Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603724N *I Navy Energy Program*							
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	208.472	62.413	56.391	52.479	-	52.479	50.613	49.561	50.301	52.454	Continuing	Continuing
0829: *ENERGY CONSERVATION (ADV)*	43.373	16.094	8.278	9.674	-	9.674	10.490	10.859	11.166	12.522	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	56.292	10.570	11.739	12.973	-	12.973	12.711	12.165	12.313	12.565	Continuing	Continuing
0928: *Directed Energy Research*	42.050	6.683	1.519	1.957	-	1.957	1.965	1.870	1.905	1.943	Continuing	Continuing
0996: *Aircraft Energy Conservation*	66.757	29.066	22.355	27.875	-	27.875	25.447	24.667	24.917	25.424	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	12.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.500

A. Mission Description and Budget Item Justification

This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy aircraft and ship operations to: (a) increase fuel-related weapons systems capabilities such as range and time on station; (b) reduce energy costs; (c) apply energy technologies that improve environmental compliance; (d) examine restrictive fuel specification requirements to reduce cost and increase availability worldwide; (e) provide guidance to fleet operators for the safe use of commercial grade or off-specification fuels; and (f) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems. This program supports the achievement of legislated, White House, Department of Defense, and Navy energy management goals.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	63.804	47.761	62.919	-	62.919
Current President's Budget	62.413	56.391	52.479	-	52.479
Total Adjustments	-1.391	8.630	-10.440	-	-10.440
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.870			
• Congressional Rescissions	-	-			
• Congressional Adds	-	12.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.392	0.000			
• Program Adjustments	0.000	0.000	-10.612	-	-10.612
• Rate/Misc Adjustments	0.001	0.000	0.172	-	0.172

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603724N *I Navy Energy Program*

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2015	FY 2016
Project: 9999: *Congressional Adds*		
Congressional Add: *Navy Energy Increase*	0.000	12.500
Congressional Add Subtotals for Project: 9999	0.000	12.500
Congressional Add Totals for all Projects	0.000	12.500

Change Summary Explanation

FY 2017 decrease in Navy Energy RDTEN by $0.081M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Schedule:

0838 - Conduct Research, Development, Test, and Evaluation in Support of Field-Identified Deficiencies from 1Qtr 2017 through 4Qtr 2021. This work has been a basic objective of the program since its inception, but the efforts have been minimized for the last 6 years as alternative fuels test and qualification took priority. As test and qualification activities begin to slow, the program will focus on field-identified deficiencies.

Technical: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*				Project (Number/Name) 0829 / *ENERGY CONSERVATION (ADV)*			
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**
0829: *ENERGY CONSERVATION (ADV)*	43.373	16.094	8.278	9.674	-	9.674	10.490	10.859	11.166	12.522	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Energy Conversation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. This energy conservation project, managed through NAVSEA 05T, will identify mature potential energy saving areas, by involvement with Fleet representatives, Life-Cycle Managers (LCMs), NAVSEA Technical Warrant Holders, In-Service Engineering Agents (ISEAs), PEOs, TMA/TMI, Industry, and Academia. The project directly supports SECNAV and CNO goals to reduce energy consumption. Potential technology target areas will include: Power Generation and Storage systems, Hull Hydrodynamics, Underwater Hull Husbandry, Heating, Ventilation & Air Conditioning (HVAC) Systems, Thermal Management, Main Propulsion Systems, Electrical Systems, Auxiliary Systems, and Energy Monitoring & Assessment. Potential energy saving proposals, Energy Conservation Concepts (ECC), are developed each FY for evaluation by functional category. Based on review of a business case and a technical community review projects are selected for development. Not all proposed ECCs are pursued and changes to planned funding between functional categories or fiscal years can occur based on the technology maturity level, ship schedule changes, or other factors affecting the projected development or testing timeline.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Title: Power Generation and Storage Project	1.229	0.000	0.200	0.000	0.200
Articles:	-	-	-	-	-
Description: Power Generation & Storage System Sub Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of energy conservation technologies these improvements.					
FY 2015 Accomplishments: Issued Request for Information (RFI) to industry and received inputs from several sources. The inputs received are being evaluated to identify next phase of developing proposals pending availability of funding. Continue to identify new fuel saving technologies in Power Generation & Storage for Gas Turbine, Diesel and Steam ships. Prepare proposals and business case analyses (BCA) for promising technologies with potential to reduce fossil fuel consumption.					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Conduct investigation of alternative energy sources based on prior year responses to RFI that can be used to store energy and power shipboard equipment as an energy saving measure. Continue to identify new fuel saving technologies in Power Generation & Storage for Gas Turbine, Diesel and Steam ships. Prepare proposals and business case analyses (BCA) for promising technologies with potential to reduce fossil fuel consumption. ***FY 2017 OCO Plans:*** N/A					
Title: Hull Hydrodynamic Sub Project	1.357	0.468	2.347	0.000	2.347
Articles:	-	-	-	-	-
Description: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers such as fouling release coatings and/or hull appendages to determine overall mission and cost effectiveness of these improvements. ***FY 2015 Accomplishments:*** Fabrication of bow bulb in support of installation on USS KIDD (DDG 100) is in process. Availability will start 9 July 2015 and installation of the bow bulb will commence 20 August and complete 15 Nov 2015. Initiated studies to examine energy saving alternatives for hull form/propeller modifications applicable to various ship classes; advanced electric ship demonstrator modifications to assist in testing Energy Conservation Concepts (ECCs); feasibility study for installing an 18' diameter propeller on DDG 51 Class ships; and a data acquisition study to examine methods for measuring actual fuel savings achieved from various hydrodynamic ECCs installed. Continue to identify additional fuel saving technologies in Hull Hydrodynamic systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2016 Plans:*** Post availability performance trial (powering and maneuvering) to evaluate performance of bow bulb installation on KIDD will be delayed until FY17 due to availability of ship. Efforts in FY16 will focus on conducting planning efforts in support of FY17 post availability sea trial. Continue to identify additional fuel saving technologies in Hull Hydrodynamic systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2017 Base Plans:*** As result of cancellation of installation on USS KIDD in FY15/16 conduct planning, pre-trial as necessary and installation of bow bulb on alternate DDG 51 Flight IIA ship. Continue to identify additional fuel saving					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
technologies in Hull Hydrodynamic domain to reduce drag, and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2017 OCO Plans:*** N/A					
Title: Hull Husbandry Sub Project ***Articles:*** ***Description:*** (U) Hull Husbandry Sub Project - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. ***FY 2015 Accomplishments:*** Initiated improvements to hydrodynamic drag coefficient tool which will allow the most accurate estimate of fuel savings associated with good propeller coating performance. Completion of project had to be delayed due to priorities associated with Ohio Replacement Program that required the services of the subject matter expert. It will be evaluated for restart when funding is available. Continue to identify new fuel saving initiatives in Hull Husbandry and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A	0.300 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Heating , Ventilation and Air Conditioning (HVAC) Sub Project ***Articles:*** ***Description:*** (U) HVAC Sub Project - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine cost effectiveness of improvements aimed at more efficient climate control of shipboard spaces. ***FY 2015 Accomplishments:***	2.675 -	2.258 -	0.153 -	0.000 -	0.153 -

