Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	325.796	69.500	25.623	25.656	-	25.656	26.452	26.991	27.513	28.094	Continuing	Continuing
0829: *ENERGY CONSERVATION (ADV)*	67.683	9.597	5.471	5.489	-	5.489	5.643	5.761	5.876	6.000	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	79.053	12.774	7.928	7.921	-	7.921	8.194	8.363	8.516	8.707	Continuing	Continuing
0928: *Shore Energy Technology*	50.252	1.957	1.800	1.704	-	1.704	1.859	1.898	1.936	1.976	Continuing	Continuing
0996: *Aircraft Energy Conservation*	116.739	25.829	10.424	10.542	-	10.542	10.756	10.969	11.185	11.411	Continuing	Continuing
9999: *Congressional Adds*	12.069	19.343	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	31.412

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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	27.479	50.623	51.385	-	51.385
Current President's Budget	69.500	25.623	25.656	-	25.656
Total Adjustments	42.021	-25.000	-25.729	-	-25.729
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.379	0.000			
• Program Adjustments	25.000	-25.000	-25.200	-	-25.200
• Rate/Misc Adjustments	0.000	0.000	-0.529	-	-0.529

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy					Date: February 2018
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 Directed Reductions	-1.600	-	-	-	-
Adjustments					
• Congressional Add Adjustments	20.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 9999: *Congressional Adds*		
Congressional Add: *Installation Energy Efficiency Enhancements*	4.836	0.000
Congressional Add: *Program Increase: Renewable Energy Development*	14.507	0.000
Congressional Add Subtotals for Project: 9999	19.343	0.000
Congressional Add Totals for all Projects	19.343	0.000

Change Summary Explanation

Schedule:

0838 - Fuel Quality/Develop Operational and Laboratory Techniques was added from 1Q FY18 through 4Q FY22 to improve/reduce cost of Naval tactical fuel quality analysis.

Technical: Not applicable.

The funding decreases in FY 2018 and FY 2019 reflect a shift in Department of the Navy (DoN) priorities and an urgent requirement to address emergent, critical unfunded requirements in FY 2018. The decrease aligns Energy program funding to the previous amounts executed prior to FY 2011.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
0829: *ENERGY CONSERVATION (ADV)*	67.683	9.597	5.471	5.489	-	5.489	5.643	5.761	5.876	6.000	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 and increase operational capability (i.e., increase time on station). 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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Title: Hull Hydrodynamic Sub Project	2.270	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers and/or hull appendages to determine overall mission and cost effectiveness of these improvements. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Title: Heating , Ventilation and Air Conditioning (HVAC) Sub Project	0.153	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
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 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Title: Propulsion Systems Sub Project	0.723	0.000	0.000	0.000	0.000
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 2018 Plans:*** N/A ***FY 2019 Base Plans:*** . ***FY 2019 OCO Plans:*** N/A					
Title: Thermal Management Sub Project	0.320	0.000	0.413	0.000	0.413
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 as well as incorporating waste heat recovery techniques to reduce the shipboard electrical demand on HVAC and other systems. ***FY 2018 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2019 Base Plans:*** Continue exploration of waste heat technologies and methods for shipboard application. Provide report of findings with recommendations. Continue to identify additional energy saving/capability improvement 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 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase supports investigating new waste heat technologies for in-service and future combatants.					
Title: Power Generation and Storage Sub Project ***Articles:*** ***Description:*** Power Generation & Storage System Sub Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall effectiveness of technologies focused on improving efficiency of current power generation & storage methodologies. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A	0.200 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Electrical Systems Sub Project ***Articles:*** ***Description:*** (U) 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. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:***	0.412 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2019 OCO Plans:*** N/A					
Title: Energy Monitoring & Assessment	5.519	5.471	5.076	0.000	5.076
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 2018 Plans:*** Provide engineering, technical and programmatic support of energy initiatives that put in place shore and shipboard monitoring and assessment tools aimed at optimizing ships' energy profiles and increasing operational capabilities. Continue Global Energy Information System (GENISYS) development efforts, hosting and shipboard evaluation of Fleet Energy Conversation Dashboard (FECD), Vessel Utilization Tool (VFUT), Shipboard energy Assessment System (SEAS), and eLogBooks to support future fleet-wide implementation including integration of enterprise Remote Monitoring (eRM) capabilities to support future fleet-wide implementation. Based on successful evaluation of TRITON prototype installation complete qualification testing of equipment for fleet wide implementation. ***FY 2019 Base Plans:*** Provide engineering, technical and programmatic support of energy initiatives that put in place shore and shipboard monitoring and assessment tools aimed at optimizing ships' energy profiles and increasing operational capabilities. Continue GENISYS development efforts and shipboard evaluation including integration of GENISYS with enterprise Remote Monitoring (eRM) capabilities to support future fleet-wide implementation. Continue to identify additional energy saving/capability improvement technologies and monitoring methodologies and prepare proposals and business case analyses for promising technologies with potential to reduce fossil fuel. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	9.597	5.471	5.489	0.000	5.489

