Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	33.124	70.538	55.324	-	55.324	80.467	93.031	52.278	53.272	Continuing	Continuing
0829.: *ENERGY CONSERVATION (ADV)*	18.624	17.405	8.770	-	8.770	10.865	12.115	13.568	13.798	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	10.520	15.888	11.071	-	11.071	15.397	14.537	12.004	12.280	Continuing	Continuing
0928: *Directed Energy Research*	-	13.404	16.243	-	16.243	15.890	19.482	2.869	2.930	Continuing	Continuing
0929: *Aircraft Energy Conservation*	-	23.841	-	-	-	-	-	-	-	0.000	23.841
0996: *Aircraft Energy Conservation*	-	-	19.240	-	19.240	38.315	46.897	23.837	24.264	Continuing	Continuing
9999: *Congressional Adds*	3.980	-	-	-	-	-	-	-	-	0.000	3.980

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) relax 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 when military specification fuels are unavailable or in short supply; 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. It also responds to direction from the Office of the Secretary of Defense, the Secretary of the Navy, and the Chief of Naval Operations to make up-front investment in technologies that reduce future cost of operation and ownership of the fleet and supporting infrastructure.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy	DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	30.403	70.538	67.267	-	67.267
Current President's Budget	33.124	70.538	55.324	-	55.324
Total Adjustments	2.721	-	-11.943	-	-11.943
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.104	-			
• Program Adjustments	-	-	-11.913	-	-11.913
• Rate/Misc Adjustments	-	-	-0.030	-	-0.030
• Congressional General Reductions Adjustments	-0.175	-	-	-	-
• Congressional Add Adjustments	4.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2011	FY 2012
Project: 9999: *Congressional Adds*		
Congressional Add: *Alt and Renew Energy Prog - Cong*	3.980	-
Congressional Add Subtotals for Project: 9999	3.980	-
Congressional Add Totals for all Projects	3.980	-

Change Summary Explanation

Technical: Not applicable.

Schedule:

0829.S24 - Land Based Testing, Determine Fuel and Maintenance Saving, Shipboard Evaluation and Component Implementation schedules have all been delayed due to prototype development.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0829.: *ENERGY CONSERVATION (ADV)*	18.624	17.405	8.770	-	8.770	10.865	12.115	13.568	13.798	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Energy Conservation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. The aircraft energy conservation project identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the project 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.