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Installation planning for Thermal Management Control System (TMCS) for LHD class ships has proceeded on schedule. SCD 16402 has been approved and added to the Letter of Authorization for LHD 2; material has been procured with delivery scheduled in Aug 2015; system requirements specification and Ship Installation Drawings (SIDs) have been developed. Planning is continuing for prototype installation in FY16. Initiated tasking for test and evaluation of Air Conditioning (AC) Plant improvements aimed at lowering compressor operating discharge pressure control point on DDG 51 Class ships and completed ship visits to capture data on 5 DDG 51 Class ships. Data from ship visits is being evaluated and procurement of an Erasable Programmable Read-Only Memory (EPROM) is in process to incorporate system operating modifications that will be demonstrated shipboard. Continue to identify additional fuel saving technologies in HVAC Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2016 Plans:*** Continue phase II LHD TMCS development for laboratory testing of system and installation on board selected ship for test and evaluation. Provide oversight of installation on LHD 2 during scheduled FY 16 availability, monitor and provide program office with status reports of installation progress. Conduct evaluation and provide report. Continue to identify additional fuel saving technologies in HVAC Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 Base Plans:*** Conduct post installation testing of TMCS on LHD 2 and prepare report with recommendations for class-wide implementation. Continue to identify additional fuel saving technologies in HVAC Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 OCO Plans:*** N/A					
Title: Thermal Management Sub Project	0.100	0.000	0.320	0.000	0.320
Articles:	-	-	-	-	-
Description: (U) Thermal Management Sub Project - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the shipboard electrical demand on HVAC systems. ***FY 2015 Accomplishments:*** Initiated tasking to examine shipboard application of waste heat recovery methodologies. Issued and received responses from industry to Request for Information (RFI) on waste heat technologies. Continuing to review responses and prepare report of findings for determining potential shipboard applications to provide alternative					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
energy sources. Also initiated tasking to conduct shipboard energy thermal surveys to map energy usage onboard various ship classes during different seasons of the year. Continue to identify additional fuel saving technologies in Thermal Management that may be applicable to navy ships. Prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Evaluate results of previous year tasking identifying possible shipboard applications for waste heat applications. Develop technical approach to test and evaluate various designs, and identify laboratory/shipboard testing plans. Continue to identify additional fuel saving technologies in Thermal Management that may be applicable to navy ships. Prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2017 OCO Plans:*** N/A					
Title: Propulsion Systems Sub Project ***Articles:*** ***Description:*** (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform land based and shipboard testing of ship propulsion system improvements on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs. ***FY 2015 Accomplishments:*** Developed proposal for converting existing Main Propulsion diesel engines on LPD 17 Class ships to an Electronic Unit Injection Engine design aimed at increased operational efficiency. Developing proposal for a podded propulsion study aimed at identifying applications on naval ships. Continue to identify additional fuel saving technologies in Propulsion Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Conduct systematic review of all surface ships in the 30 year shipbuilding plan to identify the most promising ship classes for incorporation of podded propulsion based on prior year proposal development. Compile feasible	0.659 -	0.000 -	0.723 -	0.000 -	0.723 -

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
pod configurations and evaluate them for their performance against the platform and mission requirements. Continue to identify additional fuel saving technologies in Propulsion Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 OCO Plans:*** N/A					
Title: Electrical Systems SubProject	2.201	0.000	0.412	0.000	0.412
Articles:	-	-	-	-	-
Description: Electrical Systems Sub Project - Project funds will be utilized to identify and perform land based and shipboard testing of ship electrical system improvements to reduce energy consumption. ***FY 2015 Accomplishments:*** Tasking in FY15 focused on developing a Light Emitting Diode (LED) solution to shipboard lighting. A Ship Change Document (SCD) has been developed to install LED lighting fixtures to improve lighting in hangar bays of DDG 51 Class ships. A First Article Test of a LED fixture has been completed and installation on a test ship is planned with installation date not yet finalized. Developed energy saving proposal for Micro-Grid technology on naval ships. Continue to identify additional fuel saving technologies in Electrical Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** Review prior year proposals to conduct study of Micro-Grid technology for shipboard systems application. Smart micro-grid technology is marriage of electrical power systems with information technology (IT) for the improvement of efficiency, resiliency, and energy cost savings. Continue to identify additional fuel saving technologies in Electrical Systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 OCO Plans:*** N/A					
Title: Auxiliary Systems Sub Project	1.134	0.250	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Description: Auxiliary Systems Sub Project -- Project funds will be utilized to identify, test and evaluate new technologies for shipboard auxiliary systems aimed at reducing fuel consumption. ***FY 2015 Accomplishments:*** Qualification and endurance testing of Advanced Reverse Osmosis (ARO) plant Energy Recovery Device is in progress. Phase II SCD 15632 has been approved for installation in USS COMSTOCK (LSD 45) in Feb 2016. Originally planned installation was delayed from Nov 15 to Feb 16 due to ship schedule. Continue to identify additional fuel saving technologies in auxiliary systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2016 Plans:*** In support of ARO installation in COMSTOCK on-board-training will be provided for ship's force. System installation will be monitored for performance and final report with recommendations will be provided. Continue to identify additional fuel saving technologies in auxiliary systems and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A					
Title: Energy Monitoring & Assessment ***Articles:*** ***Description:*** This project area will focus on methods of capturing and displaying energy related data to shipboard personnel as actionable information for ships force to employ energy conservation measures underway and in port as mission requirements permit. ***FY 2015 Accomplishments:*** Completed installation of Shipboard Energy Dashboard on LPD 25 for evaluation. Sea trails completed 24 June and data is being analyzed. Next events are finalizing energy summary report format and monitoring data as it is transmitted to shore. Continued design effort for installation of Shipboard Energy Dashboard (SED) on a Flight I DDG 51 Class ship (DDG 60). Procured fuel flow meters for testing at the Land Based Engineering Station Philadelphia to evaluate performance and prepared drawings and a Ship Change Document (SCD 14060) for installation. Identified requirements for installing an energy dashboard on other classes of ships and initiated tasking to develop a web-based energy dashboard for DDG 51 Class ships to support transitioning	6.439 -	5.302 -	5.519 -	0.000 -	5.519 -

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
from the current Integrated Condition Assessment System (ICAS) to the next generation enterprise Remote Monitoring (eRM) system designed to replace ICAS. Also as part of a Fleet/NAVSEA effort to develop a Global Energy Information System (GENISYS) in support of a Great Green Fleet (GGF) demonstration in CY 2016, prepared draft requirement specification documents for Fleet Energy Conservation Dashboard (FECD) and Ship Energy Assessment System (SEAS) as well as Interface Control Documents. Also initiated development of a Fleet Utilization Tool for assessing actual vs planned fuel usage for ships and developed shipboard Electronic Logs undergoing initial testing in July 15. Finally, continued prior year tasking to install a hull performance assessment tool (TRITON) aimed at determining the negative effect of hull/propeller fouling while underway and taking actions to perform condition based hull and propeller cleanings. Installation in DDG 102 is scheduled to begin in June 15 and will continue through August 15. Continue to identify additional fuel saving technologies and monitoring methodologies and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel.					
FY 2016 Plans: Continue GENISYS development efforts for Fleet Energy Conservation Dashboard (FECD), Fuel Utilization Tool (FUT), SEAS, eRM aimed at supporting a CY 16 GGF demonstration and initial integration of energy monitoring capability for fleet assets. Conduct post installation evaluation of the TRITON Hull Assessment Tool installed in DDG 102 and monitor performance, analyze data, provide quarterly quick look reports. Monitor performance of SED installed in LPD 25, monitor performance and provide quick look and final report. Continue eRM requirements development and software testing, select test ship, develop SCD, SIDs, and procure material. Continue to identify additional fuel saving technologies and monitoring methodologies and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel.					
FY 2017 Base Plans: Continue GENISYS development efforts and shipboard evaluation to support fleet-wide implementation. Continue monitoring shipboard installation of TRITON and provide final report with recommendations for implementation. Continue eRM development efforts and install on test ship for shipboard evaluation, monitor performance, develop report format for eRM data and provide monthly report of performance. Based on efforts for DDG 51 Class, develop eRM requirements for LPD 17 Class ships, conduct initial ship check and determine drawing/material requirements. Initiate development of a shipboard energy dashboard aimed at capturing Combat System Equipment (CSE) performance to monitor energy requirements/consumption and compliment energy dashboard data captured for Hull, Mechanical & Electrical (HM&E) equipment in order to provide operators with a total real-time HM&E and CSE energy profile. Evaluate prior year energy saving proposals for potential funding in FY17. Continue to identify additional fuel saving technologies and monitoring methodologies					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	16.094	8.278	9.674	0.000	9.674

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RDT&E Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0829 / *ENERGY CONSERVATION (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPAF	NAVSEA HQ : Washington, DC	0.000	0.000		0.000	Jan 2016	0.922	Jan 2017	-		0.922	0.000	0.922	-
Systems Engineering	WR	NSWC DD : Dahlgren, MD	0.000	0.000		0.000		0.100	Nov 2016	-		0.100	0.000	0.100	-
Systems Engineering	WR	NSWC PHila : Philadelphia, PA	0.000	0.000		0.821	Jan 2016	0.834	Nov 2016	-		0.834	0.000	1.655	-
Primary Hardware Development	WR	NSWC Carderock : Bethesda, MD	5.994	2.989	Nov 2014	0.000	Jan 2016	0.000	Nov 2016	-		0.000	0.000	8.983	-
Systems Engineering	WR	NSWC PHD : Port Hueneme, CA	0.000	0.000		0.000		0.100	Nov 2016	-		0.100	0.000	0.100	-
Systems Engineering	C/CPAF	NSWC Carderock : Bethesda, MD	4.941	1.694	Feb 2015	0.000		0.000		-		0.000	0.000	6.635	-
Engineering Development	WR	NSWC Carderock : Bethesda, MD	6.098	1.750	Feb 2015	0.000		0.000		-		0.000	0.000	7.848	-
Demonstration & Evaluation	WR	NSWC Carderock : Bethesda, MD	6.183	1.200	May 2015	0.828	Jan 2016	0.899	Jan 2017	-		0.899	0.000	9.110	-
		Subtotal	23.216	7.633		1.649		2.855		-		2.855	0.000	35.353	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock : Bethesda, MD	0.700	2.000	Dec 2014	0.143	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Software Support	WR	NSWC Carderock : Bethesda, MD	0.450	0.000		0.072	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC Carderock : Bethesda, MD	0.700	0.500	May 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Study Anaylsis	WR	NSWC Carderock : Bethesda, MD	0.700	0.474	Dec 2014	0.000		2.146	Nov 2016	-		2.146	Continuing	Continuing	Continuing
Development Support	C/CPAF	NSWC SSES : Philadelphia, PA	0.000	0.000		0.878	Jan 2016	0.000		-		0.000	0.000	0.878	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0829 / *ENERGY CONSERVATION (ADV)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/CPAF	NAVSEA HQ : Washington, DC	0.000	0.000		0.100	Jan 2016	0.000		-		0.000	0.000	0.100	-
Software Support	C/CPAF	NSWC SSES : Philadelphia, PA	0.000	0.000		0.281	Jan 2016	0.000		-		0.000	0.000	0.281	-
Software Support	C/CPAF	NAVSEA HQ : Washington, DC	0.000	0.000		1.200	Jan 2016	0.149	Jan 2017	-		0.149	0.000	1.349	-
		Subtotal	2.550	2.974		2.674		2.295		-		2.295	-	-	-

