Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy										DATE: February 2011	
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 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	18.643	30.403	70.538	-	70.538	67.267	74.091	89.296	53.279	Continuing	Continuing
0829.: *ENERGY CONSERVATION (ADV)*	3.795	19.579	17.405	-	17.405	9.960	10.151	11.639	13.568	Continuing	Continuing
0838: *Mobility Fuels (ADV)*	4.371	10.824	15.888	-	15.888	14.987	13.881	13.885	12.382	Continuing	Continuing
0928: *Directed Energy Research*	-	-	13.404	-	13.404	16.290	16.079	19.813	3.266	Continuing	Continuing
0929: *Aircraft Energy Conservation*	-	-	23.841	-	23.841	26.030	33.980	43.959	24.063	Continuing	Continuing
9999: *Congressional Adds*	10.477	-	-	-	-	-	-	-	-	0.000	10.477

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 2012 Navy	DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	18.918	30.403	33.750	-	33.750
Current President's Budget	18.643	30.403	70.538	-	70.538
Total Adjustments	-0.275	-	36.788	-	36.788
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.248	-			
• Program Adjustments	-	-	37.291	-	37.291
• Section 219 Reprogramming	-0.026	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.503	-	-0.503
• Congressional General Reductions Adjustments	-0.001	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2010	FY 2011
Project: 9999: *Congressional Adds*		
Congressional Add: *Alt and Renew Energy Prog - Cong*	2.988	-
Congressional Add: *Solar Heat Reflective Film for Energy Efficiency*	3.904	-
Congressional Add: *Molten Carbonate Fuel Cell Demonstrator*	3.585	-
Congressional Add Subtotals for Project: 9999	10.477	-
Congressional Add Totals for all Projects	10.477	-

Change Summary Explanation

Technical: Not applicable.

Schedule:

0829.L19 - becomes new PU 0929 in FY12.

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

0838- schedule changes reflect consolidation of Aircraft Fuels and Ship Fuels Accomplishments to single area of Naval Tactical Fuels Accomplishments.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
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*