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 Fleet driven project, managed through NAVSEA 05Z, will identify mature potential energy saving and maintenance improvement areas, by involvement with Life-Cycle Managers (LCMs), NAVSEA Technical Warrant Holders, In-Service Engineering Agents (ISEAs), PEOs, TMA/TMI, Industry, and Academia. Potential technology target areas will include: Hull Hydrodynamics, Hull Husbandry, Heating, Ventilation & Air Conditioning (HVAC) Systems, Thermal Management, Propulsion Systems, Electrical Systems, and Power Generation and Storage systems. The project directly supports Fleet requirements to reduce energy consumption and lower maintenance costs. The project will focus on research and development across the following major areas: (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. (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 both landbased and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. (U) HVAC Sub Projects - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements. (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 overall need for HVAC. (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the power usage and operating conditions of numerous systems on the ship (U) Electrical Systems Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship electrical system improvements, to reduce overall fuel consumption and lower maintenance costs. (U) Power Generation & Storage System Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall effectiveness of these improvements. (U) Smart Voyage Planning (SVPDA)/ Fleet Scheduler - Analytic software tools for shore-side planning (1) to design ship voyage routes that minimize fuel usage using ship fuel curves, local weather, and ocean-current data, and (2) allow Fleet schedulers to develop mission plans for movement of Ships using minimized fuel usage as a primary focus, while (3) accounting for personnel and ship safety.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Aircraft Energy Conservation	12.560	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Articles:	0		
FY 2011 Accomplishments: Completed evaluation of F414 engine efficiency technologies. Complete evaluation of drag-resistant aircraft coatings. Initiate feasibility of increased F/A-18 aircraft bring-back weight study. Evaluate advance engine efficiency technologies. Initiate air vehicle energy-saving technologies study. Upgrade mission planning modules.			
Title: Power Generation and Storage Project	0.202	2.119	1.854
Articles:	0	0	0
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 these improvements.			
FY 2011 Accomplishments: Completed testing at vendor plant for ESM 600KW module and shipped unit to Land Based Test Site and making preparations for land based testing. Initiated planning efforts for shipboard demo in FY12 and coordinating project with various Technical Warrant Holders and senior leadership.			
FY 2012 Plans: Continue Land Based testing of ESM modules and conduct shipboard installation and test on a DDG ship to be determined (6 month evaluation) of 600KW Energy Storage Module (ESM) to demonstrate Single Generator Operations. Continue to identify new fuel saving technologies in Power Generation & Storage.			
FY 2013 Plans: Remove shipboard test unit from ship, analyze performance data, continue any additional land based testing required, prepare reports. Continue to identify new fuel saving technologies in Power Generation & Storage.			
Title: Hull Hydrodynamic Sub Project	0.900	2.900	1.000
Articles:	0	0	0
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 2011 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Completed design, drawings and Ship Change document for installation of fin stabilizers on an LHD Class hull for test and evaluation. Ship installation moved to FY12 due to ship availability. Continue to identify additional fuel saving measures in Hull Hydrodynamics. ***FY 2012 Plans:*** Continue advance planning efforts for installation of fins on LHD 1 Class ship during Dry-docking availability, initiate material procurement and fabrication, install fins during scheduled availability. Continue to identify additional fuel saving technologies in Hydrodynamic systems, prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption. ***FY 2013 Plans:*** Continue to identify additional fuel saving technologies in Hydrodynamic systems, prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.			
Title: Hull Husbandry Sub Project	1.116	0.625	0.504
Articles:	0	0	0
Description: 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 both land based and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. ***FY 2011 Accomplishments:*** Continued evaluation and inspections of 3 ships coated with Foul Release coating aimed at decreasing fuel penalty associated with fouled hull/propellers. Conducted quarterly inspections/assessments. Report on propeller coating due out in Summer FY11 and for hull coating end of CY 12. Develop Business Case Analysis for propeller coating based on test results of coating and provide recommendations for fleet implementation. Continue to identify new fuel saving initiatives in Hull Husbandry. ***FY 2012 Plans:*** Continue to utilize Ship Powering Condition Monitor (SPCM) to evaluate coating performance and energy savings. Develop Business Case Analysis for easy release hull coating based on test results of coating applications and continue development, test and evaluation of new fuel savings initiatives identifed. Continue to identify new fuel saving initiatives in Hull Husbandry. ***FY 2013 Plans:*** Continue to identify new fuel saving initiatives in Hull Husbandry.			
Title: Heating , Ventilation and Air Conditioning (HVAC) Sub Project	2.702	1.350	1.705
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Description: HVAC Sub Project - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements. ***FY 2011 Accomplishments:*** In accordance with (IAW) NAVSEA Prototype Planning Document (PPD) 802-8417916; complete fabrication of the High Efficiency Small Capacity (HES-C) prototype chiller and commence performance testing. ***FY 2012 Plans:*** IAW NAVSEA PPD 802-8417916, continue fabrication of the HES-C prototype chiller and commence performance testing. Complete performance, acoustic, shock, vibration and Electro-magnetic Interference (EMI) testing of the HES-C prototype chiller. Coordinate technology implementation on DDG51-FLT-III; OHIO Replacement and VIRGINIA Blk-IV. Prepare Integrated Logistics Support(ILS) package including drawing and technical manual to support LPD17/DDG83AF backfit/demonstration. IAW NAVSEA PPD 802-8417916; design, fabricate, test and qualify the Variable Speed Drive (VSD) required for the HES-C chiller; otherwise VSD is programmed for DDG51-FLT-III in FY13. Evaluate Heating Ventilation and Air Conditioning systems of various classes of ships for efficiencies and installation of new digital thermostats for test and evaluation aimed at reducing ships energy consumption. Continue to identify additional fuel saving technologies in HVAC Systems. ***FY 2013 Plans:*** Shipboard AC plant are among the ships largest energy consumers and this will continue efforts to reduce energy consumption underway and shore side through improved operations and introduction of new technologies.			
Title: Thermal Management Sub Project	0.220	0.100	-
Articles:	0	0	
Description: 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 overall need for HVAC. ***FY 2011 Accomplishments:*** Developed Business Case Analyses on most promising Thermal Management technologies identified and reviewed for shipboard installations. Continue to identify additional fuel saving technologies in Thermal Management. ***FY 2012 Plans:*** Identify additional energy reducing/fuel saving technologies in thermal Management. Conduct Land Based / Model testing , develop design, prepare SCD (s) for new fuel saving intiatives identified in Thermal management technologies functional area. Continue to identify additional fuel saving technologies in Thermal Management.			
Title: Propulsion Systems Sub Project	0.550	4.636	3.070

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Articles:	0	0	0
Description: (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the power usage and operating conditions of numerous systems on the ship.			
FY 2011 Accomplishments: Finished shipboard installation and evaluation of new fuel saving intiatives identified. Issued final report with findings and recommendations of On-Line Water Wash initiative. Evaluated Common Rail Technology for Ship Service Diesel Generator Sets on LSD-41/49 Class and prepared proposed effort for evaluation. Initiated efforts to develop shipboard energy dashboard as tool to enable ships personnel to view real-time energy usage while underway and in port. Continue to identify additional fuel saving technologies in Propulsion Systems.			
FY 2012 Plans: Continue development of Common Rail Technology and development to of Shipboard energy Dashboard that captures existing shipboard equipment information related to fuel and electric power consumption for viewing on-board ship.			
FY 2013 Plans: Install Common Rail Technology on LSD Class ship for evaluation and expand use of Shipboard energy dashboard to additional ships and shipboard systems.			
Title: Electrical Systems SubProject	0.374	2.275	0.637
Articles:	0	0	0
Description: Electrical Systems Sub Project - Project funds will be utilized to identify and perform landbased and shipboard testing of ship electrical system improvements to reduce energy.			
FY 2011 Accomplishments: Completed test and evaluation of SSL lighting on LSD41/49 Class test ship. Issue final report detailing test result findings and recommendations. Evaluated Maritime Apperage Suppression Technology (M.A.S.T.) System to conduct gas turbine generator amperage reduction. Investigated development of qualified Solid State Lighting (SSL) Technologies on DDG-51 Class to reduce overall electrical energy loads and therefore energy demand.			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Conduct shipboard installation, test and evaluation of SSL technology on DDG-51 Class. Continue to identify new fuel saving technologies in Electrical Systems. ***FY 2013 Plans:*** Complete initiatives begun in FY 12 and prepared final reports with recommended actions. Continue to identify additional energy saving technologies and prepare business case analyses for review.			
Title: Smart Voyage Planning Decision (SVPDA) ***Articles:*** ***Description:*** Provide tools to allow ship voyage planning. ***FY 2012 Plans:*** Develop analytic software tools for shore-side planning (1) to design ship voyage routes that minimize fuel usage using ship fuel curves, local weather, and ocean-current data, and (2) allow Fleet schedulers to develop mission plans for movement of Ships using minimized fuel usage as a primary focus, while (3) accounting for personnel and ship safety.	-	3.400 0	-
Accomplishments/Planned Programs Subtotals	18.624	17.405	8.770

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of Fleet fuel and maintenance savings.
RDT&E Contracts are Competitive Procurements.

