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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2017 Navy **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve
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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	55.608	8.659	8.320	9.867	-	9.867	10.548	10.199	10.336	10.703	Continuing	Continuing
2293: <i>NATO Cooperative R &amp; D</i>	55.608	8.659	8.320	9.867	-	9.867	10.548	10.199	10.336	10.703	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

In accordance with Title 10 United States Code, Section 2350a, this Program Element (PE) provides funding for research and development (R&D) programs with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology and Logistics (USD, AT&L) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate Summary Statement of Intent (SSOI) that also states why the project serves to increase the defense capabilities of the U.S. The SSOI is used to obtain Project approval by the Department of the Navy and the Office of the Secretary of Defense.

The North Atlantic Treaty Organization (NATO) R&D cooperative programs differ from other Research, Development, Test and Evaluation (RDT&E) programs because issuance of funding from this PE coincides with the signature of international agreements. These signatures occur throughout the fiscal year and often encounter unexpected delays during the staffing and negotiation phases of agreement processing prior to signature.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
Previous President's Budget	9.659	9.359	10.972	-	10.972
Current President's Budget	8.659	8.320	9.867	-	9.867
Total Adjustments	-1.000	-1.039	-1.105	-	-1.105
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.039			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.000	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.026	-	-0.026
• Rate/Misc Adjustments	0.000	0.000	-1.079	-	-1.079

**Change Summary Explanation**

Decrease in North Atlantic Treaty Organization (NATO) Research and Development by \$0.4M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2017 Navy **Date:** February 2016

**Appropriation/Budget Activity**  
1319: *Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)*

**R-1 Program Element (Number/Name)**  
PE 0603790N / *NATO Research and Deve*

The FY 2016 funding request was reduced by \$1.4 million to account for the availability of prior year execution balances.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy										<b>Date:</b> February 2016		
<b>Appropriation/Budget Activity</b> 1319 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve				<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2293: NATO Cooperative R & D	55.608	8.659	8.320	9.867	-	9.867	10.548	10.199	10.336	10.703	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

In accordance with Title 10 U.S. Code Section 2350a, this project provides funding for research and development projects with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Office of Secretary of Defense must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate SSOI which also states why the project serves to increase the conventional defense capabilities of the U.S. The SSOI is used to obtain project approval by the Department of the Navy and the Office of the Secretary of Defense.

FY2017 increase is to fund additional international projects such as Direct Energy Systems (DEPS) US and United Kingdom, Electromagnetic (EM) Silencing US and United Kingdom, and Undersea Power and Data Station (UPODS) US and Korea among others.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
<b>Title:</b> NATO Cooperative R & D	8.659	8.320	9.867	0.000	9.867
<b>Articles:</b>	-	-	-	-	-
<b>FY 2015 Accomplishments:</b>					
-Continue to support FY2014 approved Cooperative projects. Plan and support approved FY2015 Cooperative projects.					
-Advance Electric Power and Propulsion U.S. and United Kingdom (UK)					
-Advance Material Propeller U.S. and Australia					
-Australia/U.S. Expeditionary Modeling & Simulation Project Arrangement (AUSEMS) U.S. and Australia					
-Biomass to Fuel U.S. and Chile					
-Dynamic System Mechanics Advanced Simulation-Shallow Confined Waters (DYSMAS-SCW) U.S.and Germany					
-High-Speed Multi-Hull Vessel Optimization (HSMVO) U.S.and Japan					
-Hull Treatment U.S. and United Kingdom (UK)					
-Large Displacement Unmanned Undersea Vehicles (LD UUV)U.S.and Korea					
-Mine Counter-Measures Vessel (MCMV) U.S. and Finland					
-Optical Laser Capability (OLC)U.S.and United Kingdom (UK)					
-Pro-Simon U.S. and Netherlands (NL)					
-Sub Sonar Telemetry U.S.and United Kingdom (UK)					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy	<b>Date:</b> February 2016
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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve	<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> <li>-Submarine Hydrodynamics U.S.and Australia</li> <li>-Super Quantum Small Electromagnetic Sensor(QSES)U.S.and Australia</li> <li>-Ultra HeavyLift Amphibious Connector(UHAC) U.S.and Singapore</li> <li>-Waterside Rapid Deployment U.S.,Australia,and Canada (CA)</li> </ul> <p><b>FY 2016 Plans:</b></p> <ul style="list-style-type: none"> <li>-Continue to support approved Cooperative projects from FY2014/FY2015. Plan and support approved FY2016 Cooperative projects.</li> <li>-Advance Material Propeller U.S. and Australia</li> <li>-Australia/U.S. Expeditionary Modeling &amp; Simulation Project Arrangement (AUSEMS) U.S. and Australia</li> <li>-Biomass to Fuel U.S. and Chile</li> <li>-Dynamic System Mechanics Advanced Simulation-Shallow Confined Waters (DYSMAS-SCW) U.S. and Germany</li> <li>-Hull Treatments U.S. and United Kingdom (UK)</li> <li>-Large Displacement Unmanned Undersea Vehicles (LD UUV) U.S. and Korea</li> <li>-Optical Laser Capability (OLC) U.S. and United Kingdom (UK)</li> <li>-Super Quantum Small Electromagnetic Sensor (QSES) U.S. and Australia</li> <li>-Ultra HeavyLift Amphibious Connector (UHAC) U.S. and Singapore</li> <li>-Submarine Hydrodynamics U.S. and Australia</li> </ul> <p><b>FY 2017 Base Plans:</b></p> <ul style="list-style-type: none"> <li>-Continue to support approved Cooperative projects from FY2015/FY2016. Plan and support approved FY2017 Cooperative projects.</li> <li>-Large Displacement Unmanned Undersea Vehicles (LD UUV)U.S. and Korea</li> <li>-Hull Treatments U.S. and United Kingdom (UK)</li> <li>-Biomass to Fuel U.S. and Chile</li> <li>-Low-Band Geolocation U.S. and Australia</li> <li>-ALQ-227 U.S. and Australia</li> <li>-Compact Wide-Band Optics for Multispectral IR Imaging (CIRIS) U.S. and United Kingdom (UK)</li> <li>-Undersea Power and Data Station (UPODS) U.S. and Korea</li> <li>-Electromagnetic (EM) Silencing U.S. and United Kingdom (UK)</li> <li>-Australia/U.S. Expeditionary Modeling &amp; Simulation Project Arrangement (AUSEMS) U.S. and Australia</li> <li>-Super Quantum Small Electromagnetic Sensor (QSES) U.S. and Australia</li> </ul>					

