FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N
PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total PE	111,176	85,977	60,360	70,519	44,461	55,875	55,593
2911 POWER PROJECTION ADVANCED TECHNOLOGY	70,474	48,914	60,360	70,519	44,461	55,875	55,593
9999 CONGRESSIONAL PLUS-UPS	40,702	37,063	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The efforts described in this Program Element (PE) are based on investment directions as defined in the Naval S&T Strategic Plan approved by the S&T Corporate Board (Jan 2007). This strategy is based on needs and capabilities from Navy and Marine Corps guidance and input from the Naval Research Enterprise (NRE) stakeholders (including the Naval enterprises, the combatant commands, the Chief of Naval Operations (CNO), and Headquarters Marine Corps). It provides the vision and key objectives for the essential science and technology efforts that will enable the continued supremacy of U.S. Naval forces in the 21st century. The Strategy focuses and aligns Naval S&T with Naval missions and future capability needs that address the complex challenges presented by both rising peer competitors and irregular/asymmetric warfare.

This program develops and demonstrates advanced technologies, including Directed Energy, for naval weapon systems, and the Electric Warship. This Program Element (PE) includes elements of the following Future Naval Capabilities (FNCs); Time Critical Strike, and ForceNet. Within the Naval Transformation Roadmap, this investment will achieve one of four key transformational capabilities required by Sea Strike as well as technically enable elements of both Sea Shield and Force Net.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N
PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

B. PROGRAM CHANGE SUMMARY:

	FY 2007	FY 2008	FY 2009
FY 2008/FY 2009 President's Budget Submission	114,221	49,684	59,984
Congressional Action	0	37,300	0
Congressional Action - Realigned to Army/Defensewide RDTE	-996	0	0
Congressional Undistributed Reductions/Rescissions	0	-573	0
Execution Adjustments	435	0	0
Program Adjustments	0	0	487
Rate Adjustments	0	0	-111
SBIR Assessment	-2,484	-434	0
FY 2009 President's Budget Submission	111,176	85,977	60,360

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable.

Schedule: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

E. PERFORMANCE METRICS:
The metrics used are programmatic milestones and technical milestones such as flight test and testing of projectile concepts for technical demonstration programs; Technology Transition Agreements (TTAs) which are agreements between the Office of Naval Research and an acquisition program office to transition FNC 6.3 technologies into an acquisition program.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

COST: (Dollars in Thousands)

Project Number & Title	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
2911 POWER PROJECTION ADVANCED TECHNOLOGY	70,474	48,914	60,360	70,519	44,461	55,875	55,593

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This project supports the Time Critical Strike (TCS) and ForceNet FNC components which address technological issues associated with the development of strike weapons to significantly decrease the launch to engagement timeline; provide the Navy of the future the ability to quickly locate, target, and strike critical targets; and enhance mission capabilities and operational utility of Naval forces by dramatically increasing the autonomy, performance, and affordability of Naval organic Unmanned Vehicle systems.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
PRECISION STRIKE TECHNOLOGY	41,828	22,926	27,958

This activity focuses on the development of high speed (Mach 3 to Mach 4+) propulsion technologies supporting the development of strike weapons which significantly decrease the launch to engagement timeline. Investments under this activity were previously reported under the Time Critical Strike FNC. This new activity breakout provides improved clarification of the overall investment scope.

Decrease in funding between FY 2007 and FY 2008 is due to the completion of the Hypersonic Flight Demonstration Program (HyFly). The increase in funding between FY 2008 and FY 2009 is due to the significant increase in the 6.3 demonstration portion of the Electromagnetic (EM) Railgun program.

FY 2007 Accomplishments:

- RATTLRS: Completed critical design review and fabrication of an affordable/efficient aero-configuration, complete testing of a Mach 3+ expendable turbine engine, perform system checkouts in advance of demonstrating

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

high speed aero-propulsion integration in flight tests.
- HyFly: Conducted one fully powered HyFly flight to demonstrate Hypersonic and long range flight performance.
- EM Gun: Initiated procurement for the first set of new capacitor banks to support the 32 mega-joule (MJ) muzzle energy demonstration. Additional sets will be purchased in FY 2008 and FY 2009 to provide a total of 100MJ of energy to the system. Conducted testing of initial barrel design components from the three vendors currently under contract to design and build the tactical barrel. Conducted system level testing of the energy storage and power delivery system through the rails of the railgun to ensure the initial design will support the full scale power and current requirements in FY 2009 and FY 2010. Supported testing of initial projectile concepts from two vendors currently under contract for projectile development.