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 and ship demonstration testing.
Quarterly Program Reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Development	C/CPFF	TBD:TBD	10.560	-		-		-		-	0.000	10.560	10.560
Primary Hardware Development	WR	NSWC Carderock:Bethesda, MD	1.887	2.507	Oct 2011	1.200	Nov 2012	-		1.200	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Carderock:Bethesda, MD	1.439	1.756	Oct 2011	1.070	Nov 2012	-		1.070	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC Carderock:Bethesda, MD	2.404	1.955	Nov 2011	1.200	Nov 2012	-		1.200	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC Carderock:Bethesda, MD	2.575	2.198	May 2012	0.900	May 2013	-		0.900	Continuing	Continuing	Continuing
Primary Hardware Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	1.200	Oct 2011	-		-		-	0.000	1.200	
Systems Engineering-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	0.600	Oct 2011	-		-		-	0.000	0.600	
Engineering Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	0.110	Nov 2011	-		-		-	0.000	0.110	
Demonstration & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	0.870	May 2012	-		-		-	0.000	0.870	
		Subtotal	18.865	11.196		4.370		-		4.370			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock:Bethesda, MD	-	0.200	Dec 2011	0.200	Nov 2012	-		0.200	Continuing	Continuing	Continuing
Software Support	WR	NSWC Carderock:Bethesda, MD	-	0.200	Dec 2011	0.100	Dec 2012	-		0.100	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC Carderock:Bethesda, MD	-	0.300	Dec 2011	0.200	May 2013	-		0.200	Continuing	Continuing	Continuing
Study Anaylsis	WR	NSWC Carderock:Bethesda, MD	-	0.200	Apr 2012	0.200	Dec 2012	-		0.200	Continuing	Continuing	Continuing
		Subtotal	-	0.900		0.700		-		0.700			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	2.728	1.698	Nov 2011	1.450	Jan 2013	-		1.450	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	1.280	1.748	Jan 2012	0.950	May 2013	-		0.950	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	0.382	-		-		-		-	0.000	0.382	
Developmental Test & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	0.060	Nov 2011	-		-		-	0.000	0.060	
		Subtotal	4.390	3.506		2.400		-		2.400			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD PAX:Patuxent River, MD	2.000	-		-		-		-	0.000	2.000	2.000
Program Management Support	WR	NSWC Carderock:Bethesda, MD	1.042	1.100	Oct 2011	0.950	Oct 2012	-		0.950	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA HQ:Washington, DC	0.119	0.043	Sep 2012	0.350	Nov 2012	-		0.350	Continuing	Continuing	Continuing
Total Assets	WR	NSWC Carderock:Bethesda, MD	0.252	0.100	Mar 2012	-		-		-	0.000	0.352	
Program Management Support-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	0.560	Oct 2011	-		-		-	0.000	0.560	
		Subtotal	3.413	1.803		1.300		-		1.300			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.668	17.405		8.770		-		8.770			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0829.: *ENERGY CONSERVATION (ADV)*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0829.: *ENERGY CONSERVATION (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ENERGY CONSERVATION (ADV)				
Proposal Development - FY11	1	2011	3	2011
Proposal Development - FY12	1	2012	3	2012
Proposal Development - FY13	1	2013	3	2013
Proposal Development - FY14	1	2014	3	2014
Proposal Development - FY15	1	2015	3	2015
Proposal Development - FY16	1	2016	3	2016
Proposal Development - FY17	1	2017	3	2017
Proposal Acceptance	3	2011	3	2017
Model & Simulation (if required)	2	2011	4	2017
Prototype Development	1	2011	4	2017
Prototype Demo	1	2011	4	2017
Land Based Testing	2	2011	4	2017
Determine Fuel and Maintenance Savings	2	2011	4	2017
Shipboard Evaluation	2	2011	4	2017
Component Implementation Maintenance Savings	2	2011	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0838: *Mobility Fuels (ADV)*	10.520	15.888	11.071	-	11.071	15.397	14.537	12.004	12.280	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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. While the program impacts on readiness, additional maintenance costs, and the cost of lost equipment are often difficult to fully quantify, they are often many times the cost of this program. The potential risk of fuel-related problems over the next decade, given the unknown supply, feedstocks, environmental regulations, 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 $4.0B 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 2011	FY 2012	FY 2013
Title: Aircraft Fuels	4.192	-	-
Articles:	0		
Description: Perform development, test and evaluation work on Naval aircraft 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
FY 2011 Accomplishments: Down-selected initial alternative fuel candidate and initiated testing to validate protocol. Continued development of dual compatible (ship and aircraft) lubricity improving additive.			
Title: Ship Fuels	6.328	-	-
Articles:	0		
Description: Perform development, test, and evaluation work on Naval ship propulsion 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 to fleet operators for the safe use of off-specification or commercial grade fuels when military fuels are unavailable or in limited supply; and c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry including fuel derived from non-petroleum sources.			
FY 2011 Accomplishments: Completed development of Navy protocol to evaluate and approve alternative fuels. Down selected initial alternative fuel candidate and initiated validation of evaluation and approval protocol. Transitioned shipboard sensor(s) to rapidly determine critical fuel properties. Continued development of dual compatible (ship and aircraft) lubricity improving additive.			
Title: Naval Tactical Fuels	-	15.888	11.071
Articles:		0	0
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 2012 Plans: Complete propulsion and system testing of 50/50 bio-blend JP-5 and 50/50 bio-blend F-76. Initiate rig, laboratory and component testing on JP-5 and F-76 containing greater than 50% of bio-derived components. Revise aircraft, ship, and infrastructure alternative fuels protocols.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Continue rig and propulsion system testing on aircraft and ship biofuels blends containing greater than 50% bio-derived components. Initiate ship and aircraft trials on biofuel blends containing greater than 50% bio-derived components. Initiate laboratory and rig testing on promising advanced biofuel production pathway fuels.			
Accomplishments/Planned Programs Subtotals	10.520	15.888	11.071

