# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2008**

| APPROPRIATION/ BUDGET ACTIVITY | PE NUMBER AND TITLE |
|---|---|
| **RDTE, Defense Wide BA 05** | **0604165D8Z - Prompt Global Strike Program** |

| COST ($ in Millions) | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate |
|---|---|---|---|---|---|---|---|
| P165 Prompt Global Strike Project | | 99.364 | 117.572 | 170.000 | 111.997 | 81.000 | 82.300 |

**A. Mission Description and Budget Item Justification:** This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements application; and systems design analyses necessary to establish and execute an integrated CPGS program. This new Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to propulsion and guidance systems, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities.

| **B. Program Change Summary** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Previous President's Budget (FY 2008) | | | |
| Current BES/President's Budget (FY 2009) | | 99.364 | 117.572 |
| Total Adjustments | | 99.364 | 117.572 |
| Congressional Program Reductions | | | |
| Congressional Recissions | | | |
| Congressional Increases | | | |
| Reprogrammings | | | |
| SBIR/STTR Transfer | | 2.782 | |
| Adjustments to Budget Years | | 0.191 | |

**C. Other Program Funding Summary** Not applicable for this item.

**D. Acquisition Strategy** Not applicable for this item.

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| **RDTE, Defense Wide BA 05** | **0604165D8Z - Prompt Global Strike Program** |

**E. Performance Metrics:**

| FY | Strategic Goals Supported | Existing Baseline | Planned Performance Improvement / Requirement Goal | Actual Performance Improvement | Planned Performance Metric / Methods of Measurement | Actual Performance Metric / Methods of Measurement |
|---|---|---|---|---|---|---|
| 09 | Development of new CPGS technologies (DARPA-AF) | | Numbers of benchmarks attained | | | |
| 09 | Development of new CPGS technologies (AF-CSM) | | Number of benchmarks attained | | | |
| 09 | Development of new CPGS technologies (Navy) | | Number of benchmarks attained | | | |

Comment: Performance metrics for the CPGS program element will be measured against four benchmarks: 1) the ability to develop and implement a balanced and integrated technology program, and/or; 2) the ability to align the material solutions that result from the on-going Prompt Global Strike (PGS) Analysis of Alternatives with technology priorities, and/or; 3) the ability to develop and implement experiments that address top technical risks, and/or; 4) the ability to develop technological solutions which offer a potential for cross-service and cross-concept use.

# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

| APPROPRIATION/ BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| **RDTE, Defense Wide BA 05** | **0604165D8Z - Prompt Global Strike Program** | **P165** |

| COST ($ in Millions) | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate |
|---|---|---|---|---|---|---|---|
| P165 Prompt Global Strike Project | | 99.364 | 117.572 | 170.000 | 111.997 | 81.000 | 82.300 |

**A. Mission Description and Budget Item Justification:** This Conventional Prompt Global Strike (CPGS) program element provides resources for technical studies, developments and tests; project support; combatant requirements applications, and; systems design analyses necessary to establish and execute an integrated CPGS program. This new Defense-Wide program element, managed by the Office of the Secretary of Defense (OSD/AT&L/PSA/Strategic Warfare), consolidates and reduces funding for CPGS efforts as originally requested in PB08 for both Navy (Conventional Trident Modification) and Air Force (Common Aero Vehicle (CAV)) programs. Funds in this CPGS program element will be applied to propulsion and guidance systems, mission planning, re-entry vehicle design and experiments, modeling and simulation efforts, command and control, and launch system infrastructure. Additionally, funding may be applied towards efforts such as strategic policy compliance, intermediate range missile concepts, advanced non-nuclear warheads, and other mission enabling capabilities.

**B. Accomplishments/Planned Program:**

| **Accomplishments/Planned Program Title:** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| DARPA-Air Force FALCON/Hypersonic Test Vehicle (HTV-2) Demonstration | | 22.652 | 11.000 |

This sub-project describes the Defense Advanced Research Projects Agency (DARPA) effort (in conjunction with the Air Force) to develop technologies and assess capabilities that could potentially enable transformational changes in the arena of global, time critical strike. The goal of this experiment is to: assess vehicle technologies, and; to exercise the ability to use a high-payload capacity system which may demonstrate responsive global reach against high value targets. Specific efforts include:
-Continue systems engineering/development and assembly, integration and test (AI&T) of two HTV-2 demonstration vehicles
-Continue flight test planning and support
-Integrate HTV-2 vehicles with Minotaur IV Lite Launch Vehicles and conduct two broad ocean area (BOA) impact flight test demonstrations
-Perform analysis of the military utility of vehicle performance with respect to thermal protection materials, aerodynamics and control surfaces, as well as navigation, guidance and control (NG&C)

| **Accomplishments/Planned Program Title:** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Air Force Conventional Strike Missile (CSM) Technology Development | | 9.639 | 36.572 |