FY 2008 Plans:

- RATTLRS: Initiate RATTLRS flight tests demonstrating high speed aero-propulsion integration. Initiate data reduction of flight demonstrations and prepare final program report.
- HyFly: Conduct final fully powered HyFly flight to demonstrate Hypersonic and long range flight performance.
- EM Gun: Continue procurement of capacitor banks. Continue testing components and designs up to 16 MJ muzzle velocity. Continue testing of initial barrel design components and system level testing of the energy storage and power delivery system. Continue Ship integration efforts and support to testing of initial projectile component concepts. Initiate detailed design electromagnetic demonstration launcher with industry partners. Initiate firing of EM lab launcher to test components and designs up to 16 MJ.

FY 2009 Plans:

- EM Gun: Plan for FY 2009 is Go/No Go Decision testing and analysis. Continue testing of initial barrel design components. Continue ship integration efforts. Continue the conduct of system level testing of the energy storage and power delivery system. Continue to support testing of initial projectile concepts. Continue electromagnetic demonstration launcher detailed design. Continue firing of EM lab launcher to continue testing of components and designs up to 16 MJ muzzle velocity. Complete procurement of capacitor banks and continue installation of equipment and system integration into Electromagnetic Launch Facility (EMLF) at NSWC Dahlgren, VA. Initiate Integrated Launch Packages (ILP) flight demonstrations at 20 Kgs. Initiate preliminary designs for mid-range testing.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

	FY 2007	FY 2008	FY 2009
STRIKE AND LITTORAL COMBAT TECHNOLOGIES	20,133	25,988	32,402

The focus of this activity is on those technologies that will support the Naval Precision Strike Operations and provide the Navy of the future the ability to quickly locate, target, and strike critical targets. This activity includes support to the following FNC Enabling Capabilities (ECs): Advanced Naval Fires Technology, Hostile Fire Detection and Response, Dynamic Target Engagement & Enhanced Sensor Capabilities, and Discriminate and Provide Terminal Guidance for Weapons Targeted at Moving Targets.

The increase from FY 2007 through FY 2009 is due to funding additional FNC projects. This Activity reflects the alignment of investments for the following ECs: Advanced Naval Fires Technology Spiral 1, Hostile Fire Detection and Response Spiral 1, Dynamic Target Engagement & Enhanced Sensor Capabilities, Discriminate and Provide Terminal Guidance for Weapons Targeted at Moving Targets and Enhanced Weapons Technologies.

FY 2007 Accomplishments:

- Advanced Naval Fires Technology (ANF): Initiated and completed effort to reduce time delay from target acquisition to engagement through information sharing interfaces; accurate mobile, lightweight fire control systems and improved forward digital target acquisition and hand off. Specific tasks included: adaptive expeditionary maneuver warfare system, advanced gun barrel technology, advanced weapons material technology, indirect weapon aiming/pointing system size/weight reduction, Marine Air/Ground Task Force (MAGTF)/Joint fires information exchange connectivity and interoperability, Vertical Assault force lightweight computational interface capability, and universal fire control software for indirect weapon systems.
- Hostile Fire Detection and Response (HFDR): Developed technologies for hostile fire detection and active response capabilities to increase individual Marine and tactical level unit survivability and mobility. Specific efforts included: advanced ammo packaging, Electronic Warfare (EW) Integrated System for Small Platforms (EWISSP) and GUNSLINGER hostile fire detection and counter fire system.
- Dynamic Target Engagement & Enhanced Sensor Capabilities (includes Ground Moving Target Indicator (GMTI) and Ultra Endurance Unmanned Air Vehicle (UAV) projects): Developing the capability to improve the processing of dynamic targets from 100 to 400 per day. Developed UAVs with increased endurance and support for more autonomous operations. Specific tasks included development of: decision support algorithms for dynamic target engagement, remote sensor fusion hardware for ground sensors, an ultra endurance UAV, and a GMTI radar system for use on UAVs. Continued effort to provide a low-cost, single board radar system suitable for use on a long endurance UAV. Continued effort to provide affordable, high endurance platform/propulsion with Commercial Off