0928 - Direct Energy Research efforts begin in FY12.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0829.: *ENERGY CONSERVATION (ADV)*	3.795	19.579	17.405	-	17.405	9.960	10.151	11.639	13.568	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 2010	FY 2011	FY 2012
Title: Aircraft Energy Conservation	-	12.943	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
Articles:		0	
FY 2011 Plans: Complete 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	0.196	0.202	2.119
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 2010 Accomplishments:*** Developed Business Case Analyses on most promising Power Generation and Storage technologies. Identified siginificant potential fuel saving technologies for related to Energy Storage and supported by the Fleet for investigation in FY11. ***FY 2011 Plans:*** Increased initially planned funding level in this project to pursue investigation of Shipboard energy storage modules enabling Single Generator Operations. Attendant decrease in planned funding was taken in Hull Husbandry project. In FY 11 project will develop detailed design to support Land Based / Model testing and prepare SCD (s) for energy storage modules to support shipboard test and evaluation in FY12. Continue to identify new fuel saving technologies in Power Generation & Storage. ***FY 2012 Plans:*** Conduct shipboard installation and test (6-12 month evaluation) of 600KW Energy Storage Module (ESM) to demostrate Single Generator Operations. Continue to identify new fuel saving technologies in Power Generation & Storage.			
Title: Hull Hydrodynamic Sub Project	1.025	1.200	3.500
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 2010 Accomplishments:*** Completed installation of Stern Flaps and commenced test and evaluation, prepare report and update Ship Change Document (SCD) for implementation. Continue to identify addtional fuel saving measures in Hull Hydrodynamics. ***FY 2011 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
Install approved design for medium fins on selected LHD 1 class ship for test and evaluation. Conduct Land Based / Model testing, develop design, prepare SCD(s) for new fuel saving intiatives identified. Prepare final reports. Continue to identify additional fuel saving measures in Hull Hydrodynamics. ***FY 2012 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 ***Articles:*** ***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 2010 Accomplishments:*** Continued shipboard test, and evaluation of coatings including diver inspections, evaluation of cleaning methods, development of cleaning procedures and measurement of effectiveness. Continued to identify new fuel saving initiatives in Hull Husbandry. ***FY 2011 Plans:*** Reduced originally planned funding of this project to support investigation of Fleet supported Energy Storage project for Single Generator Operations. Testing for existing shipboard installations will continue utilizing Ship Powering Condition Monitor (SPCM) to evaluate coating performance and energy savings. Develop Business Case Analysis 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 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.	1.287 0	1.354 0	0.625 0
Title: HVAC Sub Project ***Articles:*** ***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 2010 Accomplishments:***	0.200 0	2.736 0	0.750 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
Developed Business Case Analyses on most promising HVAC identified controls technology reviewed for shipboard installations. Continue to identify addtional fuel saving measures in HVAC. ***FY 2011 Plans:*** In accordance with (IWA) NAVSEA PPD 802-8417916; complete performance, acoustic, shock, vibration and EMI testing of the HES-C prototype chiller. IWA NAVSEA PPD 802-8417916; design, fabricate, test and qualify the Variable Speed Drive required for the HES-C prototype chiller. IAW NAVSEA PPD 802-8417916; prepare ILS package including drawing and technical manual to support DDG83AF backfit/demonstration. Note: The work accomplished by this task will extend through FY12. Continue to identify additional fuel saving measures in HVAC. ***FY 2012 Plans:*** Continue to identify additional fuel saving technologies in HVAC Systems.			
Title: Thermal Management Sub Project ***Articles:*** ***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 2010 Accomplishments:*** Investigated various systems and technologies for potential shipboard heat load reduction. Continue to pursue most promising technologies in FY 11. ***FY 2011 Plans:*** Develop 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:*** 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.	0.200 0	0.220 0	0.100 0
Title: Propulsion Systems Sub Project ***Articles:*** ***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.	0.513 0	0.550 0	4.636 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Continue to evaluate performance of OLWW, report results and identify addtional fuel saving measures in Propulsion Systems Functional area. Continue to identify additional fuel saving technologies in Propulsion Systems. ***FY 2011 Plans:*** Finish shipboard installation and evaluation of new fuel saving intiatives identified. Issue final report with findings and recommendations of this effort. Evaluate Common Rail Technology for Ship Service Diesel Generator Sets on LSD-41/49 Class. Continue to identify additional fuel saving technologies in Propulsion Systems. ***FY 2012 Plans:*** Continue to identify additional fuel saving technologies in Propulsion Systems and develop energy Dashboard for test and evaluation on nominated ships.			
Title: Electrical Systems SubProject ***Articles:*** ***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 2010 Accomplishments:*** Completed installation of SSL Lighting prototypes in berthing, Passageways, and welldecks and commence test and evaluation, prepare report and update Ship Change Document (SCD) for implementation. Issue final report detailing test result findings and recommendations. Continue to identify new fuel saving technologies in Electrical Systems. ***FY 2011 Plans:*** Complete test and evaluation of SSL lighting on LSD41/49 Class test ship. Issue final report detailing test result findings and recommendations. Evaluate Maritime Apperage Suppression Technology (M.A.S.T.) System to conduct gas turbine generator amperage reduction. Investigate 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:*** Conduct shipboard installation, test and evaluation of SSL technology on DDG-51 Class. Continue to identify new fuel saving technologies in Electrical Systems.	0.374 0	0.374 0	2.275 0
Title: Smart Voyage Planning Decision (SVPDA) ***Articles:*** ***FY 2012 Plans:***	-	-	3.400 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
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.			
Accomplishments/Planned Programs Subtotals	3.795	19.579	17.405

