

# UNCLASSIFIED

## FY 2004/2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET Exhibit R-2

DATE: February 2003

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604710N  
PROGRAM ELEMENT TITLE: Navy Energy Program

COST: (Dollars in Thousands)

PROJECT NUMBER/ TITLE	FY 2002 ACTUAL	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	FY 2008 ESTIMATE	FY 2009 ESTIMATE
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R0371 Energy Conservation (ENG)	3,030	5,566	-	-	-	-	-	-
R9241 Congressional Plus-Up	-	1,223	-	-	-	-	-	-
Total	3,030	6,789	-	-	-	-	-	-

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Develop energy-efficient systems and practices for ships, aircraft, and facilities. Resulting energy efficiency gains contribute to fleet sustainability, combat capability (e.g., greater range, time on station), and reduced operating costs. Efforts include fuel use optimization aids for aircraft; existing gas turbine engine efficiency improvements, anti-fouling paints, and auxiliary systems for ships; and adaptation of renewable/alternative energy technologies to Navy facility needs. Provide engineering development, and test and evaluation support to the companion PE 0603724N Project R0829. This program and the companion PE 0603724N Navy Energy Program (ADV), support the achievement of Legislative, White House, Department of Defense (DoD), and Navy Energy Management Goals. They also address direction by 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. Navy is TRISERVICE lead for the implementation of renewable/alternative energy systems across DoD.

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## B. PROGRAM CHANGE SUMMARY:

	FY 2002	FY 2003	FY 2004	FY 2005
FY 2003 President's Budget Submission:	3,129	5,691	5,804	5,956
Adjustments from FY 2003 President's Budget:				
Program Termination			-5,804	-5,956
Congressional Plus-Up		1,250		
FY2002 SBIR	-23			
Cong. Rescissions/Adjustments/Undist. Reductions	-15	-79		
Execution Adjustment	-61			
Pay Raise/Inflation Adjustments		-73		
FY 2004/2005 President's Budget Submission:	3,030	6,789	-	-

## PROGRAM CHANGE SUMMARY EXPLANATION:

Schedule: Not applicable  
Technical: Program terminates in FY04.

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## FY 2004/2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET Exhibit R-2a

DATE: February 2003

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604710N  
PROGRAM ELEMENT TITLE: Navy Energy Program

Project Number: R0371  
Project Title: Energy  
Conservation (ENG)

COST: (Dollars in Thousands)

PROJECT NUMBER/ TITLE	FY 2002 ACTUAL	FY2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	FY 2008 ESTIMATE	FY 2009 ESTIMATE
R0371 Energy Conservation (ENG)	3,030	5,566	-	-	-	-	-	-

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Develop energy-efficient systems and practices for ships, aircraft, and facilities. Resulting energy efficiency gains contribute to fleet sustainability, combat capability (e.g., greater range, time on station), and reduced operating costs. Efforts include fuel use optimization aids for aircraft; existing gas turbine engine efficiency improvements, anti-fouling paints, and auxiliary systems for ships; and adaptation of renewable/alternative energy technologies to Navy facility needs. Provide engineering development, and test and evaluation support to the companion PE 0603724N Project R0829. This program and the companion PE 0603724N Navy Energy Program (ADV), support the achievement of Legislative, White House, Department of Defense (DoD), and Navy Energy Management Goals. They also address direction by 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. Navy is TRISERVICE lead for the implementation of renewable/alternative energy systems across DoD.

### B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 02	FY 03	FY 04	FY 05
Shipboard Energy Conservation	657	612	-	-

This effort improves the energy efficiency of Navy ships through development and Test and Evaluation (T&E) of more efficient machinery and electrical systems.

### FY 2002 ACCOMPLISHMENTS:

- Initiated design and installation of lightpipe lighting systems for at-sea T&E in hangar bays and well decks.
- Completed design, fabrication and T&E of an improved naval lighting fixture utilizing T5 fluorescent lamps.
- Initiated at-sea T&E of on-line gas turbine engine waterwash system.

### FY 2003 PLANS:

- Complete at-sea T&E of lightpipe lighting systems in hangar bays and well decks.
- Complete at-sea T&E of an on-line gas turbine engine waterwash system.