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Alternative Fuel Efforts including testing and fuel procurement efforts in FY10-13 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 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL:Washington, D.C.	1.025	0.400	Nov 2011	0.500	Nov 2012	-		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Patuxent River, MD	5.182	1.400	Nov 2011	1.019	Nov 2012	-		1.019	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	Various:Various	2.201	-		-		-		-	0.000	2.201	2.201
Systems Engineering	WR	NAVSUP Energy:Ft. Belvoir, VA	-	0.068	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	WR	NAVSEA:Philadelphia, PA	-	0.140	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing
		Subtotal	8.408	2.008		1.719		-		1.719			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPFF	Various:Various	7.511	-		-		-		-	0.000	7.511	7.511
Developmental Test & Evaluation	MIPR	Army Tank/ Arm:Warren, MN	0.228	-		-		-		-	0.000	0.228	
Developmental Test & Evaluation	C/CPFF	Life Cycle Engineering:Charleston, SC	3.000	-		-		-		-	0.000	3.000	
Test Fuel	C/FFP	TBD:TBD	-	5.000	Mar 2012	1.720	Jan 2013	-		1.720	0.000	6.720	6.720
Hardware Testing	C/CPFF	Alion S&T:McLean, VA	-	2.000	Mar 2012	-		-		-	0.000	2.000	2.000
Hardware Testing	SS/CPFF	General Electric:Lynn, MA	-	1.500	May 2012	0.700	Mar 2013	-		0.700	0.000	2.200	2.200
Hardware Testing	SS/CPFF	Rolls Royce:Indianapolis, IN	-	2.000	May 2012	0.700	Mar 2013	-		0.700	0.000	2.700	2.700
Hardware Testing	C/CPFF	TBD:TBD	-	3.380	May 2012	2.000	May 2013	-		2.000	0.000	5.380	5.380
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	-		2.000	Jan 2013	-		2.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	Life Cycle Engineering:Charleston, SC	-	-		1.552	Jan 2013	-		1.552	0.000	1.552	1.552
		Subtotal	10.739	13.880		8.672		-		8.672			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	Various:Various	5.690	-		-		-		-	0.000	5.690	
Program Management Support	MIPR	SRI:San Antonio, TX	0.696	-		-		-		-	0.000	0.696	
Program Management Support	WR	NAVSEA:Washington, DC	0.100	-		-		-		-	0.000	0.100	
Program Management Support	WR	NSWC:Philadelphia, PA	0.088	-		-		-		-	0.000	0.088	
DAWDF Realignment Issue 74408	TBD	Not Specified:Not Specified	0.008	-		-		-		-	0.000	0.008	
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	-		0.680	Nov 2012	-		0.680	Continuing	Continuing	Continuing
		Subtotal	6.582	-		0.680		-		0.680			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	25.729	15.888		11.071		-		11.071			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0838: *Mobility Fuels (ADV)*