This sub-project supports Air Force Conventional Strike Missile (CSM) technology development, and will assess the feasibility of producing an affordable solution to fill the CPGS capability gap. It will mature technologies that could lead to a system capable of global reach from Continental United States (CONUS) with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/manueverability to avoid overflight issues; controlled stage drop over BOA, and; provides for in-flight target updates. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. CSM elements include:
-expendable launch vehicle

-payload delivery vehicle
-payload munitions
In FY08, activities include initial J-series weapons modifications to test feasibility against representative targets, initial payload delivery vehicle technology development, policy compliance, and operational requirements validation.
In FY09, CSM technology activities will: complete the study of strategic policy compliance to include CPGS basing alternatives and measures to avoid misinterpretation of intent; complete initial design concept for the CSM Payload Delivery Vehicle to include thermal protection materials, guidance systems, mission planning, and command and control; complete qualification of a Minotaur launch vehicle for a CPGS mission analysis of launch system infrastructure requirements utilizing other ballistic missile propulsion programs, and; mature/demonstrate technologies associated with the high-speed dispense of conventional munitions (to include the complete qualification of selected off-the-shelf munitions for CSM flight environments by the testing of selected munitions against selected targets).

| **Accomplishments/Planned Program Title:** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Navy CPGS Technology Refinement and Demonstration | | 59.280 | 65.000 |

This sub-project supports Navy CPGS technology development and will assess the feasibility of producing an affordable solution (i.e., ballistic missiles from an underwater environment) to fill the CPGS capability gap. It will assess CPGS technologies that could lead to a weapon system with the stealth, availability, accuracy and rapid response of today's ballistic missiles. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. In FY09, a CPGS Flight Experiment (FE1) using a Life Extension Test Bed (LETB-2) re-entry body (RB) will be conducted using a currently planned TRIDENT II (D5) missile flight to demonstrate communication and telemetry link overhead for future experiments. In preparation for the FY09 FE1, FY08 activities will involve: test completion and delivery of flight software; assembly and integration of components into LETB-2; fabrication and delivery of heatshield, nosetips and flaps, and; assembly and delivery of power distribution unit and telemetry systems. In addition, two other CPGS technology efforts will be pursued/developed in FY09 to support a future (FY11 timeframe) Flight Experiment (FE2) utilizing a Sandia STARS A3 launch vehicle: the Medium Lift Re-Entry Body (MLRB), and; Warhead and Fuze (WF). For MLRB, deliverables in FY09 include: completion of detailed design, and; an 80% completion of RB software modules. For WF, deliverables include completion of the following items: Kinetic Energy Projectile (KEP) warhead static test; KEP and penetrator lethality modeling; full-scale penetrator gun test; KEP/aeroshell interaction test; KEP warhead arena test, and; KEP warhead sled test number one.

| **Accomplishments/Planned Program Title:** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| OSD CPGS Studies | | 7.793 | 5.000 |

This sub-project supports emergent CPGS study efforts as directed by OSD/AT&L/PSA/Strategic Warfare. In addition, it also supports application of the Prompt Global Strike Analysis of Alternatives results, requirements development, CPGS basing alternatives, and measures to avoid misinterpretation on launch. Finally, it supports administrative activities associated with the execution of this PE.

| **C. Other Program Funding Summary** | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
|---|---|---|---|---|---|---|---|
| DARPA FALCON (PE 63285E) | | 50.000 | 50.000 | | | | |

Comment: With this associated program element (PE 63285E), and under a Memorandum of Agreement with the Air Force and Office of the Secretary of Defense (OSD), DARPA will develop technologies which demonstrate capabilities that will enable transformational changes in the arena of CPGS. Developing and transitioning technologies with cross-service and cross-concept applicability is a major objective of the Force Application from CONUS (FALCON) program. As part of the FALCON, DARPA is

executing the final phase (Phase III) of the Hypersonic Test Vehicle (HTV-2) effort under which two HTV-2 vehicles will be fabricated, assembled, integrated with Minotaur IV Light launch vehicles and launched from Vandenberg Air Force Base in CY09. After launch, the HTV-2 vehicle will separate from the launch vehicle and fly a hypersonic glide trajectory to a broad-ocean area (BOA) impact near the Reagan Test Site at Kwajalein Atoll in the Pacific, thus demonstrating long-duration thermal protection system and advanced aerodynamic control features.

**D. Acquisition Strategy** This program element provides resources for technical studies, developments, and tests; project support; combatant requirements application; and systems design analyses necessary to establish and execute an integrated Prompt Global Strike (PGS) program. These efforts will produce: a five-year DoD plan for requirements, development and procurement; a DoD-wide coordinated assessment of kinetic non-nuclear system and operations concepts in a manner that supports planning, budgeting, and execution of further system concept development and procurement by the Services; resources for technical and operations projects and research, development and test and evaluation in such areas as PGS risk mitigation, strategic policy compliance, mission planning, reentry system thermal protection, advanced propulsion, advanced payload delivery and dispensing mechanisms, weapon system command and control, advanced non-nuclear warheads, modeling and simulation, launch system infrastructure, and other enabling capabilities that address emerging mission requirements.

**E. Major Performers** Not applicable for this item.