Remarks

FY16 majority Development and Software support will move to NAVSEA/NSWC SSES from NSWC Carderock.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock : Bethesda, MD	7.826	2.135	Jun 2015	0.000	Feb 2016	0.153	Nov 2016	-		0.153	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NSWC Carderock : Bethesda, MD	4.778	1.900	Jun 2015	1.697	Feb 2016	0.396	Nov 2016	-		0.396	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NSWC Carderock : Bethesda, MD	0.382	0.000		0.000		0.000		-		0.000	0.000	0.382	-
Developmental Test & Evaluation	C/CPAF	NSWC SSES : Philadelphia, PA	0.000	0.000		0.383	Feb 2016	0.000		-		0.000	0.000	0.383	-
Operational Test & Evaluation	WR	NSWC Caderock : Bethesda, MD	0.000	0.000		0.000		2.347	Nov 2016	-		2.347	0.000	2.347	-
		Subtotal	12.986	4.035		2.080		2.896		-		2.896	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NSWC PHila : Philadelphia, PA	4.110	1.442	Oct 2014	0.628	Oct 2015	0.500	Nov 2016	-		0.500	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0829 / *ENERGY CONSERVATION (ADV)*

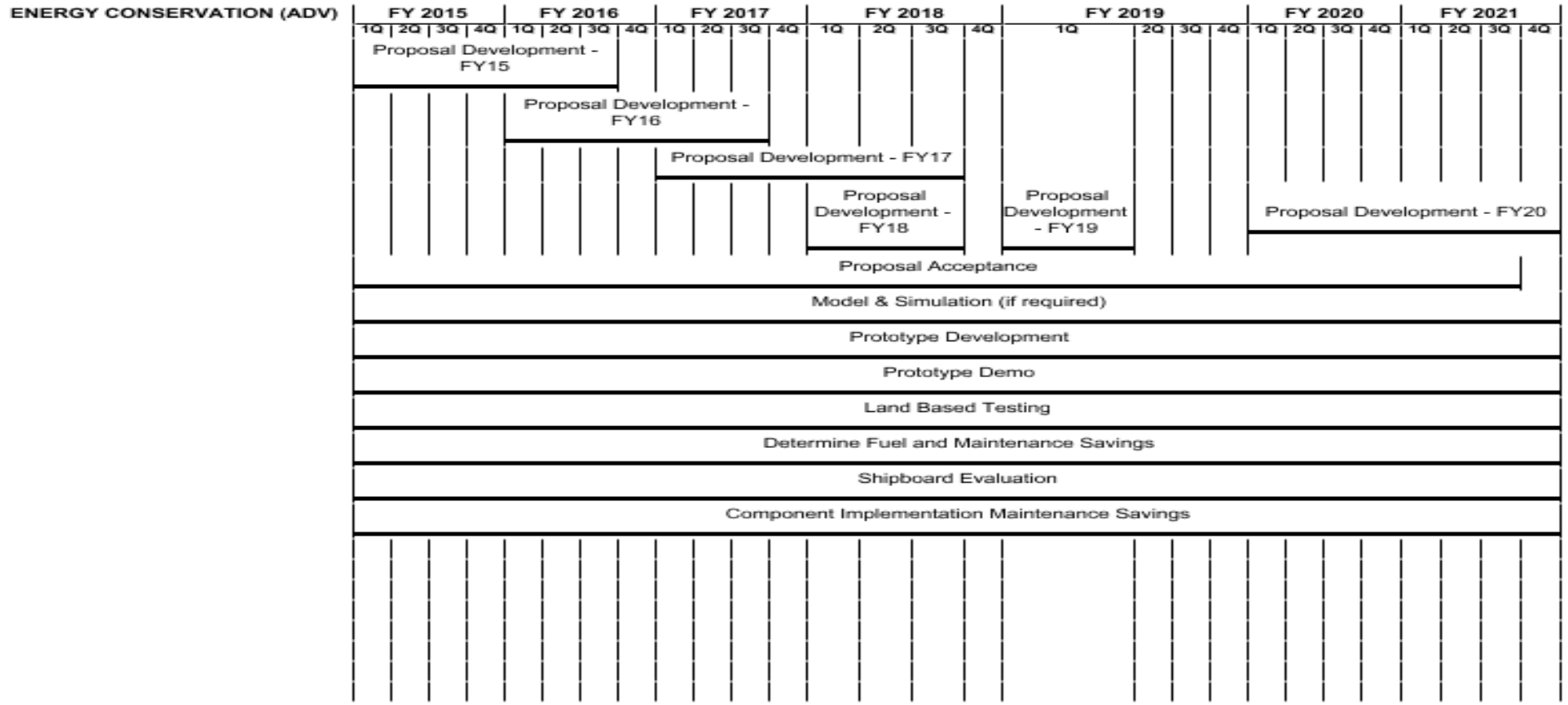
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ : Washington, DC	0.159	0.010	Oct 2014	0.007	Sep 2016	0.013	Nov 2016	-		0.013	Continuing	Continuing	Continuing
Total Assets	WR	NSWC Carderock : Bethesda, MD	0.352	0.000		0.000		0.000		-		0.000	0.000	0.352	-
Program Management Support	C/CPAF	NAVSEA HQ : Washington, DC	0.000	0.000		0.890	Jan 2016	0.790	Jan 2017	-		0.790	0.000	1.680	-
Program Management Support	WR	NSWC Caderock : Bethesda, MD	0.000	0.000		0.350	Oct 2015	0.325	Nov 2016	-		0.325	0.000	0.675	-
		Subtotal	4.621	1.452		1.875		1.628		-		1.628	-	-	-

	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.373	16.094		8.278		9.674		-		9.674	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*



2017DON - 0603724N - 0829

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ENERGY CONSERVATION (ADV)				
Proposal Development - FY15	1	2015	3	2016
Proposal Development - FY16	1	2016	3	2017
Proposal Development - FY17	1	2017	3	2018
Proposal Development - FY18	1	2018	3	2018
Proposal Development - FY19	1	2019	1	2019
Proposal Development - FY20	1	2020	4	2021
Proposal Acceptance	1	2015	3	2021
Model & Simulation (if required)	1	2015	4	2021
Prototype Development	1	2015	4	2021
Prototype Demo	1	2015	4	2021
Land Based Testing	1	2015	4	2021
Determine Fuel and Maintenance Savings	1	2015	4	2021
Shipboard Evaluation	1	2015	4	2021
Component Implementation Energy Savings	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*				Project (Number/Name) 0838 / *Mobility Fuels (ADV)*			
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**
0838: *Mobility Fuels (ADV)*	56.292	10.570	11.739	12.973	-	12.973	12.711	12.165	12.313	12.565	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides data through laboratory, component, engine, fuel system, and weapon system tests, which relate the effects of changes in the Navy fuel procurement specification properties and chemistries to the performance and reliability of Naval ship, aircraft, and fuel distribution systems. The information is required to: (a) develop, validate, and execute the test protocols necessary to approve fuels from non-petroleum feedstocks, (b) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide, (c) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specifications are unavailable or in short supply, (d) technically justify changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in fuel supply, and (e) improve capability to provide fuel quality surveillance in the field. Continued volatility and rapid escalation of the cost of fuel have placed additional pressures on Navy budgets responsible for maintaining and sustaining the Navy tactical fleet both now and in the future. These pressures have placed an added emphasis on the potential use of lower cost commercial fuels and/or fuels derived from non-petroleum sources as a potential means of stabilizing the current and anticipated price volatility. Recent problems with petroleum-based fuel quality have demonstrated the adverse effects that fuel-related problems can have on ship and aircraft system performance, reliability, and readiness. The program addresses readiness, additional maintenance costs, and the cost of lost equipment. The potential risk of fuel-related problems over the next decade, given the unknown supply, feedstocks, and the introduction of new theaters of operation, will continue to increase.