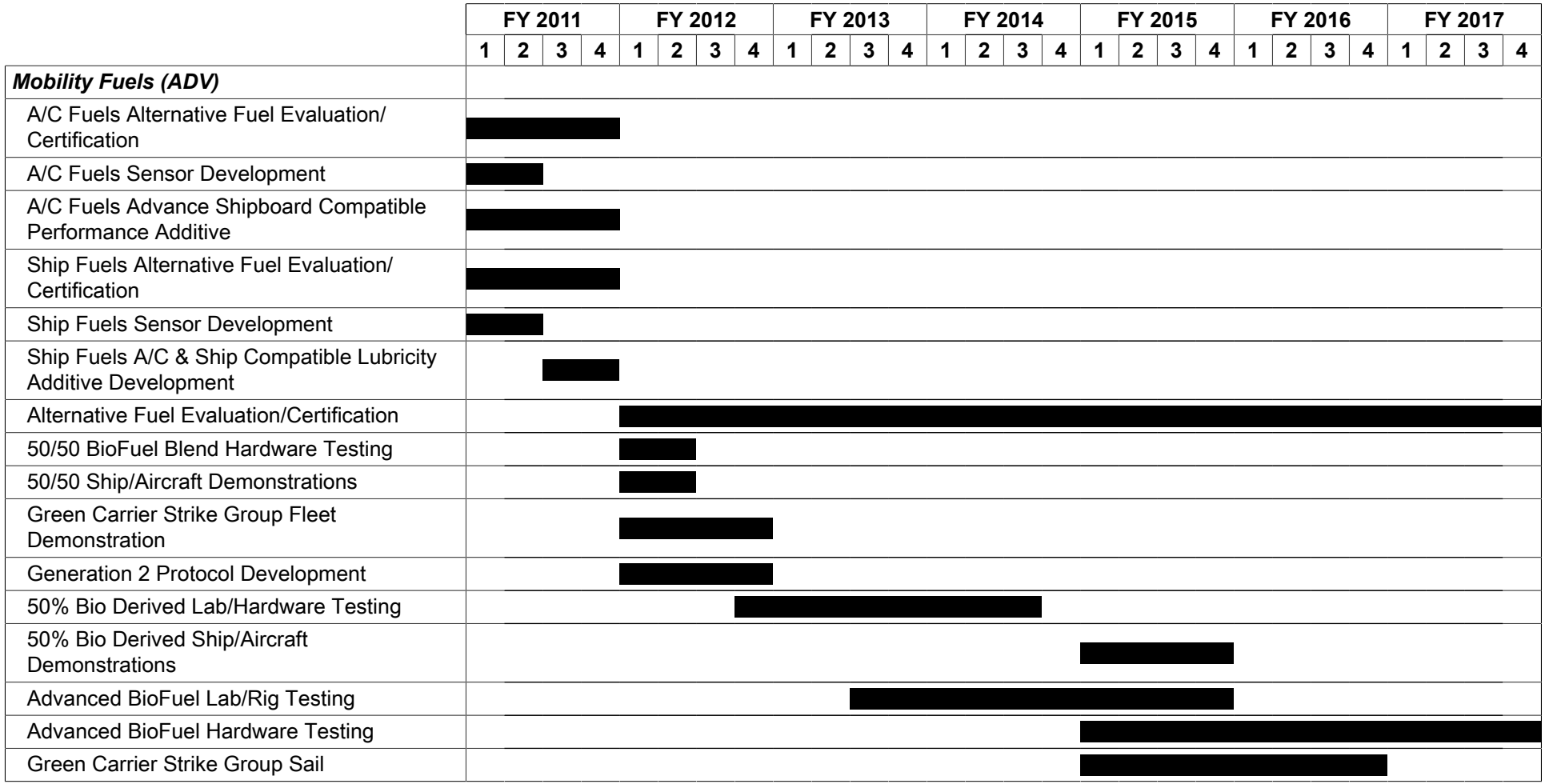

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0838: *Mobility Fuels (ADV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mobility Fuels (ADV)				
A/C Fuels Alternative Fuel Evaluation/Certification	1	2011	4	2011
A/C Fuels Sensor Development	1	2011	2	2011
A/C Fuels Advance Shipboard Compatible Performance Additive	1	2011	4	2011
Ship Fuels Alternative Fuel Evaluation/Certification	1	2011	4	2011
Ship Fuels Sensor Development	1	2011	2	2011
Ship Fuels A/C & Ship Compatible Lubricity Additive Development	3	2011	4	2011
Alternative Fuel Evaluation/Certification	1	2012	4	2017
50/50 BioFuel Blend Hardware Testing	1	2012	2	2012
50/50 Ship/Aircraft Demonstrations	1	2012	2	2012
Green Carrier Strike Group Fleet Demonstration	1	2012	4	2012
Generation 2 Protocol Development	1	2012	4	2012
50% Bio Derived Lab/Hardware Testing	4	2012	3	2014
50% Bio Derived Ship/Aircraft Demonstrations	1	2015	4	2015
Advanced BioFuel Lab/Rig Testing	3	2013	4	2015
Advanced BioFuel Hardware Testing	1	2015	4	2017
Green Carrier Strike Group Sail	1	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0928: *Directed Energy Research*	-	13.404	16.243	-	16.243	15.890	19.482	2.869	2.930	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 Ocean Thermal Energy Conversion (OTEC), other ocean energy technologies 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. Because of unique mission and aggressive time frames, testing and demonstration under Navy oversight would facilitate deployment throughout the DoN more quickly than a purely passive approach.

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 prototypes. All efforts will be coordinated across DOD and with other agencies as appropriate. Specifically, this project aims to pursue three areas of testing and evaluation: (A) Renewable Ocean Thermal Energy Conversion (OTEC) technology pilot testing: This project will perform an environmental baseline study, design engineering for a pilot plant, and combining the various OTEC components into a prototype design for potential deployment at Naval installations. It will also support feasibility evaluation, modeling and possible prototype testing of new energy sources for use at Naval installations of other ocean energy technologies with potential for widespread applicability to energy security and renewable energy requirements. Other renewable sources for evaluation, modeling and possible prototype testing could 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" technology, for use at Naval installations to enable improved energy security; (C) Demonstration and Validation of Alternative Energy, Energy Efficiency, Sustainable Building Features, 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 2011	FY 2012	FY 2013
Title: Directed Energy Research	-	13.404	16.243
Articles:		0	0
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Initiate component testing and prototype development and deployment for alternative energy and advanced grid management technology at Naval Installations as follows: - Initiate evaluation of environmental impacts of ocean thermal, wave, and tidal energy generation prototypes - Initiate demonstration, testing, evaluation, and validation of ocean thermal energy generation components - Initiate demonstration, testing, deployment, and evaluation of advanced wave and tidal energy generation prototypes - Initiate demonstration, testing, deployment, and evaluation of advanced grid management technology at Naval installations - Initiate demonstration, testing, deployment, and evaluation of energy efficient and alternative energy technology innovations			
FY 2013 Plans: Initiate component testing and prototype development and deployment for alternative energy and advanced grid management technology at Naval installations as follows: - Continue evaluation of environmental impacts of ocean and tidal energy generation renewable, - Continue demonstration, testing, evaluation, and validation of ocean renewable energy generation components and prototypes, - Continue evaluation, demonstration, testing and validation of OTEC, outer continental shelf wind, photovoltaic, ocean compressed air storage and other promising technologies, - Initiate demonstration, testing, deployment, and evaluation of smart energy management technology, - Continue demonstration and validation of mature technologies to be transitioned such as advanced lightning, sustainable building technologies, solar PV collection technologies and improved energy storage systems at Naval installations			
Accomplishments/Planned Programs Subtotals	-	13.404	16.243