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

the Shelf (COTS) and modified COTS components for persistent Intelligence, Surveillance and Reconnaissance (ISR), targeting, Bomb Damage Assessment/Bomb Damage Indication (BDA/BDI), and weapon delivery. Continued development of Electro Optic/Infrared (EO/IR) sensors and foliage penetration radars suitable for high resolution imaging of ground threats through rain, fog, and camouflage from small UAVs.
- Discriminated and Provided Terminal Guidance for Weapons Targeted at Moving Targets: Provided products to discriminate targets from non-combatants and provided terminal guidance to engage targets that are operating in close proximity to noncombatants. The effort developed advanced sensors, communications, and planning systems. Specific tasks included: the development of a Low-Cost Imaging Terminal Seeker (LCITS). LCITS conducted a successful Program Round (PR) #1 Shot which met all PR-1 Flight Objectives.

FY 2008 Plans:

- Hostile Fire Detection and Response: Complete Reconfigurable Surveillance UAV for Warfighters which developed EO/IR sensors and foliage penetration radars suitable for high resolution imaging of ground threats through rain, fog, and camouflage from small UAVs.
- Discriminate and Provide Terminal Guidance for Weapons Targeted at Moving Targets: Continue Low Cost Imaging Terminal Seeker projects. Initiate Weapons Data Link (WDL) project to develop a weapons data link terminal that will allow robust in-flight control of strike weapons at greater standoff ranges with reduced power/space/weight requirements, and improved protection against Electronic Counter Measures (ECM).
- Dynamic Target Engagement & Enhanced Sensor Capabilities: Continue Ultra Endurance UAV project. Complete GMTI Scout, and Remote Sensor Fusion Card efforts. Initiate Decision Support for Dynamic Target Engagement.
- Increased Capability Against Moving and Stationary Targets: Initiate Direct Attack Seeker Head (DASH) project to use active millimeter wave (mmW) radar and Imaging Infrared (IIR) seekers to develop and demonstrate a low cost multi-sensor array technology to engage moving targets in adverse weather battlefield conditions. The DASH common aperture architecture is applicable to a variety of weapon airframes such as Hellfire, High Speed Anti-Radiation Missile (HARM), Joint Direct Attack Munition (JDAM), and Harpoon. Initiate Multi-Mode Sensor/Seeker (MMSS) project to develop a tri-mode sensor/seeker for use on surveillance platforms such as Fire Scout. MMSS will develop and demonstrate the capability to provide increased range target search, acquisition, identification, and tracking in both clear and adverse battlefield weather.

FY 2009 Plans:

- Discriminate and Provide Terminal Guidance for Weapons Targeted at Moving Targets: Complete LCITS project, including captive carry of the weapon integrated seeker and upgraded launcher and firing two guided rounds

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

within a tactically relevant environment. Continue WDL hardware and software demonstration of a weapons data link terminal that will allow robust in-flight control of strike weapons at greater standoff ranges with reduced power/space/weight requirements, and improved protection against ECM.
- Dynamic Target Engagement & Enhanced Sensor Capabilities: Complete Decision Support for Dynamic Target Engagement, and Ultra Endurance UAV efforts.
- Increased Capability Against Moving and Stationary Targets: Continue the DASH project to drive down seeker cost during the procurement and test of the infrared imaging seeker components. Continue MMSS project to conduct a Concept Design Review (CDR) and initiate the build of a common aperture Laser Radar (LADAR) and infrared sensor system.
- Enhanced Weapons Technologies: Initiate three new products to address short-falls in current Counter Air (CA) and Counter Air Defense (CAD) capabilities by providing improved range and end-game maneuverability while decreasing Time-of-Flight. Initiate definition and documentation of system level requirements for airframe, thrust level, insensitive-munitions and safety/reliability for CA Advanced Mid-Range Air-to-Air Missile (AMRAAM) Improvements. Initiate definition and documentation of system level requirements for CAD. Initiate definition and documentation of system level requirements for High Speed Components.
- Continue development of advanced technologies that support delivery of Technology Oversight Group approved FNC ECs structured to close operational capability gaps in power projection. Package advanced power projection technologies into deliverable FNC products and ECs that can be integrated into acquisition programs within a five year period. Mature power projection technologies that support naval requirements identified within the Sea Strike and FORCEnet naval capability pillars.