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

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 2019 Navy		Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	NAVSEA HQ : Washington, DC	0.000	0.000		1.110	Jan 2018	0.000		-		0.000	0.000	1.110	-
Systems Engineering	WR	NSWC DD : Dahlgren, MD	0.000	0.100	Nov 2016	0.000		0.000		-		0.000	0.000	0.100	-
Systems Engineering	WR	NSWC PHila : Philadelphia, PA	0.821	0.834	Nov 2016	0.175	Nov 2017	0.328	Nov 2018	-		0.328	0.000	2.158	-
Primary Hardware Development	WR	NSWC Carderock : Bethesda, MD	8.983	0.000		0.000		0.000		-		0.000	0.000	8.983	-
Systems Engineering	WR	NSWC PHD : Port Hueneme, CA	0.000	0.100	Nov 2016	0.000		0.000		-		0.000	0.000	0.100	-
Systems Engineering	C/CPAF	NSWC Carderock : Bethesda, MD	6.635	0.000		0.000		0.000		-		0.000	0.000	6.635	-
Engineering Development	WR	NSWC Carderock : Bethesda, MD	7.848	0.521	Nov 2016	0.000		0.000		-		0.000	0.000	8.369	-
Demonstration & Evaluation	WR	NSWC Carderock : Bethesda, MD	8.149	0.000		0.000		0.000		-		0.000	0.000	8.149	-
System Development	C/BOA	NAWC-AD : Lakehurst, NJ	0.000	1.300	Jan 2017	1.286	Jan 2018	2.169	Jan 2019	-		2.169	0.000	4.755	-
Primary Hardware Development	C/CPAF	NSWC PHila : Philadelphia, PA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	32.436	2.855		2.571		2.497		-		2.497	0.000	40.359	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock : Bethesda, MD	2.843	0.000		0.000	Jan 2018	0.344	Nov 2018	-		0.344	Continuing	Continuing	Continuing
Software Support	WR	NSWC Carderock : Bethesda, MD	0.522	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC Carderock : Bethesda, MD	1.200	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Study Anaylsis	WR	NSWC Carderock : Bethesda, MD	1.174	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Development Support	C/CPAF	NSWC SSES : Philadelphia, PA	0.878	0.000		0.000		0.100	Jan 2019	-		0.100	0.000	0.978	-
Development Support	C/CPFF	NAVSEA HQ : Washington, DC	0.100	0.149	Oct 2017	0.601	Feb 2018	0.479	Jan 2019	-		0.479	0.000	1.329	-
Software Support	C/CPAF	NSWC SSES : Philadelphia, PA	0.281	0.000		0.000		0.000		-		0.000	0.000	0.281	-
Software Support	C/CPAF	NAVSEA HQ : Washington, DC	1.200	0.000		0.000		0.000		-		0.000	0.000	1.200	-
Development Support	WR	NSWC PHila : Philadelphia, PA	0.000	2.146	Nov 2016	0.125	Dec 2017	0.494	Nov 2018	-		0.494	0.000	2.765	-
Development Support	C/CPAF	SUPSHIP : Bath, MA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	8.198	2.295		0.726		1.417		-		1.417	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock : Bethesda, MD	9.961	0.000		0.000		0.085	Dec 2018	-		0.085	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NSWC Carderock : Bethesda, MD	8.375	2.270	Nov 2016	0.000		0.000		-		0.000	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 Philadelphia : Philadelphia, PA	0.383	0.000		0.000		0.000		-		0.000	0.000	0.383	-
Developmental Test & Evaluation	WR	NSWC SSES : Philadelphia, PA	0.000	0.549	Nov 2016	0.369	Feb 2018	0.000		-		0.000	0.000	0.918	-
Developmental Test & Evaluation	WR	APL : Washington, DC	0.000	0.000		0.000		0.085	Jan 2019	-		0.085	0.000	0.085	-
		Subtotal	19.101	2.819		0.369		0.170		-		0.170	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NSWC Philadelphia : Philadelphia, PA	6.180	0.500	Nov 2016	0.622	Nov 2017	0.000		-		0.000	0.000	7.302	-
Travel	Allot	NAVSEA HQ : Washington, DC	0.176	0.013	Nov 2016	0.013	Dec 2017	0.007	Dec 2018	-		0.007	0.000	0.209	-
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/CPFF	NAVSEA HQ : Washington, DC	0.890	0.790	Jan 2017	0.813	Jan 2018	1.378	Jan 2019	-		1.378	0.000	3.871	-
Program Management Support	WR	NSWC Carderock : Bethesda, MD	0.350	0.325	Nov 2016	0.357	Nov 2017	0.020	Mar 2019	-		0.020	0.000	1.052	-
		Subtotal	7.948	1.628		1.805		1.405		-		1.405	0.000	12.786	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	67.683	9.597		5.471		5.489		-		5.489	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

