Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Office of the Secretary Of Defense	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601110D8Z / *Basic Research Initiatives*

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	11.682	44.500	42.022	-	42.022	39.011	41.206	43.590	46.230	Continuing	Continuing
P010: *Basic Research Initiatives*	-	11.682	11.371	11.528	-	11.528	11.548	12.148	12.248	12.493	Continuing	Continuing
P060: *National Security Science and Engineering Faculty Fellowship (NSSEFF)*	-	-	33.129	30.494	-	30.494	27.463	29.058	31.342	33.737	Continuing	Continuing

Note

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program was realigned from the National Defense Education Program (NDEP), Program Element (PE) 0601120D8Z, to PE 0601110D8Z, project code P060, in fiscal year (FY) 2015.

A. Mission Description and Budget Item Justification

Supporting basic research provides the DoD with a deep and broad awareness of current directions in areas of research important to U.S. military capabilities – including physics and the physical sciences, materials science, chemistry and chemical engineering, electrical engineering, mathematics, computer science, mechanical and aerodynamic engineering, ocean sciences, biological sciences, and the social sciences, among others. Basic research sustains scientific and engineering communities as it generates the critical technical underpinnings of DoD capabilities. Basic research allows exploration and discovery, yielding disruptive non-incremental advances that can improve or radically change military capabilities, strategy, and operations.

The Basic Research Initiatives PE supports the defense basic research enterprise in three critical areas: Strategic Support for Basic Research (SSBR), the Minerva Research Initiative, and the National Security Science and Engineering Faculty Fellowship (NSSEFF) program.

Strategic Support for Basic Research (SSBR) supports initiatives to implement the Assistant Secretary of Defense for Research and Engineering (ASD(R&E))'s strategic plan for defense basic research. This plan defines specific and quantifiable actions to help create conditions for defense basic research investments capable of creating high-payoff, transformative scientific breakthroughs for DoD. SSBR initiatives support the five aims of: (1) providing scientific leadership; (2) attracting the Nation's best Scientists and Engineers (S&Es); (3) ensuring the coherence and balance of the Basic Research portfolio; (4) fostering connections between DoD performers and DoD; and (5) improving the efficiency of the defense research business environment.

The Minerva Research Initiative, a defense-wide basic research program in the social sciences directed by the OSD and executed by the Services, seeks to build a deeper understanding of the social, cultural, and political forces that shape the U.S. security interests around the world. Deeper understanding of the social and cultural environments, where threats such as radical actors and regional instabilities develop, supports more effective strategic and operational policy decisions. Minerva program priorities are consistent with the goals set forth in the 2014 QDR, informing DoD efforts to effectively build security globally.

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program was realigned from the National Defense Education Program (NDEP), PE 0601120D8Z, to this PE beginning in FY 2015. The NSSEFF program supports world-class researchers in scientific areas of critical importance to DoD and ensures the

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Office of the Secretary Of Defense	Date: February 2015
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601110D8Z / *Basic Research Initiatives*

cultivation of exceptional talent. Fellows' work spans a broad set of emerging scientific areas. The NSSEFF program is a key resource that fosters close connections between academia and the DoD science and engineering enterprise, a primary goal of SSBR efforts. Fellows provide DoD the deep scientific expertise of today's leading research universities and collaborate with DoD scientists and engineers.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	11.169	44.564	46.709	-	46.709
Current President's Budget	11.682	44.500	42.022	-	42.022
Total Adjustments	0.513	-0.064	-4.687	-	-4.687
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.837	-			
• SBIR/STTR Transfer	-0.324	-			
• FFRDC Sec 8104	-	-0.064	-	-	-
• Realignment for Higher Priority Programs	-	-	-4.576	-	-4.576
• Economic Assumptions	-	-	-0.111	-	-0.111

Change Summary Explanation

FY 2016 internal realignment reflects funding for higher Departmental priorities and requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense			Date: February 2015
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601110D8Z / *Basic Research Initiatives*	Project (Number/Name) P010 / *Basic Research Initiatives*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
P010: *Basic Research Initiatives*	-	11.682	11.371	11.528	-	11.528	11.548	12.148	12.248	12.493	Continuing	Continuing

A. Mission Description and Budget Item Justification

Supporting basic research provides the Department of Defense with a deep and broad awareness of current directions in areas of research important to U.S. military capabilities – including physics and the physical sciences, materials science, chemistry and chemical engineering, electrical engineering, mathematics, computer science, mechanical and aerodynamic engineering, ocean sciences, biological sciences, and the social sciences, among others. Basic research sustains scientific and engineering communities as it generates the critical technical underpinnings of DoD capabilities. Basic research allows exploration and discovery, yielding disruptive non-incremental advances that can improve or radically change military capabilities, strategy, and operations.