C. Other Program Funding Summary ($ in Millions)

N/A

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 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Renewable Energy	Various	NFESC:Port Hueneme, CA	-	11.854	Jan 2012	15.243	Jul 2013	-		15.243	Continuing	Continuing	Continuing
Smart Energy	Various	NFESC and NDW:Washington, DC	-	0.550	Apr 2012	-		-		-	Continuing	Continuing	Continuing
Demonstration/Validation	Various	NFESC:Port Hueneme, CA	-	1.000	Jun 2012	1.000	Apr 2013	-		1.000	Continuing	Continuing	Continuing
		Subtotal	-	13.404		16.243		-		16.243			

Remarks

(FY2012) The Navy Energy Program will be assessing multiple technologies for energy efficiency and energy reduction. This technology assessment continues throughout the program life. As these technologies are assessed, there will be a requirement for a concept of how the technologies may be successfully employed by the Navy. These, too, will continue throughout the program life. For renewable technologies such as ocean waste heat capture, lighting, photovoltaic, wind and battery support to net-zero grids, Smart Energy, and other technologies, there will be a requirement for component design, testing, evaluation, and validation. This demonstration, testing and validation are expected to result in completed tests, the milestones occurring in 3QFY12 and 3QFY13. For Ocean Thermal Energy Conversion (OTEC), completion of the design of an environmentally acceptable, scalable pilot prototype test facility design is planned in the FY12/FY13 timeframe. Assuming the development of a environmentally feasible design, construction would be planned beginning in the FY13-FY15 timeframe. Throughout the testing and evaluation period, deliverables will be required at the end of each FY for completed designs, component test results, validated components, and pilot prototype design and testing. Other renewable technologies mentioned herein will have a similar level of rigor applied.

(FY2013) The Navy Energy Program will be assessing multiple technologies for 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 Energy Savings Performance Contract vehicles, and globally by changes to design and construction criteria coordinated across the services. These, too, will continue throughout the program life. For OTEC, Smart Energy, and select other technologies, there will be a requirement for component testing and validation. Testing and validation are expected to result in completed tests for the milestones occurring in 3QFY13. In FY12, the OTEC pilot plant plan includes operation and demonstration in the FY15/FY16 timeframe, resulting in development of test and evaluation results and lessons learned by the end of FY16. At the end of the demonstration and evaluation phase, it is expected that feasibility determinations for a larger, commercial scale and OTEC plant will be made. This will be followed by criteria development to transition the technical aspects required to acquire a full scale plant targeted to support one of several island bases. Throughout the testing and evaluation period, deliverables will be required at the end of each FY for component test results, validated components, and pilot prototype design and testing.

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	13.404		16.243		-		16.243			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