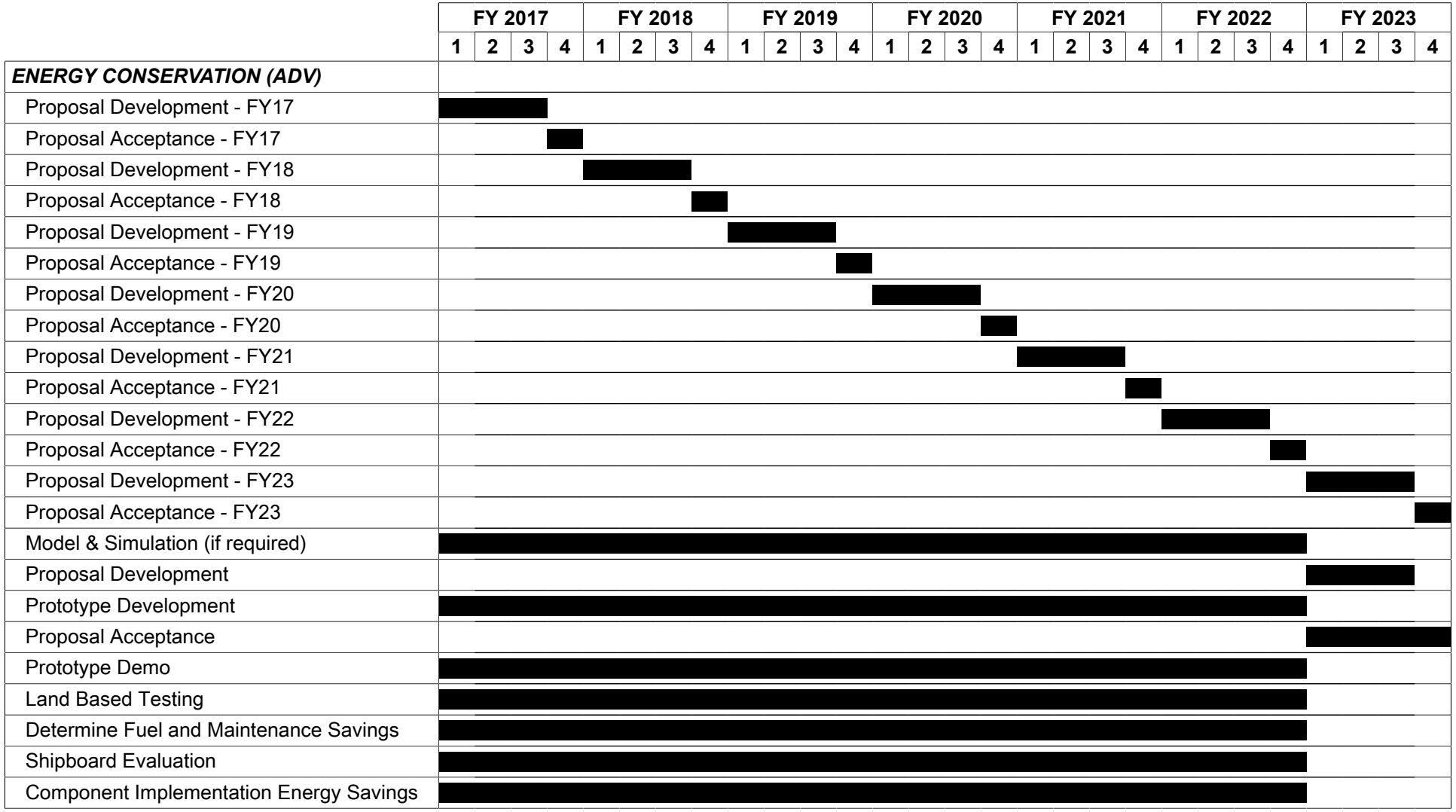


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ENERGY CONSERVATION (ADV)				
Proposal Development - FY17	1	2017	3	2017
Proposal Acceptance - FY17	4	2017	4	2017
Proposal Development - FY18	1	2018	3	2018
Proposal Acceptance - FY18	4	2018	4	2018
Proposal Development - FY19	1	2019	3	2019
Proposal Acceptance - FY19	4	2019	4	2019
Proposal Development - FY20	1	2020	3	2020
Proposal Acceptance - FY20	4	2020	4	2020
Proposal Development - FY21	1	2021	3	2021
Proposal Acceptance - FY21	4	2021	4	2021
Proposal Development - FY22	1	2022	3	2022
Proposal Acceptance - FY22	4	2022	4	2022
Proposal Development - FY23	1	2023	3	2023
Proposal Acceptance - FY23	4	2023	4	2023
Model & Simulation (if required)	1	2017	4	2022
Proposal Development	1	2023	3	2023
Prototype Development	1	2017	4	2022
Proposal Acceptance	1	2023	4	2023
Prototype Demo	1	2017	4	2022
Land Based Testing	1	2017	4	2022
Determine Fuel and Maintenance Savings	1	2017	4	2022
Shipboard Evaluation	1	2017	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0829 / *ENERGY CONSERVATION (ADV)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Component Implementation Energy Savings	1	2017	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0838: *Mobility Fuels (ADV)*	79.053	12.774	7.928	7.921	-	7.921	8.194	8.363	8.516	8.707	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) assure interoperability with fuel procured from commercial specifications, (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 fuels or emerging CONOPS requiring the use of non-traditional fuels,(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 and (f) facilitate rapid identification and resolution of field identified fuel deficiencies. 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Naval Tactical Fuels	12.774	7.928	7.921	0.000	7.921
Articles:	-	-	-	-	-
Description: Perform development, test and evaluation work on Naval tactical fuels to: a) assure interoperability with commercial fuel specifications, 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 non-primary fuels , d) validate periodic changes to the Navy tactical fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry and e) improve fleet methods to ensure fuel quality.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Conduct testing to assure interoperability with commercial fuel specifications. Conduct research, development, test, and evaluation to mitigate field-identified aviation and ship propulsion fuel deficiencies. Conduct research, development, test, and evaluation to improve/reduce cost of Naval tactical fuel quality surveillance and analysis. ***FY 2019 Base Plans:*** Conduct rig and component tests to assure interoperability with changing worldwide commercial aviation fuel specifications. Continue development of analytical tools to facilite rapid mitigation of field-identified aviation and ship propulsion fuel deficiencies. Continue development data analytic techniques to rapidly evaluate fuel chemical composition, performance and field databases. Field trial advance fuel quality surveillance tools . ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	12.774	7.928	7.921	0.000	7.921

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Testing efforts will be competitively contracted, and performed under Cost Plus Fixed Fee and Firm Fixed Price contracts.