Strategic Support for Basic Research (SSBR) supports initiatives to implement the Assistant Secretary of Defense for Research and Engineering (ASD(R&E))'s strategic plan for defense basic research. This plan defines specific and quantifiable actions to help create conditions for defense basic research investments capable of creating high-payoff, transformative scientific breakthroughs for DoD. SSBR initiatives support the five aims of: (1) providing scientific leadership; (2) attracting the Nation's best Scientists and Engineers (S&Es); (3) ensuring the coherence and balance of the Basic Research portfolio; (4) fostering connections between DoD performers and DoD; and (5) improving the efficiency of the defense research business environment.

The Minerva Research Initiative, a defense-wide basic research program in the social sciences directed by the Office of the Secretary of Defense (OSD) and executed by the Services, seeks to build a deeper understanding of the social, cultural, and political forces that shape the U.S. security interests around the world. Deeper understanding of the social and cultural environments, where threats such as radical actors and regional instabilities develop, supports more effective strategic and operational policy decisions. Minerva program priorities are consistent with the goals set forth in the 2014 Quadrennial Defense Review (QDR), informing DoD efforts to effectively build security globally.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Strategic Support for Basic Research (SSBR)	2.500	2.000	2.000
Description: The SSBR program funds specific and quantifiable actions to help create conditions for defense basic research investments capable of creating high-payoff, transformative scientific breakthroughs for DoD. The SSBR initiatives support the five aims of (1) providing scientific leadership; (2) attracting the Nation's best scientists and engineers; (3) ensuring the coherence and balance of the Basic Research portfolio; (4) fostering connections between DoD performers and DoD; and (5) improving the efficiency of the defense research business environment. ***FY 2014 Accomplishments:*** Planned workshops for scientific situational awareness. Developed a request for information (RFI) to enable the national research communities to provide input to DoD regarding rapidly-advancing areas of fundamental research that may ultimately have an impact on national security. Convened national research leaders to provide expert perspectives on potential breakthroughs and barriers to advancement in rapidly evolving fields of basic research. Analyzed university-related business practices for			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601110D8Z / *Basic Research Initiatives*	**Project (Number/Name)** P010 / *Basic Research Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
efficiencies. Continued support for scientific expertise to oversee engineering and science initiatives. Conducted town-hall events to foster active connections with research universities. ***FY 2015 Plans:*** Use the input developed from the FY 2014 RFI to inform topic selection. Conduct a series of four to six workshops to provide the status of rapid research progress and evolving world leadership in these fields. Convene national research leaders to provide external perspectives on potential breakthroughs and barriers to advancement in rapidly evolving fields of basic research. Initiate studies of how past DoD investments and high priority basic research has led to advances in new technologies and new capabilities for the Nation. Continue to analyze university-related business practices for improvement and efficiency. Continue support for scientific expertise to oversee engineering and science initiatives. Conduct an ASD(R&E) Deans for Research dialog to foster active connections with research universities. ***FY 2016 Plans:*** Complete the series of workshops for scientific situational awareness that were planned in FY 2014 and started in FY 2015. Convene National research leaders to provide expert perspectives on potential breakthroughs and barriers to advancement in rapidly evolving fields of basic research. Continue studies of how past DoD investments and high priority basic research has led to advances in new technologies and new capabilities for the Nation. Continue to analyze university-related business practices for improvement and efficiency. Continue support for scientific expertise to oversee engineering and science initiatives.			
Title: Minerva Research Initiative ***Description:*** The Minerva Research Initiative includes two primary components: a university-based social science basic research grant program and Research for Defense Education Faculty (R-DEF) at the professional military education (PME) institutions. Both components contribute to Minerva goals of revitalizing connections between DOD and academic social science communities and, critically, building cultural and foreign area knowledge and insights. This deeper understanding will provide a more informed basis to shape doctrine, analysis, and other strategic and operational decisions made by war planners and war fighters. ***FY 2014 Accomplishments:*** A Department-wide solicitation of critical defense social science questions to be set as Minerva priority research areas drew responses from Service leadership, the Defense Advanced Research Projects Agency (DARPA), Combatant Commands (COCOMs), J5, the intelligence community, and others. The resulting broad agency announcement (BAA) and correlated source selection process identified several new university-led research grants to be awarded in these newly derived focus areas. The FY 2014 BAA yielded 260 submissions from which 12 proposals were selected for three- to five-year awards by panels of defense Science and Technology (S&T) managers, defense policy makers, and academic experts in accordance with the appropriated FY 2014 budget.	9.182	9.371	9.528