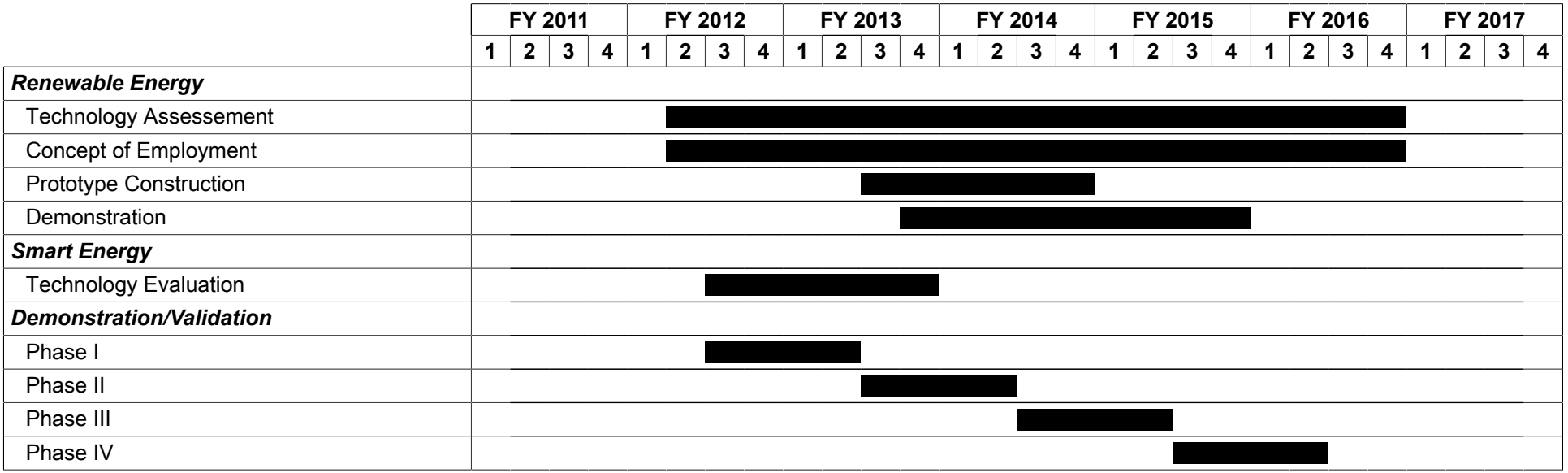

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0928: *Directed Energy Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Renewable Energy				
Technology Assessement	2	2012	4	2016
Concept of Employment	2	2012	4	2016
Prototype Construction	3	2013	4	2014
Demonstration	4	2013	4	2015
Smart Energy				
Technology Evaluation	3	2012	4	2013
Demonstration/Validation				
Phase I	3	2012	2	2013
Phase II	3	2013	2	2014
Phase III	3	2014	2	2015
Phase IV	3	2015	2	2016

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0929: *Aircraft Energy Conservation*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0929: *Aircraft Energy Conservation*	-	23.841	-	-	-	-	-	-	-	0.000	23.841
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Aircraft Energy Conservation 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 2011	FY 2012	FY 2013
Title: Aircraft Energy Conservation	-	23.841	-
Articles:		0	
FY 2012 Plans: Complete F/A-18 bring-back weight study. Conduct advanced engine efficiency technology demonstration. Conduct field trial of drag-resistant aircraft coatings. Implement fleet i-ENCON (Energy Conservation) program. Complete air vehicle energy savings technology study.			
Accomplishments/Planned Programs Subtotals	-	23.841	-

C. Other Program Funding Summary ($ in Millions)

N/A

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 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0929: *Aircraft Energy Conservation*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	-	2.300	Nov 2011	-		-		-	0.000	2.300	2.300
		Subtotal	-	2.300		-		-		-	0.000	2.300	2.300

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	Boeing:St. Louis, MO	-	4.000	Mar 2012	-		-		-	0.000	4.000	4.000
Hardware Testing	C/CPFF	PWA:Hartford, CT	-	12.000	Mar 2012	-		-		-	0.000	12.000	12.000
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	0.600	Nov 2011	-		-		-	0.000	0.600	0.600
Hardware Testing	TBD	Various:Various	-	2.000	May 2012	-		-		-	0.000	2.000	2.000
		Subtotal	-	18.600		-		-		-	0.000	18.600	18.600

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	0.027	Nov 2011	-		-		-	0.000	0.027	0.027
Engine Efficiency Evaluations	C/CPFF	TBD:TBD	-	1.485	May 2012	-		-		-	0.000	1.485	1.485
Air Vehicle Energy Efficiency Evaluations	C/CPFF	TBD:TBD	-	1.429	May 2012	-		-		-	0.000	1.429	1.429
		Subtotal	-	2.941		-		-		-	0.000	2.941	2.941

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	23.841		-		-		-	0.000	23.841	23.841

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0929: *Aircraft Energy Conservation*

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0929: *Aircraft Energy Conservation*

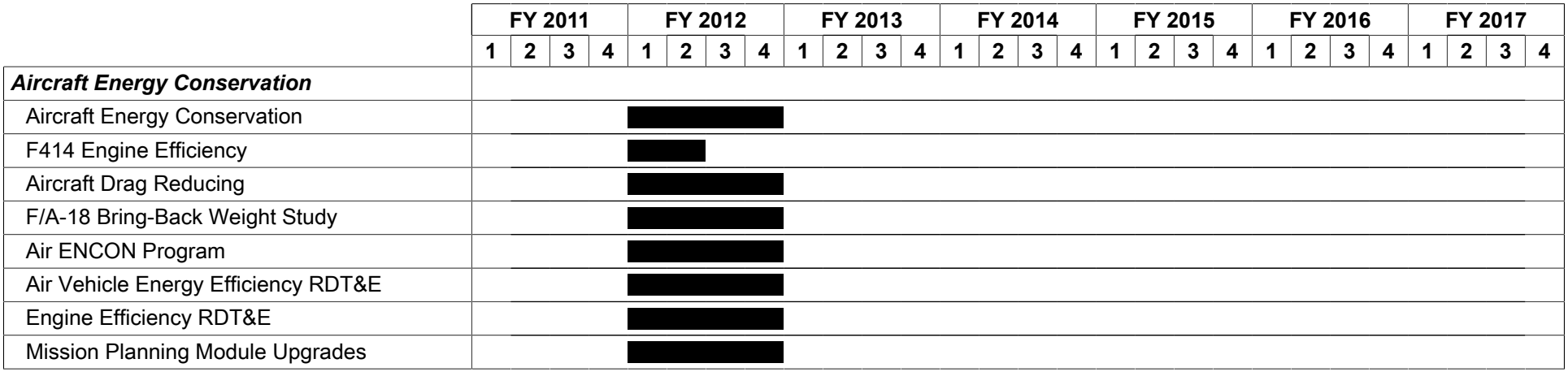

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0929: *Aircraft Energy Conservation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Aircraft Energy Conservation				
Aircraft Energy Conservation	1	2012	4	2012
F414 Engine Efficiency	1	2012	2	2012
Aircraft Drag Reducing	1	2012	4	2012
F/A-18 Bring-Back Weight Study	1	2012	4	2012
Air ENCON Program	1	2012	4	2012
Air Vehicle Energy Efficiency RDT&E	1	2012	4	2012
Engine Efficiency RDT&E	1	2012	4	2012
Mission Planning Module Upgrades	1	2012	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0996: *Aircraft Energy Conservation*	-	-	19.240	-	19.240	38.315	46.897	23.837	24.264	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Aircraft Energy Conservation 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 2011	FY 2012	FY 2013
Title: Aircraft Energy Conservation	-	-	19.240
Articles:			0
FY 2013 Plans: Continue fleet energy conservation program. Continue drag-resistant aircraft coating trial. Develop F135 engine efficiency technology. Initiate F-35 air vehicle energy efficiency technology development program.			
Accomplishments/Planned Programs Subtotals	-	-	19.240