E. Performance Metrics

Program will assess changes and develop data, test methods and hardware performance analysis for all Naval aircraft and ships. Program will evaluate fuel chemistry and properties and develop technologies to identify and assess impact of differences.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL : Washington, D.C.	4.202	0.850	Nov 2016	1.100	Dec 2017	0.800	Dec 2018	-		0.800	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	14.418	2.400	Nov 2016	2.297	Dec 2017	2.046	Dec 2018	-		2.046	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Philadelphia, PA	3.508	0.270	Jan 2017	0.150	Jan 2018	0.500	Jan 2019	-		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Bethesda, MD	0.312	0.000		0.050	Feb 2018	0.100	Mar 2019	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	Various : Various	0.000	0.960	Mar 2017	1.269	Mar 2018	0.652	Apr 2019	-		0.652	0.000	2.881	2.881
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	-
		Subtotal	22.601	4.480		4.866		4.098		-		4.098	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Fuel	C/FFP	Various : Various	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	2.000
Test Fuel	C/FFP	Applied Research Associates : Albuquerque, NM	3.858	0.000		0.000		0.000		-		0.000	0.000	3.858	3.858
Hardware Testing	WR	NAWCAD : Patuxent River, MD	4.349	0.100	Nov 2016	0.200	Dec 2017	0.200	Dec 2018	-		0.200	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Life Cycle Engineering : Charleston, SC	10.030	2.950	Apr 2017	2.000	Dec 2017	1.943	Apr 2019	-		1.943	0.000	16.923	16.923
Hardware Testing	SS/CPFF	Rolls Royce : Indianapolis, IN	2.912	0.000		0.000		0.000		-		0.000	0.000	2.912	2.912
Hardware Testing	C/CPFF	Univ of Dayton Research Inst : Dayton, OH	0.689	0.200	Apr 2017	0.000		0.400	Feb 2019	-		0.400	0.000	1.289	1.289
Hardware Testing	WR	US Naval Academy : Annapolis, MD	0.098	0.000		0.050	May 2018	0.050	Apr 2019	-		0.050	0.000	0.198	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	General Electric : Lynn, MA	1.237	0.000		0.000		0.000		-		0.000	0.000	1.237	1.237
Hardware Testing	WR	NSWC : Philadelphia, PA	0.080	0.000		0.000		0.000		-		0.000	0.000	0.080	-
Hardware Testing	C/FFP	Various : Various	1.509	4.674	Sep 2017	0.500	Jan 2018	0.920	Feb 2019	-		0.920	0.000	7.603	7.603
Hardware Testing	WR	NSWC : Port Hueneme, CA	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
Hardware Testing	C/CPFF	DL Mgmt Services JT Venture : Plainfield, IL	0.004	0.000		0.000		0.000		-		0.000	0.000	0.004	0.004
Fuel Delivery	MIPR	DLA-Energy : Ft. Belvoir, VA	0.497	0.150	Dec 2016	0.000		0.000		-		0.000	0.000	0.647	-
Fuel Blend Testing	WR	Naval Medical Research Unit : Dayton, OH	0.042	0.000		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	-
		Subtotal	48.717	8.074		2.750		3.513		-		3.513	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	1.088	0.203	May 2017	0.300	Dec 2017	0.300	Dec 2018	-		0.300	Continuing	Continuing	Continuing
Program Management Support	WR	NAVSUP : San Diego, CA	0.022	0.005	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Coord Research Council : Alpharetta, GA	0.040	0.010	Dec 2017	0.010	Nov 2017	0.010	Nov 2018	-		0.010	0.000	0.070	0.070
Program Management Support	WR	NAVSEA : Washington, DC	0.002	0.002	Apr 2017	0.002	Nov 2017	0.000		-		0.000	0.000	0.006	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0838 / *Mobility Fuels (ADV)*	