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 2012 Navy		DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Development	C/CPFF	TBD:TBD	-	11.050	Jun 2011	-		-		-	0.000	11.050	11.050
Primary Hardware Development	WR	NSWC Carderock:Bethesda, MD	0.761	1.160	Oct 2010	2.751	Oct 2011	-		2.751	0.000	4.672	
Systems Engineering	WR	NSWC Carderock:Bethesda, MD	0.766	0.673	Nov 2010	1.756	Oct 2011	-		1.756	0.000	3.195	
Engineering Development	WR	NSWC Carderock:Bethesda, MD	1.449	0.955	Dec 2010	1.955	Nov 2011	-		1.955	0.000	4.359	
Demonstration & Evaluation	WR	NSWC Carderock:Bethesda, MD	1.472	1.103	May 2011	2.198	May 2012	-		2.198	Continuing	Continuing	Continuing
Primary Hardware Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		1.200	Oct 2011	-		1.200	0.000	1.200	
Systems Engineering-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		0.600	Oct 2011	-		0.600	0.000	0.600	
Engineering Development-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		0.110	Nov 2011	-		0.110	0.000	0.110	
Demonstration & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		0.870	May 2012	-		0.870	0.000	0.870	
		Subtotal	4.448	14.941		11.440		-		11.440			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock:Bethesda, MD	-	-		0.200	Dec 2011	-		0.200	0.000	0.200	
Software Support	WR	NSWC Carderock:Bethesda, MD	-	-		0.200	Dec 2011	-		0.200	0.000	0.200	
Integrated Logistics Support	WR	NSWC Carderock:Bethesda, MD	-	-		0.300	Dec 2011	-		0.300	0.000	0.300	
Study Anaylses	WR	NSWC Carderock:Bethesda, MD	-	-		0.200	Apr 2012	-		0.200	0.000	0.200	
		Subtotal	-	-		0.900		-		0.900	0.000	0.900	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	1.530	1.198	Nov 2010	1.698	Nov 2011	-		1.698	0.000	4.426	
Operational Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	0.382	0.898	Nov 2010	1.748	Jan 2012	-		1.748	0.000	3.028	
Live Fire Test & Evaluation	WR	NSWC Carderock:Bethesda, MD	0.382	-	Mar 2011	-		-		-	0.000	0.382	
Developmental Test & Evaluation-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		0.060	Nov 2011	-		0.060	0.000	0.060	
		Subtotal	2.294	2.096		3.506		-		3.506	0.000	7.896	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD PAX:Patuxent River, MD	-	1.893	Jan 2011	-		-		-	0.000	1.893	
Program Management Support	WR	NSWC Carderock:Bethesda, MD	0.536	0.506	Oct 2010	0.856	Oct 2011	-		0.856	0.000	1.898	
Travel	Allot	NAVSEA HQ:Washington, DC	0.076	0.043	Sep 2011	0.043	Sep 2012	-		0.043	0.000	0.162	
Total Assests	WR	NSWC Carderock:Bethesda, MD	0.152	0.100	Mar 2011	0.100	Mar 2012	-		0.100	0.000	0.352	
Program Management Support-SVPDA	WR	NSWC Carderock:Bethesda, MD	-	-		0.560	Oct 2011	-		0.560	0.000	0.560	
		Subtotal	0.764	2.542		1.559		-		1.559	0.000	4.865	

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.506	19.579		17.405		-		17.405			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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 2012 Navy		DATE: February 2011
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 - FY10	1	2010	3	2010
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 Acceptance	1	2010	4	2016
Model & Simulation (if required)	1	2010	4	2016
Prototype Development	1	2010	4	2016
Prototype Demo	1	2010	4	2016
Land Based Testing	2	2010	4	2016
Determine Fuel and Maintenance Savings	2	2010	4	2016
Shipboard Evaluation	2	2010	4	2016
Component Implementation Maintenance Savings	2	2011	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0838: *Mobility Fuels (ADV)*	4.371	10.824	15.888	-	15.888	14.987	13.881	13.885	12.382	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 ability 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.

The increase in project 0838 in PE 0603724N from FY10 to FY11 and out is to support the Navy's effort to test and certify alternative fuels for Navy ship and aircraft utilization. The increased funding is for procurement of test fuel and to conduct the large-scale engine and system tests required to approve alternative fuel candidates for inclusion into the Navy's JP-5 and F-75 specifications. American Recovery and Reinvestment (ARRA) funding was provided to accelerate the development of test requirements and to validate them using the F/A-18 as the lead fleet test vehicle. The funding provided in project 0838 in PE 0603724N is to expand the ARRA-sponsored efforts across additional aircraft and ship systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aircraft Fuels	2.173	4.313	-
Articles:	0	0	

