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 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603668D8Z: *Cyber Security Advanced Technology Development*							
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	-	10.000	10.709	-	10.709	20.496	20.553	30.435	31.576	Continuing	Continuing
P113: *Cyber Security Advanced Research*	-	10.000	10.709	-	10.709	20.496	20.553	30.435	31.576	Continuing	Continuing

A. Mission Description and Budget Item Justification

Our military forces require resilient, reliable networks to conduct effective operations. However, the number and sophistication of threats in cyberspace are rapidly growing, making it urgent and critical to improve the cyber security of Department of Defense (DoD) networks to counter those threats and assure our missions. This program will incorporate projects in both cyber security and computer network operations to develop demonstrable capabilities to harden key network components, increase the military's ability to fight and survive during cyber attacks, disrupt nation-state level attack planning and execution, measure the state of cyber security, and explore and exploit new ideas in cyber warfare.

The Cyber Security Advanced Technology Development program element is budgeted in the advanced technology development budget activity because it will focus on the maturation of successful applied research results and their development into demonstrable advanced cyber capabilities. The Cyber Security Advanced Technology Development program will build on results of matured applied research from the Cyber Security Applied Research and other programs to develop technology demonstrations for potential transition into capabilities that support the full spectrum of computer network operations.

This Defense-wide program element will address advanced persistent threats to fill DoD science and technology (S&T) gaps identified in key reports and studies conducted by DDR&E over the past year.

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 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603668D8Z: *Cyber Security Advanced Technology Development*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	10.000	20.000	-	20.000
Current President's Budget	-	10.000	10.709	-	10.709
Total Adjustments	-	-	-9.291	-	-9.291
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Defense Efficiency - Baseline Review	-	-	-9.000	-	-9.000
• Defense Efficiency - Reports, Studies, Boards, and Commissions	-	-	-0.276	-	-0.276
• Economic Assumptions	-	-	-0.015	-	-0.015

Change Summary Explanation

Defene Efficiency - Baseline Review. As part of the Department of Defense reform agenda, implements a zero-based review of the organization to align resources to the most critical priorities and eliminate lower priority functions.

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

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603668D8Z: *Cyber Security Advanced Technology Development*	PROJECT P113: *Cyber Security Advanced Research*	

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
P113: *Cyber Security Advanced Research*	-	10.000	10.709	-	10.709	20.496	20.553	30.435	31.576	Continuing	Continuing

A. Mission Description and Budget Item Justification

Efforts of the program will develop improved and demonstrable capabilities through the DoD S&T organizations within and across the following technical areas: Information Assurance / Computer Network Defense (IA/CND) – Develop technologies to harden DoD network components; improve understanding of cyber threat and the mitigation of the threat; and enable systems to operate through cyber attacks in degraded environments.

Computer Network Operations (CNO) – Disrupt adversary attack planning and execution; explore game-changing ideas over the full spectrum of CNO and new concepts in cyber warfare; increase collaboration between disparate research communities within CNO; and address identified gaps in DoD CNO S&T to prepare for cyber conflict against advanced persistent threats.

Cyber Security Metrics – Explore new analytical methodologies, models, and experimental data sets to establish metrics to measure a system's state of security; and apply the scientific method to establish the foundations of a scientific framework in which cyber security research can be conducted to test hypothesis with measurable, repeatable results.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Cyber Security Advanced Technology Development	-	10.000	10.709
Description: Project plans for FY 2011 and beyond will be developed by the Office of the Director, Defense Research & Engineering (DDR&E) for execution by the DoD S&T organizations. This process will be conducted using the established Information Assurance and Cyber Security (IA/CS) Science & Technology and Computer Network Operations (CNO) Science & Technology Steering Councils chartered by DDR&E. The Cyber Security Applied Research program will build on the existing basic and applied research results and transition new successful applied research results to the Cyber Security Advanced Technology Development program element. The link between the Cyber Security Applied Research and Cyber Security Advanced Technology Development program elements is intended to create a mechanism to take existing basic research results and mature them to the point of incorporation into technology demonstrations. ***FY 2011 Plans:*** Initiate research activities in the candidate focuses within each technical area. Establish performance metrics for candidate performers. Evaluate results. Candidate focuses of each technical area:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603668D8Z: *Cyber Security Advanced Technology Development*	PROJECT P113: *Cyber Security Advanced Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Information Assurance / Computer Network Defense (IA/CND): -Harden critical points in the security architecture . -Reduce, rapidly and autonomously detect, and mitigate attack effects. -Reduce cyber reaction time for rapid system reconstitution to a known secure state. -Enable critical mission operation through cyber attacks in degraded environments. Computer Network Operations (CNO) -Improve understanding of the adversarial threat. -Increase adversary risk and work factor to decrease effectiveness during attack and exploitation attempts. -Disrupt and confuse adversarial attack planning cycles. Cyber Security Metrics -Measure effectiveness of existing countermeasures and the current level of DoD cyber security. -Measure impacts of new cyber security technologies. -Measure computer and network assurance levels for enhanced situational awareness. ***FY 2012 Plans:*** Continue research activities in each technical area began in FY 2011. Evaluate results.			
Accomplishments/Planned Programs Subtotals	-	10.000	10.709

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Specific programmatic performance metrics are listed above in the program plans section.