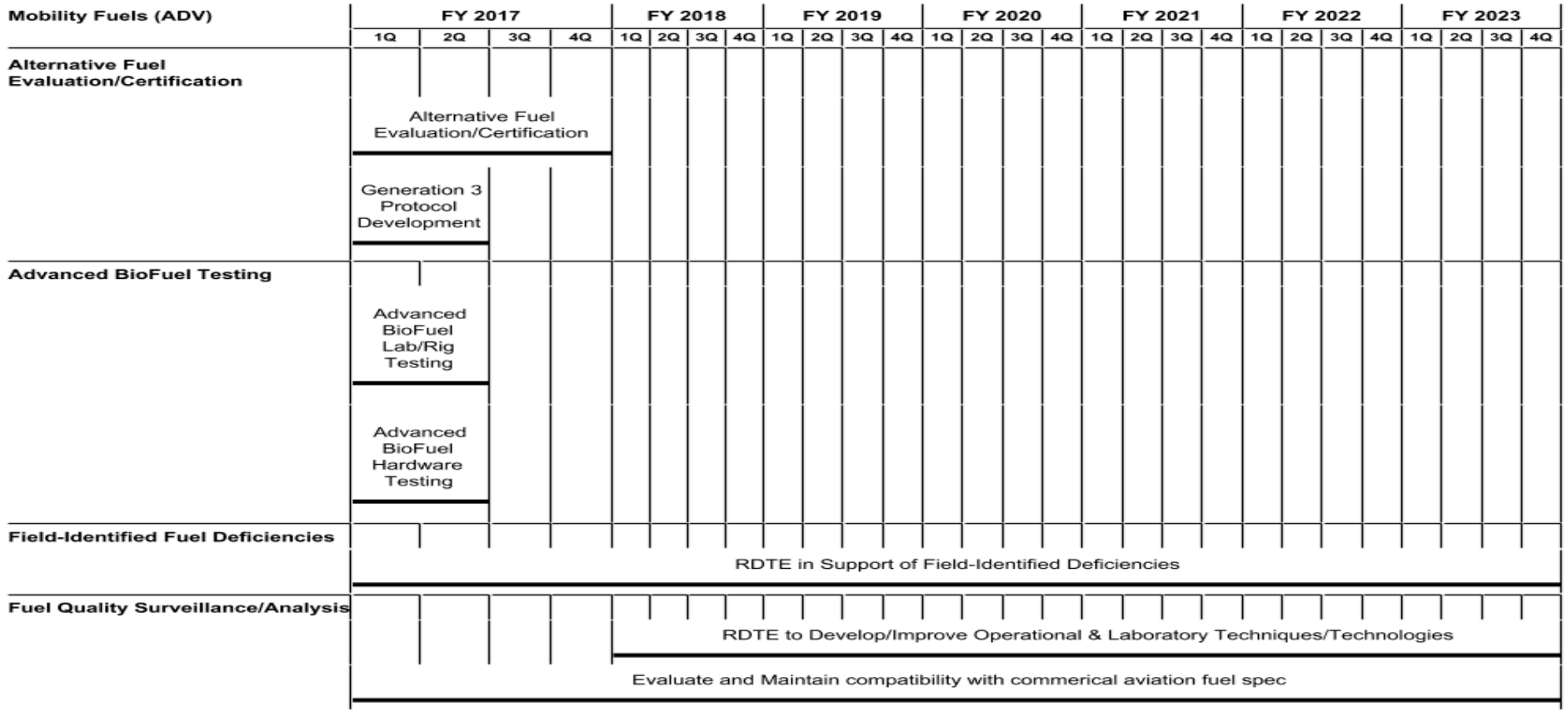
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	-
		Subtotal	7.735	0.220		0.312		0.310		-		0.310	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.053	12.774		7.928		7.921		-		7.921	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0838 / *Mobility Fuels (ADV)*



2019DON - 0603724N - 0838

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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	2017	4	2017
Alternative Fuel Evaluation/Certification: Generation 3 Protocol Development	1	2017	2	2017
Advanced BioFuel Testing: Advanced BioFuel Lab/Rig Testing	1	2017	2	2017
Advanced BioFuel Testing: Advanced BioFuel Hardware Testing	1	2017	2	2017
Field-Identified Fuel Deficiencies: RDTE in Support of Field-Identified Fuel Deficiencies	1	2017	4	2023
Fuel Quality Surveillance/Analysis: RDTE to Develop/Improve Operational & Laboratory Techniques/Technologies	1	2018	4	2023
Fuel Quality Surveillance/Analysis: Evaluate and Maintain compatibility with commerical aviation fuel spec	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0928 / *Shore Energy Technology*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0928: *Shore Energy Technology*	50.252	1.957	1.800	1.704	-	1.704	1.859	1.898	1.936	1.976	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 energy resiliency through efficiency, reliability, and alternative energy sources. This guidance includes 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.

This Energy RDT&E Project will test, evaluate, and validate components as well as demonstrate cost-effective and technical viability of energy security and efficiency, and technologies. 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) Modeling and possible prototype testing of new energy sources for use at Naval installations with potential for widespread applicability to energy security; (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, 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Shore Energy Technology	1.957	1.800	1.704	0.000	1.704
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue demonstration, testing, and evaluation of improved and low cost smart and micro grid energy management technologies. - Complete microgrid test bed. Install microgrid components and control system. Commission system. - Continue demonstration of energy security cyber secure technologies. - Test, validate and demonstration wireless lighting control system in closed environment in order to gain certification for widespread implementation. - Demonstrate energy efficient Containerized Living Units (CLU). Test CLU in operational environment in order to implement energy efficient living quarters for forward environments. - Complete diesel uninterruptable power supply flywheel study to determine applicability and viability of technology for energy resilient microgrid systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Shore Energy Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Installation, demonstration and validating of energy efficient wastewater treatment on mobile and stationary facilities to save energy and water. -Demonstration and validation of cyber security technologies for energy controls systems in a controlled test environment to enable a cybersecure environment. ***FY 2019 Base Plans:*** - Continue demonstration, testing, and evaluation of improved and low cost smart and microgrid energy management technologies to enable energy security. - Continue demonstration of cyber secure technologies utilizing cyber testbed. - Test, validate and demonstrate wireless controls. Obtain Risk Management Framework certification, install, and test in operational environment. - Installation and demonstration of energy efficient wastewater treatment of both mobile and stationary facilities to save energy and water. Test systems in operational environment. - Demonstration and validation of cyber security technologies for energy controls systems in an operational environment to enable a cyber secure environment. - Initiate new projects in energy resiliency including cyber security of energy controls systems. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant changes in from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	1.957	1.800	1.704	0.000	1.704