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
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. ***FY 2010 Accomplishments:*** Completed development of protocol to evaluate and approve alternative fuels. Down-selected 50% bio-derived/50% petroleum blend as initial alternative for JP-5 testing. Completed lab and rig testing on 50/50 bio blend JP-5. Completed initial development of multi-property shipboard sensor to measure critical jet fuel properties. ***FY 2011 Plans:*** Down-select initial alternative fuel candidate and initiate testing to validate protocol. Continue development of dual compatible (ship and aircraft) lubricity improving additive.			
Title: Ship Fuels	2.198	6.511	-
Articles:	0	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 2010 Accomplishments:*** Completed development of protocol to evaluate and approve alternative fuels. Completed testing of sensors to rapidly determine critical fuel properties. Down-selected 50% bio-derived/50% petroleum blend as initial alternative F-76 for testing. Completed lab and rig scale chemical and property testing of 50/50 bio blend F-76. Completed small high-speed diesel engine testing, and initiated gas turbine engine test. ***FY 2011 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
Complete development of Navy protocol to evaluate and approve alternative fuels. Down select initial alternative fuel candidate and initiate validation of evaluation and approval protocol. Transition shipboard sensor(s) to rapidly determine critical fuel properties. Continue development of dual compatible (ship and aircraft) lubricity improving additive.			
Title: Naval Tactical Fuels	-	-	15.888
Articles:			0
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.			
Accomplishments/Planned Programs Subtotals	4.371	10.824	15.888

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 2012 Navy			DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NRL:Washington, D.C.	0.825	0.200	Nov 2010	0.400	Nov 2011	-		0.400	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Patuxent River, MD	4.437	0.800	Nov 2010	1.400	Nov 2011	-		1.400	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	TBD:TBD	-	2.201	Feb 2011	-		-		-	0.000	2.201	2.201
Systems Engineering	WR	Navy Petroleum:Ft. Belvoir, VA	-	-		0.068	Nov 2011	-		0.068	0.000	0.068	
Systems Engineering	WR	NAVSEA:Philadelphia, PA	-	-		0.140	Nov 2011	-		0.140	0.000	0.140	
		Subtotal	5.262	3.201		2.008		-		2.008			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPFF	Various:Various	4.710	6.001	Jan 2011	-		-		-	0.000	10.711	10.711
Developmental Test & Evaluation	MIPR	Army Tank/ Arm:Warren, MN	0.228	-		-		-		-	0.000	0.228	
Test Fuel	C/FFP	TBD:TBD	-	-		5.000	Mar 2012	-		5.000	0.000	5.000	5.000
Hardware Testing	C/CPFF	Alion S&T:McLean, VA	-	-		2.000	Mar 2012	-		2.000	0.000	2.000	2.000
Hardware Testing	SS/CPFF	General Electric:Lynn, MA	-	-		1.500	May 2012	-		1.500	0.000	1.500	1.500
Hardware Testing	SS/CPFF	Rolls Royce:Indianapolis, IN	-	-		2.000	May 2012	-		2.000	0.000	2.000	2.000
Hardware Testing	C/CPFF	Various:TBD	-	-		3.380	May 2012	-		3.380	0.000	3.380	3.380
		Subtotal	4.938	6.001		13.880		-		13.880	0.000	24.819	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	Various:Various	4.117	1.622	Jan 2011	-		-		-	0.000	5.739	
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	
		Subtotal	5.009	1.622		-		-		-	0.000	6.631	

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.209	10.824		15.888		-		15.888			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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 2012 Navy		DATE: February 2011
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	2010	4	2011
A/C Fuels Sensor Development	1	2010	2	2011
A/C Fuels Advance Shipboard Compatible Performance Additive	1	2010	4	2011
Ship Fuels Alternative Fuel Evaluation/Certification	1	2010	4	2011
Ship Fuels Sensor Development	1	2010	2	2011
Ship Fuels A/C & Ship Compatible Lubricity Additive Development	3	2010	4	2011
Alternative Fuel Evaluation/Certification	1	2012	4	2016
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	2016
Green Carrier Strike Group Sail	1	2015	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0928: *Directed Energy Research*	-	-	13.404	-	13.404	16.290	16.079	19.813	3.266	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. Ocean Thermal Energy Conversion (OTEC) and other ocean energy 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 two areas of testing and evaluation:

a. Renewable Ocean Thermal Energy Deployment and Testing: This project will test and validate OTEC components and deploy, test, evaluate, and assess cost-effectiveness and environmental impact of OTEC prototype designs for deployment at Naval installations. It will also support feasibility evaluation of new energy sources for use at Naval installations, as well as test components and prototypes of other ocean energy technologies with potential for widespread applicability to energy security and renewable energy requirements.

b. Demonstration and Validation of Alternative Energy, Energy Efficiency and Advanced Grid Management Technology: This project will support the testing, demonstration, validation, and application of innovative facility energy efficiency and alternative energy technology. In addition, 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Directed Energy Research	-	-	13.404
Articles:			0
FY 2012 Plans: 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			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012
- 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 effeicient and alternative energy technology innovations			
Accomplishments/Planned Programs Subtotals	-	-	13.404

