FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 2

PROGRAM ELEMENT: 0602805N
PROGRAM ELEMENT TITLE: Dual Use Science and Technology Program

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Dual Use Science & Technology Program	9,992	12,489	0	0	0	0	0	0	38,444

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the Dual Use Science and Technology (DUS&T) Program is to prototype and demonstrate new approaches for leveraging commercial research, technology, products, and processes for military benefit. These new approaches to working with industry, many of which were prototyped at DARPA, must become common throughout the Navy in order to take full advantage of the technological dynamism of the commercial sector. While acquisition reform has helped clear the path, and experience has shown leveraging can work; it has also shown that leveraging is still unfamiliar and not widely adopted. The challenge is to spread leveraging of the commercial sector into the Navy and make it a normal way of doing business throughout the entire acquisition spectrum. Specifically, DUS&T encourages the Navy to leverage commercial research and development to improve the performance, cost and/or readiness of military systems. Under this effort, the Navy solicits, evaluates, ranks, and nominates dual use S&T projects for Dual Use S&T funds. Each project is 50% cost shared with industry. 25% is cost shared with the Navy project funds and Dual Use S&T provides the remaining 25%. All projects are awarded using either Cooperative Agreements or Other Transactions. This is essentially learning by doing approach to Dual Use S&T in the Navy, with Dual Use S&T funds providing an incentive.

(U) Due to the number of efforts in the PE, the programs described are representative of the work included in the PE.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under APPLIED RESEARCH because it investigates technological advances with possible applications toward solution of specific Naval problems, short of a major development effort.

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B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS: ($9,992) The following dual use S&T efforts were awarded:

- (U) 500kW Integrated Fuel Processor development
- (U Dual Use of Energy Transduction Materials
- (U) Processing of Biased Lead Zirconate Titanate Material for Use in High Power Sonar Transducers and High Strain Actuators
- (U) Design Optimization and Methodology for Stern Flaps
- (U) Hydraulic Systems Replacement Using Magnetostrictive Technology in the 50,000 Pound Linear Thrust Range
- (U) NAVAIR Technology Commercialization Initiative to transfer Navy developed technology to the commercial sector.
- (U) Qualification of Ausform Finishing Process for the Manufacturing of Aerospace Gearing
- (U) Very High Power Power Electronics Building Block Demonstration
- (U) A System for Distributed Registration for Mobile Augmented Reality in Urban Environment
- (U) Linear Wide-Band Vacuum Electronic Power Amplifier Multi-Frequency Design Codes for Linear High Power Amplifiers
- (U) Affordable Modular Digital Receiver
- (U) Low Defect Density GaN Substrates from GaN Boules
- (U) Band Pass Modulators Active Control of Combustion Processes
- (U) Magnetostrictive Actuators for Marine Propeller Pitch and Flow Control
- (U) Dynamically Reconfigurable and Scalable Distributed Shipboard Automation System for Improved Sustainability and Survivability
- (U) Thermal Barrier Coatings for Molybdenum Refractory Alloys Cost-Effective Fabrication Processes for Advanced Superalloy Disks
- (U) High Power Density Integrated Motor-Propulsors and Electric Machines
- (U) Intelligent Inference Systems Bio-Bots
- (U) Enhanced Bearing Materials
- (U) Nickel-Metal Hydride Aircraft Battery

FY 2001 Congressional Plus-up:

Energy and Environmental Technology

- (U) ($1,451) Opened the state of Hawaii's first fuel-cell test facility, to establish the islands as a center for hydrogen energy development and act as a magnet for additional research projects. The project is a collaboration between UTC Fuel Cells Inc. a division of Connecticut-based United Technologies; the University of Hawaii's (UH) Hawaii Natural Energy Institute; Hawaiian Electric; and the Department of Defense's Office of Naval Research

2. (U) FY 2002 PLAN: The following efforts were awarded or continued:

- (U) Advanced Dual Use Propulsion technologies development for manned and unmanned vehicles
- (U) Turbine Blade technologies development
- (U) 500kW Integrated Fuel Processor development
- (U) Qualification of Ausform Finishing Process for the Manufacturing of Aerospace Gearing
- (U) A System for Distributed Registration for Mobile Augmented Reality in Urban Environment
- (U) Linear Wide-Band Vacuum Electronic Power Amplifier Multi-Frequency Design Codes for Linear High Power Amplifiers
- (U) High Power Silicon Carbide Transmitter
- (U) Dynamically Reconfigurable and Scalable Distributed Shipboard Automation System for Improved Sustainability and Survivability
- (U) High Power Density Integrated Motor-Propulsors and Electric Machines
- (U) Intelligent Inference Systems Bio-Bots
- (U) Reconfigurable Control and Fault Identification System
- (U) Congressional Plus-Up: Fuel cell research utilizing deep sea methane hydrates as a in-situ fuel source.

FY 2002 Congressional Plus-up:

Energy and Environmental Technology

- (U) ($2,577) Test to examine engineering associated with optimal performance and durability. Will focus on making advances in durability performance and cost reduction and moving rapidly toward commercialization

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3. (U) FY 2003 PLAN: N/A

B. (U) PROGRAM CHANGE SUMMARY:

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Submission:	12,452	10,000	
(U) Congressional Plus-up		2,600	
(U) FY01 SBIR	-315		
(U) Execution Adjustment	-2,145		
(U) Section 8123 –Management Reform/ Initiative Reduction		-111	
(U) FY 2003 President's Submission	9,992	12,489	0

C. (U) PROGRAM CHANGE SUMMARY EXPLANATION:

(U) Schedule: N/A
(U) Technical: N/A

D. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) RELATED RDT&E:

(U) NAVY RELATED RDT&E:
(U)Various S&T PE's supporting the 25% level dual use requirement
(U) NON NAVY RELATED RDT&E:
(U) 0602805A Dual Use Science and Technology
(U) 0602802F Dual Use Science and Technology

E. (U) SCHEDULE PROFILE: not applicable