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0928 / *Shore Energy Technology*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Renewable Energy	Various	EXWC : Port Hueneme, CA	42.028	0.232	Oct 2016	0.000	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Energy Efficiency, Security and Systems (Includes cybersecurity)	Various	EXWC : Port Hueneme, CA	4.122	0.505	Oct 2016	1.800	Oct 2017	1.704	Oct 2018	-		1.704	Continuing	Continuing	Continuing
Energy Storage	Various	EXWC : Port Hueneme, CA	4.102	1.220	Oct 2016	0.000	Dec 2017	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	50.252	1.957		1.800		1.704		-		1.704	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	50.252	1.957		1.800		1.704		-		1.704	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Shore Energy Technology*

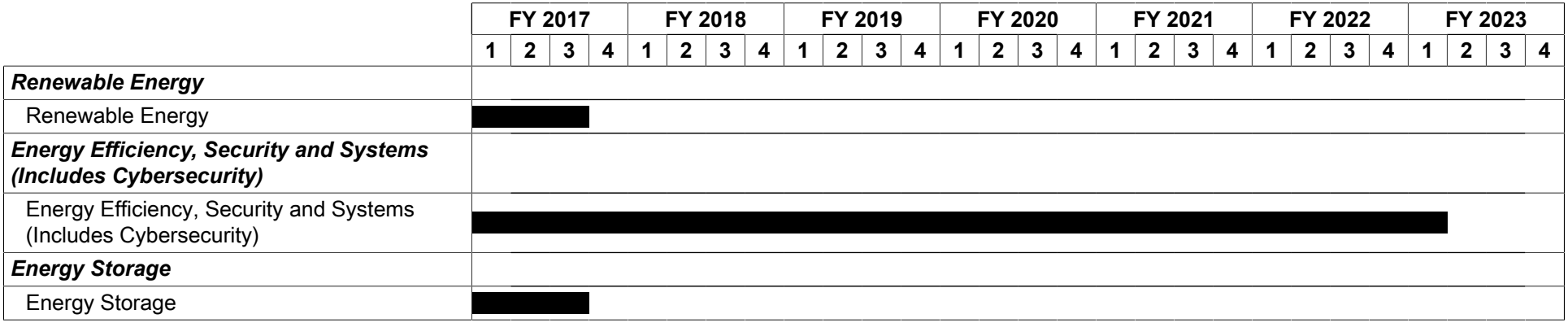


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0928 / *Shore Energy Technology*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Renewable Energy				
Renewable Energy	1	2017	3	2017
Energy Efficiency, Security and Systems (Includes Cybersecurity)				
Energy Efficiency, Security and Systems (Includes Cybersecurity)	1	2017	1	2023
Energy Storage				
Energy Storage	1	2017	3	2017

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0996: *Aircraft Energy Conservation*	116.739	25.829	10.424	10.542	-	10.542	10.756	10.969	11.185	11.411	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 to enable significant improvement in mission capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Aircraft Energy Conservation	25.829	10.424	10.542	0.000	10.542
Articles:	-	-	-	-	-
FY 2018 Plans: Continue identification, validation, and implementation of energy conservation/efficiency concepts. Identify, develop and validate of fleet best practices, metrics and energy dashboards. Continue validation of an advanced algorithm to optimize the trim/reduce the drag of the F-18 during flight. Continue evaluation of engine technology to improve efficiency of the MQ-8C and F-18.					
FY 2019 Base Plans: Continue identification, validation and implementation of energy conservation/efficiency concepts, best practices and metrics. Field aviation energy fleet dashboard. Initiate fielding of algorithm to optimize trim/reduce drag of F-18 during flight. Continue evaluation of engine technology to improve efficiency of MQ-8C and F-18.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The $118K increase will accelerate completion of engine efficiency technology study.					
Accomplishments/Planned Programs Subtotals	25.829	10.424	10.542	0.000	10.542