C. Other Program Funding Summary ($ in Millions)

N/A

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 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	-	-		1.540	Nov 2012	-		1.540	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Lockheed Martin:Fort Worth, TX	-	-		1.000	Mar 2013	-		1.000	0.000	1.000	1.000
Systems Engineering	TBD	Various:Various	-	-		1.190	Mar 2013	-		1.190	0.000	1.190	1.200
		Subtotal	-	-		3.730		-		3.730			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	PWA:Hartford, CT	-	-		13.400	Mar 2013	-		13.400	0.000	13.400	13.400
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	-		0.600	Jan 2013	-		0.600	Continuing	Continuing	Continuing
Hardware Testing	TBD	Various:Various	-	-		1.000	May 2013	-		1.000	0.000	1.000	1.000
		Subtotal	-	-		15.000		-		15.000			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	-		0.510	Nov 2012	-		0.510	Continuing	Continuing	Continuing
		Subtotal	-	-		0.510		-		0.510			

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		19.240		-		19.240			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 0996: *Aircraft Energy Conservation*

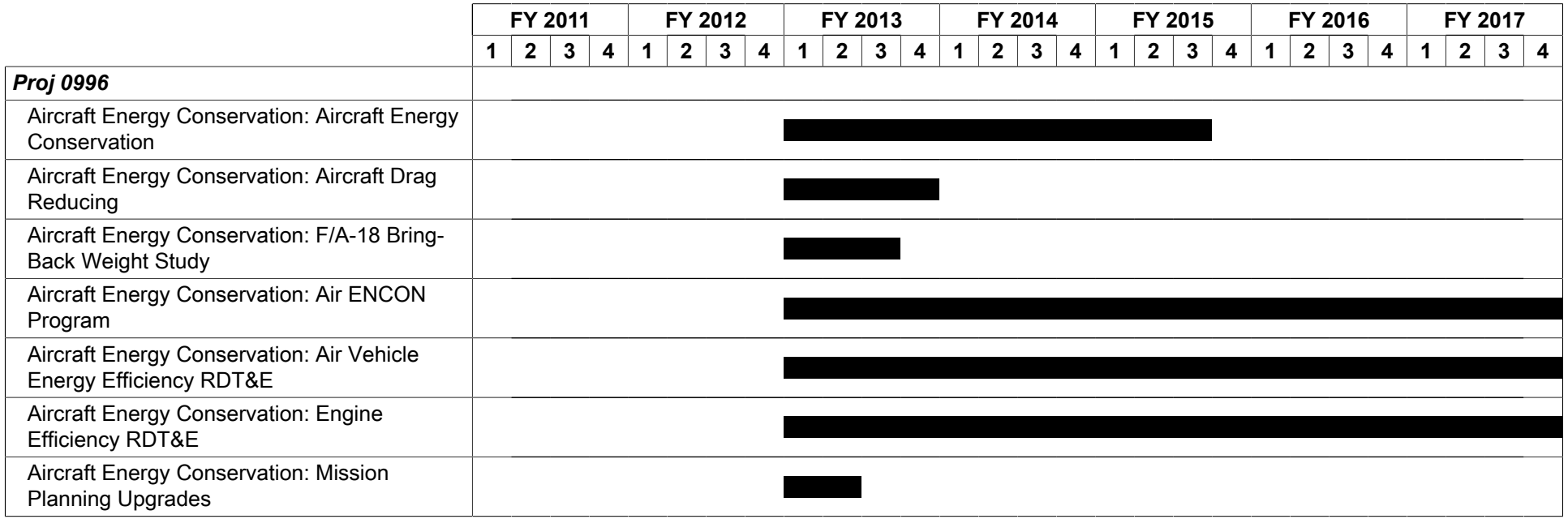

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603724N: *Navy Energy Program*	**PROJECT** 0996: *Aircraft Energy Conservation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0996				
Aircraft Energy Conservation: Aircraft Energy Conservation	1	2013	3	2015
Aircraft Energy Conservation: Aircraft Drag Reducing	1	2013	4	2013
Aircraft Energy Conservation: F/A-18 Bring-Back Weight Study	1	2013	3	2013
Aircraft Energy Conservation: Air ENCON Program	1	2013	4	2017
Aircraft Energy Conservation: Air Vehicle Energy Efficiency RDT&E	1	2013	4	2017
Aircraft Energy Conservation: Engine Efficiency RDT&E	1	2013	4	2017
Aircraft Energy Conservation: Mission Planning Upgrades	1	2013	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603724N: *Navy Energy Program*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.980	-	-	-	-	-	-	-	-	0.000	3.980
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Add.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012
Congressional Add: Alt and Renew Energy Prog - Cong	3.980	-
FY 2011 Accomplishments: N/A		
Congressional Adds Subtotals	3.980	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Add.

E. Performance Metrics

Not required for Congressional Add.