provide support to STEM education and outreach programs. Implement the Department's STEM Strategic Plan and Communications Plan. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> Increase, evaluate, and improve FY 2016 NDEP Education and Outreach numbers to provide authentic hands-on experiences to students and teachers. Continue participation in inter- and intra-departmental collaboration with program partners to achieve Federal and DoD STEM objectives. Continue providing support to STEM education and outreach programs. Continue implementation of the Department's STEM Strategic Plan and Communications Plan. 				
<p>Title: STEM Operations</p> <p>Description: STEM Operations manages activities to implement the Department's strategic plan for STEM education and outreach. STEM Operations provides the necessary program management and oversight, research studies support, and official responses to Congressional and non-Congressional inquiries. STEM Operations develops and maintains systems and standards to support STEM education and outreach programs, implementing the Communications Plan, and collaborating across the Federal government and public domain through inter-agency and inter-departmental working groups, and partnerships.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Updated the Department's STEM Education and Outreach Strategic Plan. Updated the DoD STEM Executive Board of Directors Charter. Restructured STEM Board of Directors Working Group Processes and Procedures. Developed the DoD STEM Communications Plan. Established the DoD STEM Advocate of the Quarter Program. Developed Department of Defense STEM Instruction (DoDI) and informally coordinated with DoD STEM Stakeholders. 		1.579	3.333	3.333

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> Document the effectiveness of the DoD STEM programs through the Institute for Defense Analysis (IDA) evaluations, in accordance with Better Buying Power 3.0. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Continue program management and oversight, studies support, and responses to Congressional inquiries and other reports. Develop and/or maintain systems and standards to support STEM policy implementation, oversight, and assessment. Implement the DoD STEM Advocate of the Quarter Program. Enhance assessment and evaluation standards to support investment decisions. Implement the Communications Plan. Complete the report for effectiveness of the DoD STEM programs, in accordance with Better Buying Power 3.0. Implement policy, assign responsibilities, and provide policy guidance including the STEM Instruction and legislative proposals. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> Continue program management and oversight, studies support, and responses to Congressional inquiries and other reports. Develop and/or maintain systems and standards to support STEM policy implementation, oversight, and assessment. Enhance assessment and evaluation standards to support investment decisions. Continue implementing STEM Advocate of the Quarter Program awards. Continue implementing Communications Plan. Implement policy, assign responsibilities, and provide policy guidance including the STEM Instruction and legislative proposals. 				
Accomplishments/Planned Programs Subtotals		54.619	54.355	69.345
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				
E. Performance Metrics				
<ul style="list-style-type: none"> The increase in the number of SMART scholars who are transitioned into the DoD workforce. The number of SMART scholars who are retained by DoD post-service commitment. The number of eligible SMART applicants from underrepresented groups, including HBCU/MIs. The number of SMART application reviewers from HBCU/MIs. Develop program to increase access for military-connected children to attend classes in STEM at covered schools that service military families. 				

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- The number of covered schools impacted by the Military Child Pilot Program.
- The number of teachers trained through the Military Child Pilot Program.
- Matriculation of participants into college.
- Participation by underserved populations; and, where applicable, course completions and credentials received.
- Improvements in student educational assessments.
- Infrastructure development and matching efforts by educational institutions or school districts.
- Matching efforts by Component agency and alignment with DoD workforce needs.

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