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of increased missioned capability and fleet fuel 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 2019 Navy			Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River, MD	4.690	0.955	Nov 2016	1.724	Nov 2017	1.917	Dec 2018	-		1.917	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Lockheed Martin : Fort Worth, TX	0.684	0.000		0.000		0.000		-		0.000	0.000	0.684	0.684
Systems Engineering	C/FFP	The Boeing Co. : St. Louis, MO	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	0.400
Systems Engineering	C/CPFF	TBD : TBD	0.064	0.000		0.000		0.000		-		0.000	0.000	0.064	0.064
Systems Engineering	C/CPFF	The Boeing Company : Seattle, WA	0.000	1.150	Jan 2017	0.000		0.600	Jan 2019	-		0.600	0.000	1.750	1.750
Systems Engineering	C/CPFF	Various : Various	0.000	3.669	Jan 2017	7.150	Mar 2018	5.425	Mar 2019	-		5.425	0.000	16.244	16.244
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	-
Systems Engineering	C/BA	Deloitte Consulting : Alexandria, VA	0.000	0.700	Jul 2017	0.900	Jan 2018	1.200	Apr 2019	-		1.200	0.000	2.800	2.800
		Subtotal	8.302	6.474		9.774		9.142		-		9.142	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	PWA : Hartford, CT	95.711	4.140	Oct 2016	0.000		0.000		-		0.000	0.000	99.851	99.851
Hardware Testing	WR	NAWCAD : Patuxent River, MD	2.185	2.400	Nov 2016	0.300	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Testing	C/CPFF	Lockheed : Fort Worth, TX	3.134	12.540	Sep 2017	0.000		0.000		-		0.000	0.000	15.674	15.674
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	-
Test and Evaluation	C/CPFF	The Boeing Company : Seattle, WA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	1.500
Hadware Testing	C/CPFF	Various : Various	0.000	0.000		0.000		1.000	Mar 2019	-		1.000	0.000	1.000	1.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603724N / *Navy Energy Program*	Project (Number/Name) 0996 / *Aircraft Energy Conservation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	102.630	19.080		0.300		1.000		-		1.000	Continuing	Continuing	N/A

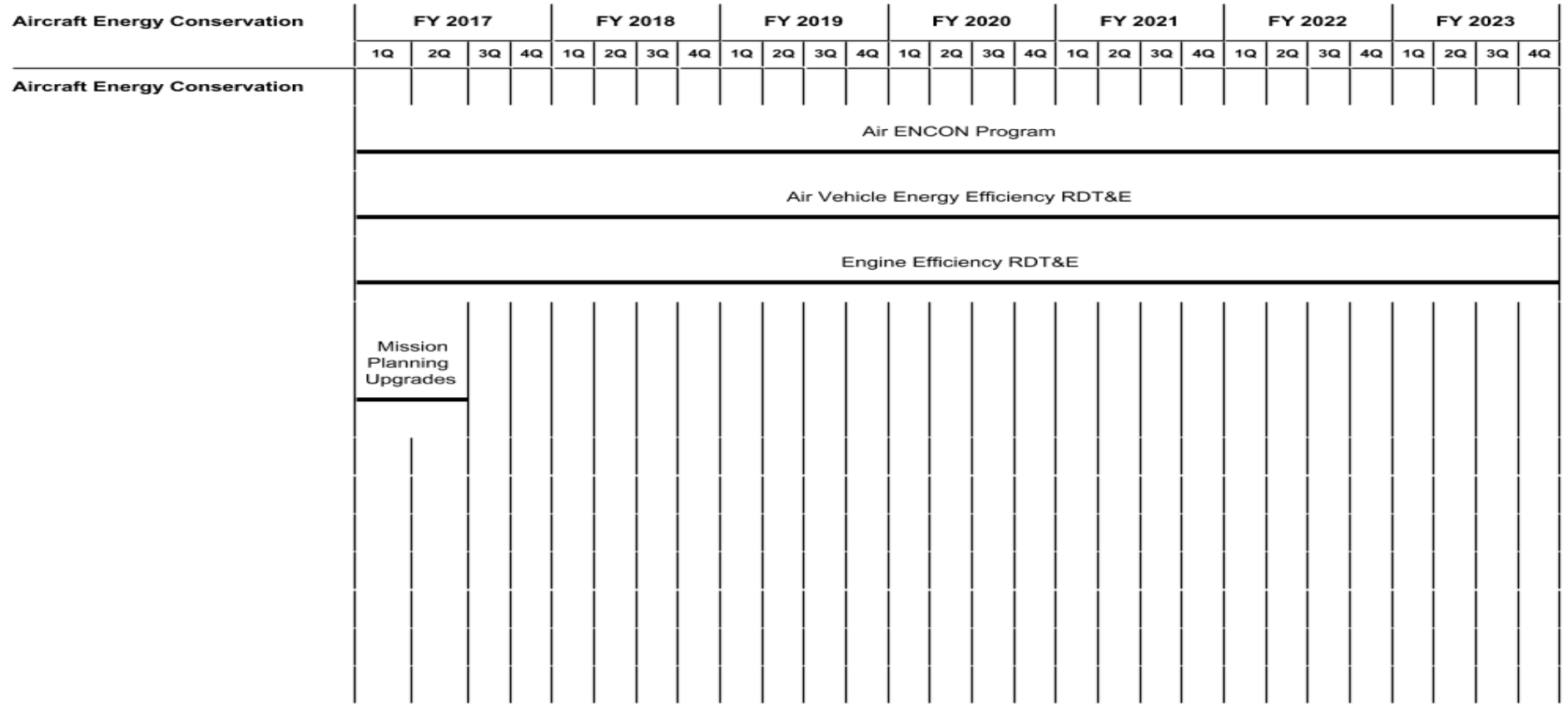
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	1.295	0.275	Nov 2016	0.350	Nov 2017	0.400	Dec 2018	-		0.400	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Deloitte Consulting : Alexandria, VA	2.415	0.000		0.000		0.000		-		0.000	0.000	2.415	2.415
Program Management Support	WR	NAWCWD : China Lake, CA	0.010	0.000		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	-
		Subtotal	5.807	0.275		0.350		0.400		-		0.400	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	116.739	25.829		10.424		10.542		-		10.542	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 0996 / *Aircraft Energy Conservation*