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**Exhibit R-2A, RDT&E Project Justification:** PB 2017 Navy **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve	<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Direct Energy Power Systems (DEPS) U.S. and United Kingdom					
<b><i>FY 2017 OCO Plans:</i></b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>	8.659	8.320	9.867	0.000	9.867

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

The intent of the North Atlantic Treaty Organization (NATO) cooperative R&D program is to provide "start-up" funds for projects seeking allied contributions into cooperative research and development projects with the U.S. The primary metric used in the program is foreign contributions into projects supported by the program. The performance goal is met if total foreign contributions into projects exceed total NATO cooperative R&D program funds by over 100%.

This program historically does not meet established execution benchmarks. The North Atlantic Treaty Organization (NATO) R&D cooperative programs differ from other Research, Development, Test and Evaluation (RDT&E) programs because issuance of funding from this PE coincides with the signature of international agreements. These signatures occur throughout the fiscal year and often encounter unexpected delays during the staffing and negotiation phases of agreement processing prior to signature.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy** **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve	<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D
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<b>Product Development (\$ in Millions)</b>				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test and Evaluation	C/FP	NAVSEA : Washington Navy Yard, DC	18.089	5.124	Nov 2014	2.913	Nov 2015	0.500	Jan 2017	-		0.500	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NSWC : West Bethesda, MD	13.621	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NUWC : Newport, RI	2.252	0.100	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	SPAWAR : San Diego, CA	4.353	0.000		0.500	Jan 2016	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAVAIR : Patuxent River, MD	2.136	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NRL : Washington, DC	2.484	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAWC : Point Mugu, CA	5.500	0.000		0.600	Mar 2016	1.000	Jan 2017	-		1.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	Miscellaneous : Philadelphia, PA	7.124	0.000		2.407	Apr 2016	7.492	Apr 2017	-		7.492	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	MARCOR : Washington.DC	0.000	0.900	Jan 2015	0.300	Dec 2015	0.000		-		0.000	0.000	1.200	-
Developmental Test and Evaluation	C/FP	NSWCDD : Carderock, MD	0.000	2.035	Jan 2015	0.000		0.000		-		0.000	0.000	2.035	-
Developmental Test and Evaluation	C/FP	ONR : Washington DC	0.000	0.500	May 2015	1.600	Jan 2016	0.375	May 2017	-		0.375	0.000	2.475	-
Need Item Text	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			55.559	8.659		8.320		9.867		-		9.867	-	-	-

<b>Support (\$ in Millions)</b>				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ACQ Workforce Fund	Various	Various : Various	0.049	0.000		0.000		0.000		-		0.000	0.000	0.049	-
<b>Subtotal</b>			0.049	0.000		0.000		0.000		-		0.000	0.000	0.049	-



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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy** **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve	<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>Proj 2293</b>	
International Agreements	[REDACTED]

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**Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy** **Date:** February 2016

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603790N / NATO Research and Deve	<b>Project (Number/Name)</b> 2293 / NATO Cooperative R & D
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2293</b>				
International Agreements	1	2017	4	2017

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