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 2012 Navy		DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Navy Energy Program	Various	NFESC:Port Hueneme, CA	-	-		11.854	Jan 2012	-		11.854	Continuing	Continuing	Continuing
Navy Energy Program	Various	NDW:Washington, DC	-	-		0.550	Apr 2012	-		0.550	Continuing	Continuing	Continuing
Navy Energy Program	Various	NAVFAC HQ:Washington, DC	-	-		1.000	Aug 2012	-		1.000	Continuing	Continuing	Continuing
		Subtotal	-	-		13.404		-		13.404			

Remarks

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 OTEC, advanced grid, and select other technologies, there will be a requirement for component testing and validation. This testing/validation is expected to result in completed tests, the milestones occurring in 3QFY12 and 3QFY13.

For OTEC, there is a requirement for a pilot prototype, which will have a draft design complete by the end of FY12, and construction occurring throughout FY13-FY15, resulting in installation by the end of FY15.

The OTEC system will then be demonstrated during FY16, resulting in a development test at the end of FY16.

Towards the end of the demonstration phase in FY16, it is expected that procurement specifications will be refined for a larger, commercial scale and OTEC plant.

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.

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		13.404		-		13.404			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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 2012 Navy		DATE: February 2011
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**
Directed Energy Research				
Technology Assessement	1	2012	4	2016
Concept of Employment	1	2012	4	2016
Component Test/Validation I	3	2012	3	2012
Component Test/Validation II	3	2013	3	2013
Prototype Design	4	2012	4	2012
Prototype Construction	1	2013	4	2015
Prototype Installation	4	2015	4	2015
Demonstration	4	2015	4	2016
Development Testing	4	2016	4	2016
Procurment Specifications	3	2016	3	2016
Deliverables: Phase I	3	2013	3	2013
Deliverables: Phase II	3	2014	3	2014
Deliverables: Phase III	3	2015	3	2015
Deliverables: Phase IV	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0929: *Aircraft Energy Conservation*	-	-	23.841	-	23.841	26.030	33.980	43.959	24.063	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 2010	FY 2011	FY 2012
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 2012 Navy			DATE: February 2011
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 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	-	-		2.300	Nov 2011	-		2.300	Continuing	Continuing	Continuing
		Subtotal	-	-		2.300		-		2.300			

Test and Evaluation ($ in Millions)

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

Management Services ($ in Millions)

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

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		23.841		-		23.841			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy			DATE: February 2011
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 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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 2012 Navy		DATE: February 2011
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	3	2015
F414 Engine Efficiency	1	2012	2	2012
Aircraft Drag Reducing	1	2012	4	2013
F/A-18 Bring-Back Weight Study	1	2012	3	2013
i-ENCON Program	1	2012	4	2016
Air Vehicle Energy Efficiency RDT&E	1	2012	4	2016
Engine Efficiency RDT&E	1	2012	4	2016
Mission Planning Module Upgrades	1	2012	2	2013

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9999: *Congressional Adds*	10.477	-	-	-	-	-	-	-	-	0.000	10.477
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 2010	FY 2011
Congressional Add: Alt and Renew Energy Prog - Cong ***FY 2010 Accomplishments:*** Initiate study to evaluate increase of F-18 carrier weight limits.	2.988	-
Congressional Add: Solar Heat Reflective Film for Energy Efficiency ***FY 2010 Accomplishments:*** New Congressional add started in FY10. After FMB2 review, funds were released to NAVFAC Headquarters in the third quarter of FY10. Funds have been issued for background research on the state of the technology, research being pursued by industry and academia, and identification of Department of the Navy needs to establish a statement of work to expend the balance of funds.	3.904	-
Congressional Add: Molten Carbonate Fuel Cell Demonstrator ***FY 2010 Accomplishments:*** Manufactured, installed, commissioned, operated, and maintained a 300 kilowatt (KW) molten carbonate fuel cell (MCFC). Selected operational parameters are being monitored, recorded, analyzed, and reported over a period of 36 months. Exercised an option to increase the installed capacity of the MCFC power system from 300 KW to a maximum 1.4 megawatt.	3.585	-
Congressional Adds Subtotals	10.477	-

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.