	FY 2007	FY 2008	FY 2009
AUTONOMOUS OPERATIONS (AO)	8,513	0	0

The Autonomous Operations (AO) FNC activity aims to enhance the mission capability and operational utility of Naval forces by developing technologies that will dramatically increase the autonomy, performance, and affordability of Naval organic Unmanned Vehicle systems. By defining and focusing risk reduction overarching Intelligent Autonomy (IA) S&T principles, transitional products will be developed in four areas: UAV Technology, which includes IA reasoning, technologies to enhance "see and avoid" capabilities, object identification, vehicle awareness, and vehicle and mission management; UUV, which will demonstrate the technical feasibility for a UUV system to effectively search, detect, track and trail undersea threats while maintaining a robust communications link to enable appropriate command, control and transmission of collected data; UGV, which focus on the increasing utility of UGV systems in urban and littoral terrain to Marine Corps units; and UAV Propulsion, which will develop innovative propulsion and power technologies unique to Naval

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

UAVs operating from surface combatants. This activity also contains a task from the Knowledge Superiority Assurance FNC.

This Activity reflects the alignment of investments for the following ECs: Marine and UxV Tactical Intelligence, and Surveillance and Reconnaissance (ISR). The elimination of funding after FY 2007 is a result of the completion in FY 2007 of all of the Autonomous Operations tasks including multi-vehicle cooperation technologies, multi-modal interface control, and the UAV propulsion tasks.

FY 2007 Accomplishments:

- IA Task: Completed testing and demonstration of multi-vehicle cooperation technologies including high-fidelity simulation of multiple heterogeneous Naval unmanned vehicles in a simulated warfare environment, hardware, and in-water demonstrations.
- UAV Technology: Completed testing and demonstration of multi-modal interface control.
- UAV Propulsion: Completed integration of power generation, distribution, prognostic and engine diagnostic and thermal management technologies on the WLE-67/A1 demonstrator engine and ground test. The propulsion system and associated technologies developed and demonstrated are applicable towards Joint-Unmanned Combat Air System (J-UCAS), and Broad Area Maritime Surveillance (BAMS) UAV. Completed ground test of the XTE-67/A1 UAV demonstrator engine with naval-unique technologies and integrated with an enhanced next-generation commercial core and a Mach 3.5 capable expendable turbine engine for missile applications.

C. OTHER PROGRAM FUNDING SUMMARY - NAVY RELATED RDT&E:
PE 0305204N Tactical Unmanned Aerial Vehicles
PE 0601153N Defense Research Sciences
PE 0602114N Power Projection Applied Research
PE 0602131M Marine Corps Landing Force Technology
PE 0602236N Warfighter Sustainment Applied Research
PE 0603123N Force Protection Advanced Technology
PE 0603236N Warfighter Sustainment Advanced Technology
PE 0603502N Surface and Shallow Water Mine Countermeasures
PE 0603654N Joint Service Explosive Ordnance Development
PE 0603782N Mine and Expeditionary Warfare Advanced Technology
PE 0603790N NATO Research and Development

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 2911 PROJECT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY

OTHER PROGRAM FUNDING SUMMARY - NON-NAVY RELATED RDT&E:
PE 0603709D8Z Joint Robotics Program
PE 0604709D8Z Joint Robotics Program
PE 0602203F Aerospace Propulsion

D. ACQUISITION STRATEGY:
Not applicable.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

CONGRESSIONAL PLUS-UPS:

	FY 2007	FY 2008
ADVANCED LIFTING BODY SHIP RESEARCH	5,438	0

This effort supported issues arising from commercialization efforts coming from technology transfer.

	FY 2007	FY 2008
ADVANCED MOTOR-PROPULSOR DEVELOPMENT AND TESTING	0	3,974

This effort supports Advanced Motor-Propulsor Development and Testing.

	FY 2007	FY 2008
ARTICULATED STABLE OCEAN PLATFORM	1,554	0

This effort supported the extension of predictive methods, previously developed, to elastically connect bodies with further extension to ship-to-ship connectors.

	FY 2007	FY 2008
AUTONOMOUS UNMANNED SURFACE VESSEL	1,749	0

This effort continued development and testing of the Autonomous Unmanned Surface Vessel prototype. This program also modified and outfitted the prototype to develop, integrate and demonstrate a wing sail, command and control software/algorithms, a navigation system and a hydrofoil.