This project represents the Navy's only investment designed to maintain its capability to operate as a "smart" customer for fuels that cost over $4.0 billion per year for procurement, transport, storage, and consumption, and are essential to fleet operations. Additionally, it is the Navy's only investment in the approval of alternative fuels for tactical applications and directly supports the Navy's energy goals of increased energy security and environmental stewardship.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Naval Tactical Fuels	10.570	11.739	12.973	0.000	12.973
Articles:	-	-	-	-	-
Description: Perform development, test and evaluation work on Naval tactical fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance and approval to fleet operators for the safe use of military aircraft that include new additives or are derived from non-petroleum sources; c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry and d) improve fleet methods to ensure fuel quality.					
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue to expand list of qualified renewable sources/production pathways for inclusion into JP-5 and F-76 specifications. Conduct hardware testing on hydroprocessed depolymerized cellulosic. Continue testing on advanced production pathways. ***FY 2016 Plans:*** Continue to expand the list of qualified renewable sources and production pathways for inclusion into the JP-5 and F-76 specifications. Conduct hardware testing on 100% fully synthetic aviation and shipboard fuels. Continue testing on advanced production pathways. ***FY 2017 Base Plans:*** Continue to expand the list of qualified renewable sources and production pathways for inclusion into the JP-5 and F-76 specifications. Continue protocol testing on advanced alternative fuel production pathways. Conduct research, development, test, and evaluation to mitigate field-identified aviation and ship propulsion fuel deficiencies. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	10.570	11.739	12.973	0.000	12.973

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Alternative Fuel Efforts including testing and fuel procurement efforts will be competitively contracted, and performed under Cost Plus Fixed Fee and Firm Fixed Price contracts.

E. Performance Metrics

Program will develop Alternate Fuel test and certification protocols for 100% of all Naval aircraft and ships. Program will evaluate biofuels, biofuel chemistry and components tests as defined in test and certification protocols.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0838 / *Mobility Fuels (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL : Washington, D.C.	2.867	0.590	Oct 2014	0.500	Jan 2016	0.600	Nov 2016	-		0.600	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	10.413	1.750	Oct 2014	1.800	Nov 2015	2.593	Nov 2016	-		2.593	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Philadelphia, PA	2.089	0.987	Oct 2014	0.450	Nov 2015	1.000	Jan 2017	-		1.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Bethesda, MD	0.000	0.278	Oct 2014	0.000		0.000		-		0.000	0.000	0.278	-
Systems Engineering	C/FFP	Various : Various	0.000	0.000		0.000		0.847	Mar 2017	-		0.847	0.000	0.847	0.847
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	0.161	0.000		0.000		0.000		-		0.000	0.000	0.161	0.161
		Subtotal	15.530	3.605		2.750		5.040		-		5.040	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Fuel	C/FFP	Various : Various	2.000	0.000		3.857	Dec 2015	3.000	Apr 2017	-		3.000	0.000	8.857	8.857
Hardware Testing	WR	NAWCAD : Patuxent River, MD	2.999	0.150	Oct 2014	0.700	Feb 2016	0.400	Nov 2016	-		0.400	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Life Cycle Engineering : Charleston, SC	4.299	3.389	Dec 2014	2.336	Jan 2016	2.000	Jan 2017	-		2.000	0.000	12.024	12.024
Hardware Testing	SS/CPFF	Rolls Royce : Indianapolis, IN	1.850	0.600	Aug 2015	0.500	May 2016	0.500	May 2017	-		0.500	0.000	3.450	3.450
Hardware Testing	C/CPFF	Univ of Dayton Research Inst : Dayton, OH	0.152	0.282	Feb 2015	0.150	Mar 2016	0.200	Apr 2017	-		0.200	0.000	0.784	0.784
Hardware Testing	WR	US Naval Academy : Annapolis, MD	0.046	0.052	Apr 2015	0.000		0.000		-		0.000	0.000	0.098	-
Hardware Testing	C/CPFF	General Electric : Lynn, MA	0.000	1.237	Jun 2015	0.000		1.300	May 2017	-		1.300	0.000	2.537	2.537

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0838 / *Mobility Fuels (ADV)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	WR	NSWC : Philadelphia, PA	0.080	0.000		0.750	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Testing	C/FFP	Various : Various	0.756	0.753	Sep 2015	0.000	Jun 2016	0.000		-		0.000	0.000	1.509	1.509
Hardware Testing	WR	TBD : TBD	0.000	0.000		0.200	Jan 2016	0.000		-		0.000	0.000	0.200	-
Fuel Delivery	MIPR	DLA-Energy : Ft. Belvoir, VA	0.000	0.195	Oct 2014	0.000		0.150	Dec 2016	-		0.150	0.000	0.345	-
Fuel Blend Testing	WR	Naval Medical Research Unit : Dayton, OH	0.000	0.042	Oct 2014	0.000		0.000		-		0.000	0.000	0.042	-
Prior year T & E no longer funded in the FYDP	Various	Various : Various	21.212	0.000		0.000		0.000		-		0.000	0.000	21.212	21.212
		Subtotal	33.394	6.700		8.493		7.550		-		7.550	-	-	-

Remarks

FY15 Hardware Testing actual costs were updated and performing activities realigned from 'Various' and Organic to actuals. Required Test Fuel was realigned from 'Various' actual performing activity.

Management Services ($ in Millions)

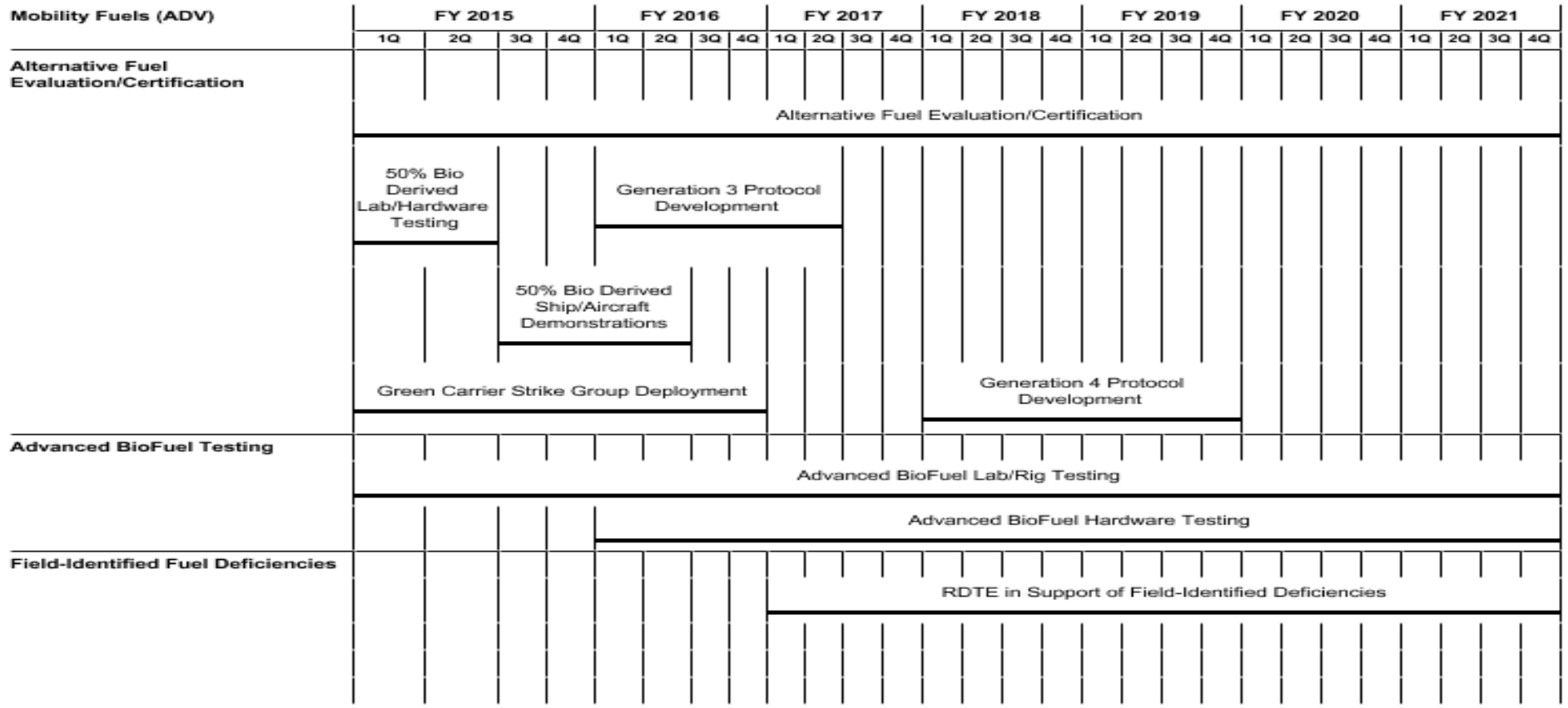
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.753	0.250	Oct 2014	0.481	Nov 2015	0.383	Nov 2016	-		0.383	Continuing	Continuing	Continuing
Program Management Support	WR	NAVSUP : San Diego, CA	0.012	0.005	Nov 2014	0.005	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Coord Research Council : Alpharetta, GA	0.020	0.010	Dec 2014	0.010	Dec 2015	0.000		-		0.000	0.000	0.040	0.040
Prior year Mgmt Supp no longer funded in the FYDP	Various	Various : Various	6.583	0.000		0.000		0.000		-		0.000	0.000	6.583	6.583
		Subtotal	7.368	0.265		0.496		0.383		-		0.383	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0838 / *Mobility Fuels (ADV)*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.292	10.570		11.739		12.973		-		12.973	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*