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FY 2004/2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET  
Exhibit R-2a

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604710N  
PROGRAM ELEMENT TITLE: Navy Energy Program

Project Number: R0371  
Project Title: Energy  
Conservation (ENG)

FY 2004 PLANS: Not applicable

FY 2005 PLANS: Not applicable

	FY 02	FY 03	FY 04	FY 05
Aircraft Energy Conservation	500	700	-	-

This effort reduces the fuel consumption of Navy and Marine Corps aircraft by developing flight planning software that optimizes fuel efficiency.

## FY 2002 ACCOMPLISHMENTS:

- Continued software development of the Wings database engine.
- Completed converting Flight Optimization Routines for Energy Management (FOREM) aircraft performance computer models to the Wings database.
- Initiated development of new Naval aircraft performance models using the Wings database engine.
- Initiated development of Portable Flight Performance System (PFPS)/Wings interface software such that the Wings database models are compatible with the PFPS software.

## FY 2003 PLANS:

- Complete software development of the Wings database engine.
- Complete development of nine new Naval aircraft performance models using the Wings database engine.
- Complete development of PFPS/Wings interface software such that the Wings database models are compatible with the PFPS software.

FY 2004 PLANS: Not applicable

FY 2005 PLANS: Not applicable

	FY 02	FY 03	FY 04	FY 05
Alternative and Renewable Energy Systems	1,873	4,254	-	-

This effort improves Department of the Navy energy security and reduces energy costs through the design assembly and testing of prototypes advanced alternative and renewable energy systems to determine their suitability for application at Navy and Marine Corps shore installations.

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Project Number: R0371  
Project Title: Energy  
Conservation (ENG)

## FY 2002 ACCOMPLISHMENTS:

- Completed commissioning of a grid connected system using advanced thin-film photovoltaic (PV) modules.
- Continued site specific design and support of PV/Diesel hybrid power systems.
- Designed and assembled prototype PV/flywheel and PV/fuel cell hybrid power systems to investigate advanced energy storage technologies.
- Continued development and demonstration of high efficiency, low emissions power generation system.

## FY 2003 PLANS:

- Complete site specific design and support of PV/Diesel hybrid power systems.
- Complete assembly and T&E of prototype PV/flywheel and PV/fuel cell hybrid power systems.
- Complete development and demonstration of high efficiency, low emissions power generation system.

## C. OTHER PROGRAM FUNDING SUMMARY:

### NAVY RELATED RDT&E:

PE 0601153N (Defense Research Sciences)  
PE 0603513N (Shipboard Systems Concept Development)  
PE 0603573N (Advanced Surface Machinery Systems)  
PE 0603721N (Environmental Protection)  
PE 0603724N (Navy Energy Program (ADV))  
PE 0604231N (Tactical Command Systems)

NON-NAVY RELATED RDT&E: Not applicable

D. ACQUISITION STRATEGY: Not applicable

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FY 2004/2005 RDT&E,N PROGRAM ELEMENT/PROJECT COST BREAKDOWN  
Exhibit R-3

DATE: February 2003

BUDGET ACTIVITY: 4      PROGRAM ELEMENT: 0604710N  
PROGRAM ELEMENT TITLE: Navy Energy Program

Project Number: R0371  
Project Title: Energy  
Conservation (ENG)

## A. PROJECT COST BREAKDOWN: (\$ in thousands)

Project Cost Categories	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Engineering Development & Testing	3,030	5,566	-	-

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FY 2004/2005 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET  
Exhibit R-2a

DATE: February 2003

BUDGET ACTIVITY: 5      PROGRAM ELEMENT: 0604710N  
PROGRAM ELEMENT TITLE: Navy Energy Program

Project Number: R9241  
Project Title: Photovoltaic  
Energy Park

Congressional Plus-Ups:

R9241	FY 02	FY 03
Photovoltaic Energy Park	N/A	1,223

Plan, design and establish an energy park to demonstrate solar and other renewable energy technologies.

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R-1 Line Item No. 128



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R-4a Schedule Profile - Item No. 128

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R-4a Schedule Profile - Item No. 128