2019DON - 0603724N - 0996

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
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	2017	4	2023
Aircraft Energy Conservation: Air Vehicle Energy Efficiency RDT&E	1	2017	4	2023
Aircraft Energy Conservation: Engine Efficiency RDT&E	1	2017	4	2023
Aircraft Energy Conservation: Mission Planning Upgrades	1	2017	2	2017

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
9999: *Congressional Adds*	12.069	19.343	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	31.412
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 2017	FY 2018
Congressional Add: Installation Energy Efficiency Enhancements ***FY 2017 Accomplishments:*** This congressional add will focus on areas that will cover power generation, energy storage, cyber security, and energy controls and analytics. Broad Area Announcement will be advertised on FedBizOps. Solicitation anticipated to be done by the end of September with the expectation of an award of funding by January 2018. ***FY 2018 Plans:*** N/A	4.836	0.000
Congressional Add: Program Increase: Renewable Energy Development ***FY 2017 Accomplishments:*** This congressional add will fund projects that will test wave energy conversion devices in the Navy's wave energy test site (WETS) in Hawaii. In addition, we will test marine hydrokinetic technologies in the Pacific Northwest and assess feasibility for other locations. Contract award/funds execution anticipated during the first quarter of FY18. ***FY 2018 Plans:*** N/A	14.507	0.000
Congressional Adds Subtotals	19.343	0.000

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 2019 Navy			Date: February 2018
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 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hydrokinetic Energy Research & Development	Various	EXWC : Port Hueneme, CA	12.069	0.000		0.000		0.000		-		0.000	0.000	12.069	-
Renewable Energy Development	Various	EXWC : Port Hueneme, CA	0.000	14.507	Jan 2018	0.000		0.000		-		0.000	0.000	14.507	-
Installation Energy Efficiency Enhancements	Various	EXWC : Port Hueneme, CA	0.000	4.836	Jan 2018	0.000		0.000		-		0.000	0.000	4.836	-
		Subtotal	12.069	19.343		0.000		0.000		-		0.000	0.000	31.412	N/A

Remarks

Congressional Add Funds Received 3rd Quarter of 2017 for Projects C299 and C302.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.069	19.343		0.000		0.000		-		0.000	0.000	31.412	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 9999 / *Congressional Adds*

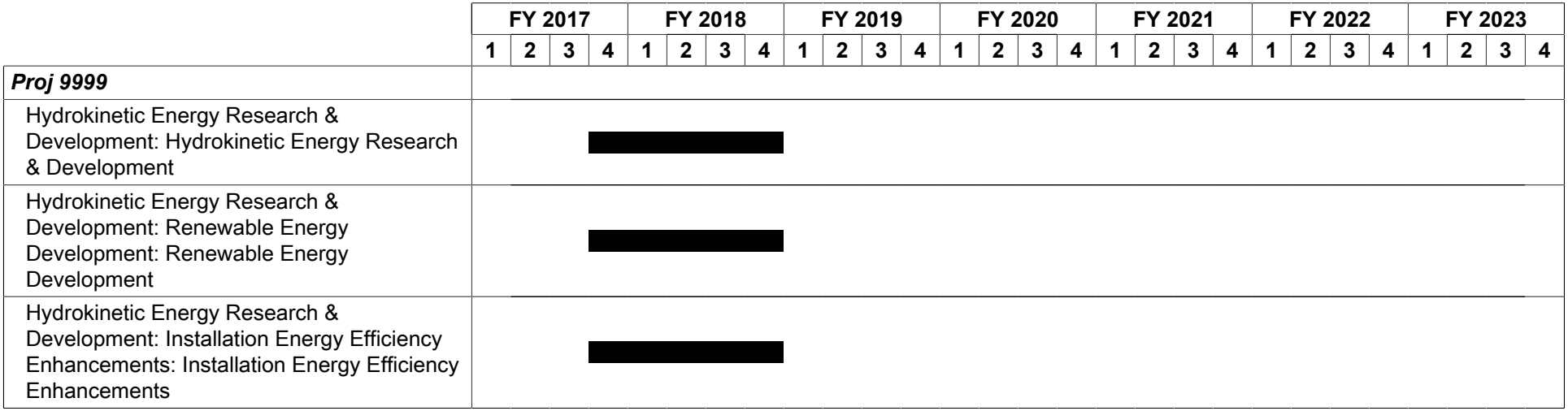


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603724N / *Navy Energy Program*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Hydrokinetic Energy Research & Development: Hydrokinetic Energy Research & Development	4	2017	4	2018
Hydrokinetic Energy Research & Development: Renewable Energy Development: Renewable Energy Development	4	2017	4	2018
Hydrokinetic Energy Research & Development: Installation Energy Efficiency Enhancements: Installation Energy Efficiency Enhancements	4	2017	4	2018