2017DON - 0603724N - 0838

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mobility Fuels (ADV)				
Alternative Fuel Evaluation/Certification: Alternative Fuel Evaluation/Certification	1	2015	4	2021
Alternative Fuel Evaluation/Certification: Generation 3 Protocol Development	1	2016	2	2017
Alternative Fuel Evaluation/Certification: 50% Bio Derived Lab/Hardware Testing	1	2015	2	2015
Alternative Fuel Evaluation/Certification: 50% Bio Derived Ship/Aircraft Demonstrations	3	2015	2	2016
Alternative Fuel Evaluation/Certification: Green Carrier Strike Group Deployment	1	2015	4	2016
Alternative Fuel Evaluation/Certification: Generation 4 Protocol Development	1	2018	4	2019
Advanced BioFuel Testing: Advanced BioFuel Lab/Rig Testing	1	2015	4	2021
Advanced BioFuel Testing: Advanced BioFuel Hardware Testing	1	2016	4	2021
Field-Identified Fuel Deficiencies: RDTE in Support of Field-Identified Fuel Deficiencies	1	2017	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*				Project (Number/Name) 0928 / *Directed Energy Research*			
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**
0928: *Directed Energy Research*	42.050	6.683	1.519	1.957	-	1.957	1.965	1.870	1.905	1.943	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Legislation, Executive Orders (EO), and SECNAV Guidance direct DoN to reduce fossil fuel use and increase renewable energy use. This guidance includes the Energy Policy Act of 2005, which directs agencies to reduce energy intensity 30% by 2015, the National Defense Authorization Act of 2010, which directs DOD to source 25% of its energy from renewable sources by 2025, EO13514, which directs DOD to reduce greenhouse gas emissions by 2020, and SECNAV energy goals, which direct that 50% of DoN's energy come from alternative sources by 2020. Further, studies by the Defense Science Board and others have stressed the dangerous reliance of DOD on vulnerable grid power and unreliable imported oil. Currently, the Navy has limited options for producing energy from renewable sources. Private industry and other federal agencies are developing and testing new technologies. Renewable energy from the ocean such as wave, sea water air conditioning, tidal energy, outer continental shelf wind development, ammonia production and utilization, vortex induced vibration marine hydrokinetic, and compressed air storage for ocean energy, among other technologies have potential to alleviate current Navy island installation dependence on fossil fuel, at comparable costs to projected fossil energy sources. Also, advanced energy management systems have potential to increase installation energy security and enable broader use of renewable energy sources.

This Energy RDT&E Project will test, evaluate, and validate components as well as demonstrate cost-effective and technical viability of energy efficiency and renewable energy, energy storage and Alternative Fuel Vehicle prototypes. All efforts will be coordinated across DOD and with other agencies as appropriate. Specifically, this project aims to pursue three areas of development, testing and evaluation: (A) Renewable Energy to support feasibility evaluation, modeling and possible prototype testing of new energy sources for use at Naval installations with potential for widespread applicability to energy security and renewable energy requirements. Other renewable sources for evaluation, modeling and possible prototype testing may include energy storage (dead-ended fuel cell, zinc air battery, etc.), facility level concentrating solar power, next generation solar heat reflective film, plasma lighting for high wattage applications, micro-inverters for photo-voltaic storage, building level micro-grid, new generation waste heat capture, and other technologies; (B) It will support demonstration and validation of advanced electric grid management systems, known as "Smart Grid" and "Micro Grid" technology, for use at Naval installations to enable improved energy security; (C) Demonstration and Validation of Alternative Energy, Energy Efficiency, Sustainable Building Features, Alternative Fuel Vehicles, and Smart Energy Management Technology: This project will support the testing, demonstration, validation, and application of innovative facility energy efficiency and alternative energy technology.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Title: Directed Energy Research	6.683	1.519	1.957	0.000	1.957
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Performed component testing, prototype development and deployment for alternative energy, advanced lighting, facility cooling, and grid management technology at Naval installations as follows: - Continued evaluation of environmental impacts of ocean renewable energy generation systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Evaluated and tested Wave Energy Systems - Assess and document performance of multiple wave energy devices at the Wave Energy Test Site. - Evaluation, and planning for multiple energy storage technologies, Sea Water Air Conditioning system optimization, and other promising technologies. - Demonstration, testing, deployment, and evaluation of smart and micro grid energy management technology, and begin development of technical specifications. - Demonstration and validation of mature technologies to be transitioned such as advanced lighting, sustainable building technologies, solar PV collection technologies, alternative fuel vehicles, and improved energy storage systems at Naval installations. The FY15 plan includes: - Continued and expanded demonstration, testing, deployment, and evaluation of smart energy and micro-grid management technology. - Continued and expanded demonstration and validation of mature technologies to be transitioned such as alternative fuel vehicles, and improved energy storage systems and integration at Naval installations. - Initiated planning and development of prototypes for the next set of energy storage, grid management, renewable/alternative energy, and efficiency technologies. This included innovative technology development and site planning to prepare for FY16/17 testing and evaluation.					
FY 2016 Plans: FY16 will focus on completing or continuing projects initiated in FY14 and FY15. - Continue evaluation of environmental impacts of ocean renewable energy generation systems. - Continue evaluating and testing Wave Energy Systems. - Complete evaluation for ocean compressed air storage technologies and SWAC optimization. - Initiate demonstration, testing, and evaluation of improved and low cost smart and micro grid energy management technologies. - Demonstration and validation of mature low-cost technologies to be transitioned such as advanced lighting, sustainable building technologies, solar PV collection technologies, alternative fuel vehicles, and improved energy storage systems at Naval installations. The FY16 plan includes: - Continue demonstration, testing, deployment, and evaluation of smart energy and micro-grid management technology; and begin development of technical specifications.					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Continue demonstration and validation of mature technologies to be transitioned such as sustainable building technologies, alternative fuel vehicles, and improved energy storage systems and integration at Naval installations. - The FY16 plan will reduce the number of new technologies evaluated for alternative energy, grid management, efficiency and sustainable building technologies. In addition, the validation will delay development of procurement specifications impacting deployment of these technologies beyond 2020. ***FY 2017 Base Plans:*** FY17 will focus on completing or continuing projects initiated in FY15 and FY16. - Continue evaluating and testing Wave Energy Systems to include power generation, to grid integration and monitoring of environmental effects of these systems. - Continue demonstration, testing, and evaluation of improved and low cost smart and micro grid energy management technologies. -Initiate demonstration and validation of new energy storage, energy efficiency, and renewables technologies. -Defer demonstration of new alternative vehicle technologies and CYBER secure technologies to FY18. ***FY 2017 OCO Plans:*** N/A.					
Accomplishments/Planned Programs Subtotals	6.683	1.519	1.957	0.000	1.957

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Demonstration and validation are conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.