	FY 2007	FY 2008
DP-2 VECTORED THRUST AIRCRAFT	3,797	0

This effort upgraded the simulation to allow for better prediction of performance, improved test design, and testing of aircraft engine hot gas ingestion in ground effect using aircraft and models.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

	FY 2007	FY 2008
EXCALIBUR	0	795

This effort supports Excalibur research.

	FY 2007	FY 2008
EXPEDITIONARY CRAFT	9,128	19,871

The FY 2007 effort supported the construction of the experimental expeditionary vessel demonstrator (E-Craft, or MV Susitna) and preparation for Navy trials to occur when the ship is complete.

The FY 2008 effort supports Expeditionary Craft research.

	FY 2007	FY 2008
FLOW PATH ANALYSIS TOOL (FPAT)	0	994

This effort supports flow path analysis tool (FPAT) research.

	FY 2007	FY 2008
HIGH ENERGY LASER SYSTEMS TEST FACILITY	2,526	0

This effort upgraded the Mid-Wave Infrared (MWIR) and the Long-Wave Infrared (LWIR) sensors to provide improved target acquisition in clutter and more precise tracking of the target during the laser engagement.

	FY 2007	FY 2008
HIGH SPEED ANTI-RADIATION DEMONSTRATION (HSAD)	0	1,593

This effort supports high speed anti-radiation demonstration (HSAD) research.

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

	FY 2007	FY 2008
INFORMATION SHARING FOR ISRTE	1,749	994

The FY 2007 effort supported the development of algorithms to: detect, track, and engage a moving target using the in-flight weapon; evaluate the communication requirements of the weapon to receive the initial targeting information and to update targeting information in flight; and developed a simulation capability that will allow the new weapon algorithms to be tested and verified against moving targets. Pattern recognition algorithms to aid in target reacquisition were developed. The simulation software supported a simulation of the end game over water or land with inserted targets.

The FY 2008 effort will support information sharing for Intelligence, Surveillance, Reconnaissance, Targeting and Engagement (ISRTE) of mobile targets research.

	FY 2007	FY 2008
LASER RADAR (LADAR)	3,163	0

This effort demonstrated increased laser power to provide increased sensor range and resolution. Eye-safe capabilities were explored to enhance sensor regimes.

	FY 2007	FY 2008
LASER RADAR (LADAR) - NAVAL AIR WARFARE CENTER CHINA LAKE	943	0

This effort supported development of a laser radar at the Naval Air Warfare Center, China Lake.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

	FY 2007	FY 2008
LONG WAVELENGTH ARRAY	1,611	2,384

The FY 2007 effort developed a prototype low-frequency radio telescope designed to study small scale irregularities in the Earth's ionosphere and to produce high-sensitivity, high-resolution images of cosmic radio sources in the frequency range of 20-80 MHz, thus providing an entirely new probe of ionospheric and astronomical phenomena at scales never before achieved. This was accomplished with a large collecting area (approaching 1 square kilometer at its lowest frequencies) spread over an interferometric array with baselines of at least 400 km, located mainly in the state of New Mexico.

The FY 2008 effort will support long wavelength array research.

	FY 2007	FY 2008
MAGDALENA RIDGE OBSERVATORY (MRO)	3,795	6,458

The FY 2007 effort focused on acceptance testing for a single 2.4m telescope and design and development of various systems associated with an interferometer.

The FY 2008 effort will support research at the Magdalena Ridge Observatory.

	FY 2007	FY 2008
QUIET HIGH SPEED PROPULSION	4,273	0

This effort focused on reducing the risk associated with integrating a high power density motor with a large length to diameter ratio into a podded propulsor housing. A prototype Quiet High Speed Podded Motor was constructed and underwent land-based in-water testing to demonstrate and validate acoustic and electromagnetic signature performance.

FY 2009 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2008
Exhibit R-2a

BUDGET ACTIVITY: 03
PROGRAM ELEMENT: 0603114N PROGRAM ELEMENT TITLE: POWER PROJECTION ADVANCED TECHNOLOGY
PROJECT NUMBER: 9999 PROJECT TITLE: CONGRESSIONAL PLUS-UPS

	FY 2007	FY 2008
TIME CRITICAL STRIKE RAMJET	976	0

This effort focused on performing a successful flight test demonstration of the High-Speed Anti-radiation Demonstration (HSAD) weapons system and supported HSAD Airframe/Propulsion Section development with the maturing of key technology areas that were investigated in the previous year's research.