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601110D8Z / *Basic Research Initiatives*	**Project (Number/Name)** P010 / *Basic Research Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
The Minerva Research Fellows (Chairs) program (active from FY 2010 through FY 2013) was restructured to more effectively build in-house social science capabilities and better connect social science research insights to current and future defense leadership at PME institutions and elsewhere. The Research for Defense Education Faculty (R-DEF) program was designed to augment existing institutional resources by enabling activities such as research by active teaching faculty, PME curriculum development, new academic-government exchange opportunities, and research-informed tabletop exercises. A pilot solicitation yielded support for 14 small projects. ***FY 2015 Plans:*** Inputs from Service leadership, DARPA, J5, the intelligence community, and others in the defense community informed updated topics in the FY 2015 BAA. 297 initial submissions were received; six new three- to five-year university-led research grants are anticipated. The R-DEF program will expand at participating PMEs and military service academies, further strengthening DoD-internal social science capabilities by offering new research opportunities for teaching faculty through summer or semester-long research funding and course buyouts and by enabling activities such as academic-government exchange opportunities, new curriculum development, and research-informed tabletop exercises. ***FY 2016 Plans:*** Continue ongoing and start new university-led research initiatives. Maintain support of R-DEF program at defense education institutions. Continue building policy and operational community connections to ongoing Minerva efforts in order to effectively connect new social science insights and methods to current and future defense leadership to inform tomorrow's key security decisions.			
Accomplishments/Planned Programs Subtotals	11.682	11.371	11.528

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense			Date: February 2015
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601110D8Z / *Basic Research Initiatives*	Project (Number/Name) P060 / *National Security Science and Engineering Faculty Fellowship (NSSEFF)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
P060: *National Security Science and Engineering Faculty Fellowship (NSSEFF)*	-	-	33.129	30.494	-	30.494	27.463	29.058	31.342	33.737	Continuing	Continuing

Note

The National Security Science and Engineering Faculty Fellowship (NSSEFF) program was realigned from the National Defense Education Program (NDEP), Program Element (PE) 0601120D8Z, to this PE beginning in FY 2015.

A. Mission Description and Budget Item Justification

The 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 talent. Fellows' work spans a broad set of emerging scientific areas. The NSSEFF program is a key resource that fosters close connections between academia and the DoD science and engineering enterprise, a primary goal of SSBR efforts. Its Fellows provide DoD the deep scientific expertise of today's leading research universities and collaborate with DoD scientists and engineers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: National Security Science and Engineering Faculty Fellowship (NSSEFF)	-	33.129	30.494

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: (1) support scientific research that may lead to extraordinary outcomes; (2) educate and train outstanding student and post-doctoral researchers for the defense and national security workforce; (3) foster long-term relationships between outstanding university researchers and the DoD; (4) familiarize select university researchers and their students with DoD's current and future challenges; and (5) increase the number of exceptionally talented technical experts that are contributing to DoD's mission.

FY 2015 Plans:

Continue support for current NSSEFF Fellows. Review program topic areas, eligibility, review process, and selection criteria. Solicit for a new class of NSSEFF Fellows. Organize and conduct a NSSEFF-DoD orientation event including DoD laboratory tours. Use this venue to identify and facilitate new connections between new Fellows and DoD scientists and engineers including the NSSEFF Steering Committee.

FY 2016 Plans:

Continue support for current NSSEFF Fellows. Review program topic areas. Solicit for a new class of NSSEFF Fellows. Organize and conduct a NSSEFF-DoD orientation event including DoD laboratory tours. Use this venue to identify and facilitate new connections between new Fellows and DoD scientists and engineers including the NSSEFF Steering Committee. Organize

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601110D8Z / *Basic Research Initiatives*	**Project (Number/Name)** P060 / *National Security Science and Engineering Faculty Fellowship (NSSEFF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
and conduct a program review and report on Fellows' progress. Organize and conduct a DoD laboratory-wide competition and selection for collaborative research projects between DoD researchers and NSSEFF Fellows in areas of scientific or technological importance to DoD.			
Accomplishments/Planned Programs Subtotals	-	33.129	30.494

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A