E. Performance Metrics

The program will be coordinated across DOD and with other agencies as appropriate to achieve 30% Energy Intensity Reduction by FY2015 and 25% Renewable Energy Increase by 2025.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Renewable Energy	Various	EXWC : Port Hueneme, CA	37.480	3.908	Mar 2015	0.640	Jan 2016	0.432	Oct 2016	-		0.432	Continuing	Continuing	Continuing
Smart Energy	Various	EXWC : Port Hueneme, CA	1.500	1.982	May 2015	0.640	Jan 2016	0.809	Oct 2016	-		0.809	Continuing	Continuing	Continuing
Demonstration/Validation	Various	EXWC : Port Hueneme, CA	3.070	0.793	Jun 2015	0.239	Jan 2016	0.716	Oct 2016	-		0.716	Continuing	Continuing	Continuing
		Subtotal	42.050	6.683		1.519		1.957		-		1.957	-	-	-

Remarks

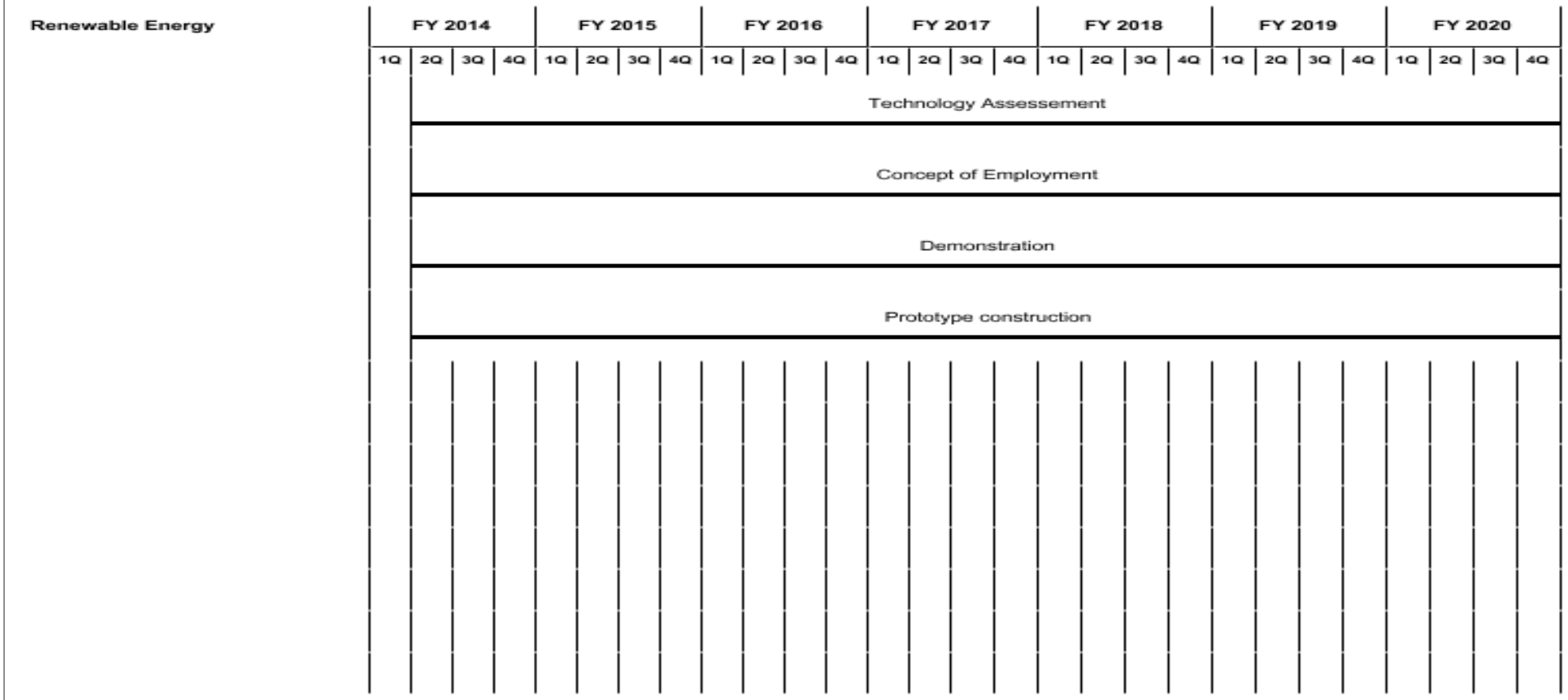
In FY17 the Directed Energy Program will be limited to assessing technologies for renewable energy, energy efficiency and energy reduction.

This technology assessment continues throughout the program life. As these technologies are assessed, they will be incorporated individually into the shore installation by a variety of acquisition strategies including Energy Savings Performance Contract vehicles, Purchase Power Agreements, and globally by changes to design and construction criteria. These, too, will continue throughout the program life. For Smart Energy, and select other technologies, there will be a requirement for component testing and validation. The wave energy systems will include operation and demonstration throughout the FYDP, resulting in development of test and evaluation results and lessons learned. This will be followed by criteria development to transition the technical aspects required to acquire a full scale system targeted to support one of several Naval Bases throughout the testing and evaluation period, deliverables will be required at the end of each Fiscal Year for component test results, validated components, and pilot prototype design and testing.

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.050	6.683		1.519		1.957		-		1.957	-	-	-

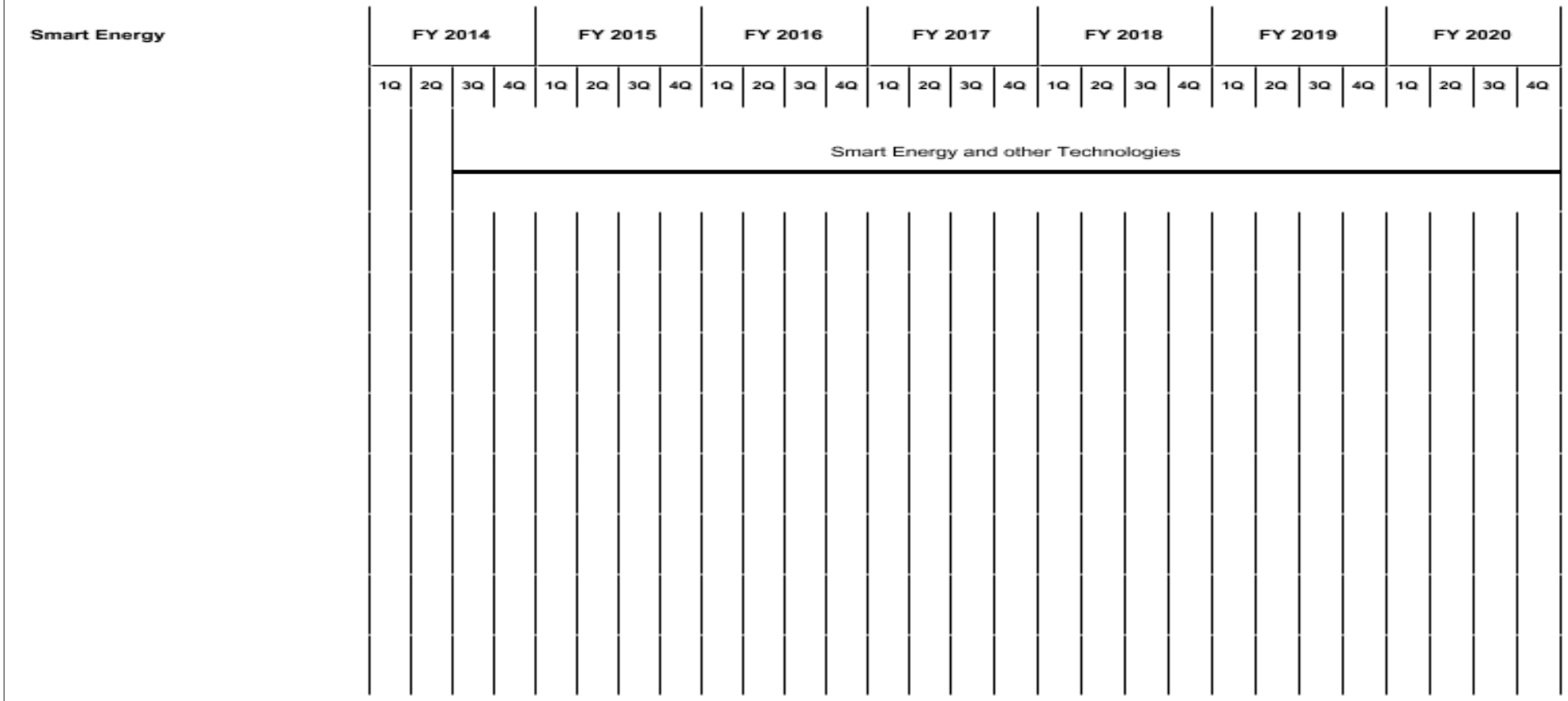
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*



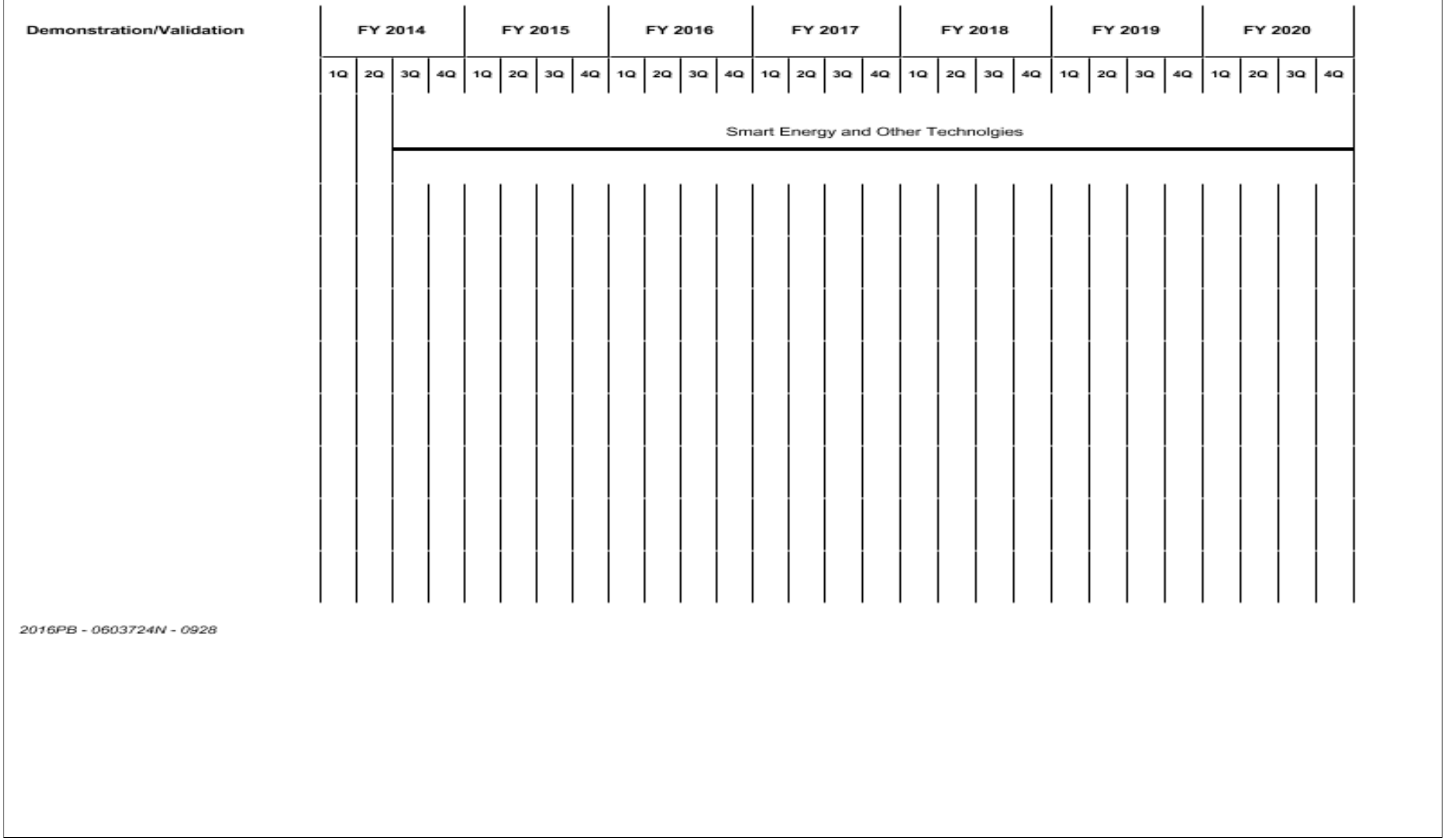
2016PB - 0603724N - 0928

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*



2016PB - 0603724N - 0928

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*



2016PB - 0603724N - 0928

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Directed Energy Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Renewable Energy				
Technology Assessement	1	2015	4	2021
Concept of Employment	1	2015	4	2021
Prototype Construction	1	2015	4	2021
Demonstration	1	2015	4	2021
Smart Energy				
Technology Evaluation (Includes micogrid and CYBER)	1	2015	4	2021
Demonstration/Validation				
Smart Energy and Other Technologies	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0996 / *Aircraft Energy Conservation*	

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
0996: *Aircraft Energy Conservation*	66.757	29.066	22.355	27.875	-	27.875	25.447	24.667	24.917	25.424	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aircraft Energy Conservation (AIR-ENCON) program is designed to develop and implement energy and maintenance saving improvements into existing fleet assets. The program identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the program is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Aircraft Energy Conservation	29.066	22.355	27.875	0.000	27.875
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Complete F135 compressor rig test and conduct Critical Design Review in support of F135 engine fuel burn reduction demonstration. Continue to identify, validate, and institutionalize energy conservation/efficiency concepts into the fleet. Continue validation of aircraft subsystem technologies and advance mission planning and navigation technologies for incorporation into legacy and emerging platforms.					
FY 2016 Plans: Conduct F135 fuel burn reduction engine demonstration. Continue identification, validation, and implementation of energy conservation/efficiency concepts into the fleet. Conduct validation of energy efficiency aircraft subsystem technologies and advanced planning and mission/navigation technologies.					
FY 2017 Base Plans: Complete analysis of F135 fuel burn reduction engine demonstration. Continue identification, validation, and implementation of energy conservation/efficiency concepts into the fleet. Down-select the most promising concepts and award contract in Jan 2017. Some of the concepts under evaluation include efficiency initiations with respect to F/A-18 E/F: conformal tanks, engines; C2/P-3/C-130: engines, advanced mission planning; MH-60 engines, main rotor blades; MV-22: engine. Conduct validation of energy efficiency aircraft subsystem technologies and advanced planning and mission/navigation technologies.					
FY 2017 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	29.066	22.355	27.875	0.000	27.875

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of fleet fuel and maintenance savings.

E. Performance Metrics

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft demonstration testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0996 / *Aircraft Energy Conservation*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River, MD	2.749	1.100	Nov 2014	1.040	Dec 2015	2.500	Nov 2016	-		2.500	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Lockheed Martin : Fort Worth, TX	0.505	0.179	Apr 2015	0.000		2.900	Feb 2017	-		2.900	0.000	3.584	3.584
Systems Engineering	C/FFP	The Boeing Co. : St. Louis, MO	0.000	0.400	Apr 2015	0.000		0.000		-		0.000	0.000	0.400	0.400
Systems Engineering	C/CPFF	TBD : TBD	0.064	0.000		0.375	Mar 2016	0.000		-		0.000	0.000	0.439	0.439
Systems Engineering	C/CPFF	The Boeing Company : Seattle, WA	0.000	0.000		0.000		3.000	Jan 2017	-		3.000	0.000	3.000	3.000
Systems Engineering	C/CPFF	Various : Various	0.000	0.000		0.000		13.754	Jan 2017	-		13.754	0.000	13.754	13.754
Prior year Sys Eng no longer funded in the FYDP	Various	Various : Various	2.464	0.000		0.000		0.000		-		0.000	0.000	2.464	2.464
		Subtotal	5.782	1.679		1.415		22.154		-		22.154	-	-	-

Remarks

FY15 Systems Engineering to Lockheed Martin reduced from PB16 submit due to need for more Hardware Testing at Pratt Whitney Associates (PWA).

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	PWA : Hartford, CT	54.505	24.093	Feb 2015	15.116	Nov 2015	4.500	Oct 2016	-		4.500	0.000	98.214	98.214
Hardware Testing	WR	NAWCAD : Patuxent River, MD	1.207	0.600	Dec 2014	0.600	Dec 2015	0.900	Nov 2016	-		0.900	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Lockheed : Fort Worth, TX	1.300	1.834	Oct 2014	4.554	May 2016	0.000		-		0.000	0.000	7.688	7.688
Prior year T&E no longer funded in the FYDP	Various	Various : Various	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	0.100
		Subtotal	57.112	26.527		20.270		5.400		-		5.400	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0996 / *Aircraft Energy Conservation*

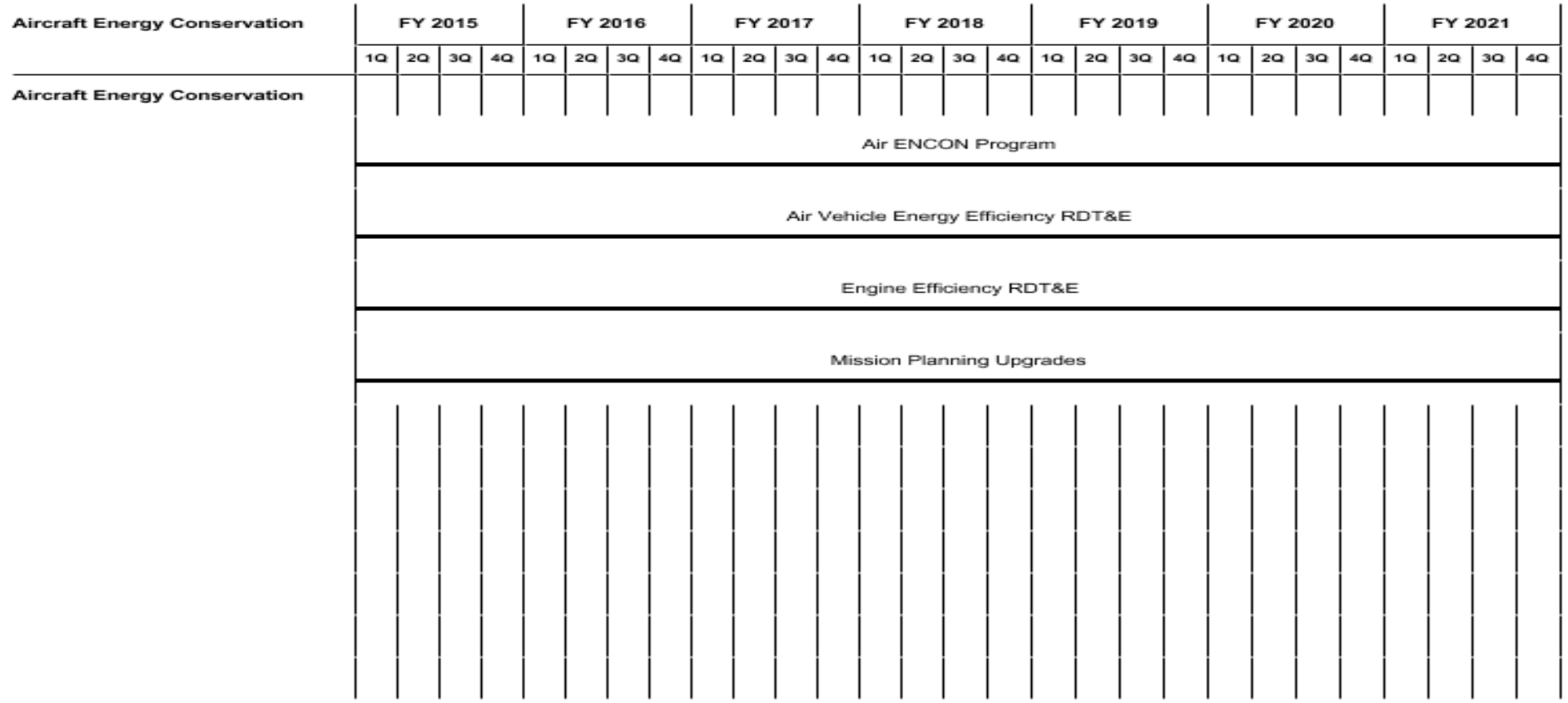
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.861	0.234	Dec 2014	0.386	Nov 2015	0.321	Nov 2016	-		0.321	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Deloitte Consulting : Alexandria, VA	0.915	0.616	Feb 2015	0.284	Nov 2015	0.000		-		0.000	0.000	1.815	1.815
Program Management Support	WR	NAWCWD : China Lake, CA	0.000	0.010	Mar 2015	0.000		0.000		-		0.000	0.000	0.010	-
Prog Mgnt no longer funded in the FYDP	Various	Various : Various	2.087	0.000		0.000		0.000		-		0.000	0.000	2.087	2.087
		Subtotal	3.863	0.860		0.670		0.321		-		0.321	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	66.757	29.066		22.355		27.875		-		27.875	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*



2017DON - 0603724N - 0996

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Aircraft Energy Conservation				
Aircraft Energy Conservation: Air ENCON Program	1	2015	4	2021
Aircraft Energy Conservation: Air Vehicle Energy Efficiency RDT&E	1	2015	4	2021
Aircraft Energy Conservation: Engine Efficiency RDT&E	1	2015	4	2021
Aircraft Energy Conservation: Mission Planning Upgrades	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 9999 / *Congressional Adds*	

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
9999: *Congressional Adds*	0.000	0.000	12.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Add for Hydrokinetic Energy Research

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016
Congressional Add: Navy Energy Increase	0.000	12.500
FY 2015 Accomplishments: N/A		
FY 2016 Plans: N/A		
Congressional Adds Subtotals	0.000	12.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RDTEN Contracts are Competitive Procurements

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hydrokinetic Energy Research & Development	Various	EXWC : Port Hueneme, CA	0.000	0.000		12.500	Sep 2016	0.000		-		0.000	0.000	12.500	-
		Subtotal	0.000	0.000		12.500		0.000		-		0.000	0.000	12.500	-

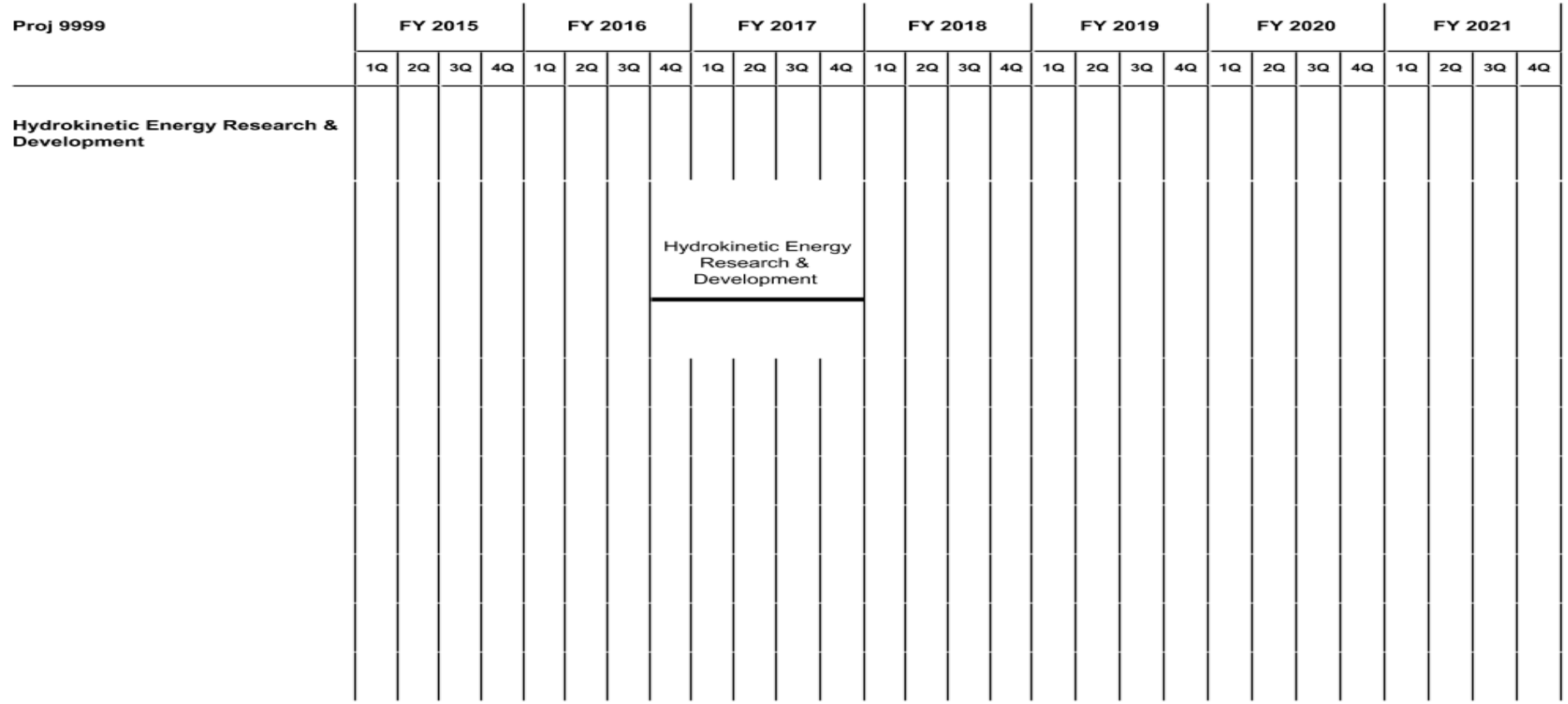
Remarks

Congressional Add Funds Received 2nd Quarter of 2016

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		12.500		0.000		-		0.000	0.000	12.500	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 9999 / *Congressional Adds*



2017PB - 0603724N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Hydrokinetic Energy Research & Development: Hydrokinetic Energy Research & Development	4	2016	4	2017

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