

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

| | | | | | | | | |
|---|-------------------|---|---------------------|--|--|--|--|--|
| APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5 | | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program | | | | | | |
| | FY 2008 Actual | FY 2009 Estimate | FY 2010 Estimate | | | | | |
| COST (\$ in Millions) | | | | | | | | |
| P165 Prompt Global Strike Project | 96.391 | 74.163 | 166.913 | | | | | |

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 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 guidance systems, booster acquisition, 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. In FY10, funding for each of the individual service initiatives will be contingent upon their ability to execute and achieve satisfactory progress toward project goals as determined by OUSD/AT&L.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

| | |
|--|--|
| APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5 | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program |
|--|--|

| <u>B. Program Change Summary</u> | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|--|---------|---------|---------|---------|
| Previous President's Budget (FY 2008/2009) | 99.364 | 117.572 | 170.000 | |
| Current BES/President's Budget (FY 2010) | 96.391 | 74.163 | 166.913 | |
| Total Adjustments | -2.973 | -43.409 | -3.087 | |
| Congressional Program Reductions | | -43.000 | | |
| Congressional Recissions | | | | |
| Congressional Increases | | -0.409 | | |
| Reprogrammings | | | | |
| SBIR/STTR Transfer | -2.782 | | | |
| Adjustments to Budget Years | -0.191 | | -3.087 | |

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

D. Acquisition Strategy: Not applicable for this item.

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 | | | |
| 09 | Development of new CPGS technologies (Army) | | 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 Prompt Global Strike (PGS) Analysis of Alternatives follow-on studies 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)

May 2009

| | | | | | | | | |
|--|--|---------------------|---------------------|--|-------------------------------|--|--|--|
| APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5 | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program | | | | PROJECT P165 | | | |
| COST (\$ in Millions) | FY 2008 Actual | FY 2009 Estimate | FY 2010 Estimate | | | | | |
| P165 Prompt Global Strike Project | 96.391 | 74.163 | 166.913 | | | | | |

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 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 guidance systems, booster acquisition, 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. In FY10, funding for each of the individual service initiatives will be contingent upon their ability to execute and achieve satisfactory progress toward project goals as determined by OUSD/AT&L.

B. Accomplishments/Planned Program:

| <u>Accomplishments/Planned Program Title:</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|--|----------------|----------------|----------------|
| Hypersonic Glide Experiments and Concept Demonstration Development/Support | 55.936 | 46.510 | 91.460 |

This sub-project describes efforts to develop technologies and assess capabilities that could potentially enable transformational changes in the arena of global, time critical strike. The goals of this sub-project are 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; 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/maneuverability 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. 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)

FY09 activities will: 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.

FY2008 ACCOMPLISHMENTS:

- Successfully tested a prototype aeroshell under simulated terminal phase lateral load
- Completed assembly of Flight Aeroshell 1

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

| | | |
|--|--|-------------------------------|
| APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5 | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program | PROJECT P165 |
|--|--|-------------------------------|

- 71% completion of Flight Aeroshell 2
- NG&C flight software on track for 2009 delivery to AI&T
- AI&T Flight 1 & 2 primary structures, RF Cables, Flight 1 PATC, Flight 2 Control Box 100% complete
- Initial elements of CY10 demonstration acquisition strategy approved
- Major contracts in place to facilitate development of PDV, Minotaur Lite Boost vehicle, and KEP
- Aeroshell subcontract awarded
- Initial design concepts for PDV-compatible warhead completed
- PDV and KEP elements of Integrated Master Schedule complete
- Systems Requirements Review complete
- Range Safety Proposal Contract awarded
- Software destruct limit lines methodology, Test and Simulation SW development Plan, AI&T Flight Safety System Test Plan approved by range

| <u>Accomplishments/Planned Program Title:</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|--|----------------|----------------|----------------|
| Alternative Re-Entry System/Warhead Engineering and Delivery Vehicle Options/Development | 29.000 | 13.900 | 46.907 |

This sub-project will test and evaluate alternative re-entry systems and delivery vehicle options to include hypersonic glide body (HGB) and will assess the feasibility of producing an affordable alternate 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/maneuverability to avoid overflight issues; and controlled stage drop over BOA. The technologies developed will have cross-service and cross-concept applicability and will be developed through close coordination among DoD components. The current focus of this sub-project in FY09 and beyond is on the advanced hypersonic weapon effort. This effort researches hypersonic aerodynamics and control systems to enable a wide variety of future capabilities not currently available for rapid global response. The AHW, as a risk mitigation effort in support of the USAF CPGS project, develops and demonstrates the capability of a Hypersonic Glide Body (HGB) based Alternative Payload Delivery Vehicle (APDV) through a two-flight test schedule. Objectives are:

- Demonstrate the maturity of technologies related to thermal management, precise navigation and control, and in-flight communications with a hypersonic object.
- Demonstrate the successful delivery of an operationally useful payload weight at operational/intercontinental distances.
- Document the applicability of the proven AHW technologies to a family of CPGS concepts and implementations.
- Document the design of the AHW HGB to support future acquisition activities as required.
- Execute the initial integration and flight demonstration phase (Flight 1A) of the AHW including fabrication, assembly and integration of a single AHW flight vehicle in preparation for a flight test in FY11.

The AHW Hypersonic Glide Body (HGB) vehicle will be launched from the Pacific Missile Range Facility utilizing a Strategic Targets System (STARS) booster stack, separate from the launch vehicle, and fly a hypersonic glide trajectory to impact on the Reagan Test Site at Kwajalein Atoll, demonstrating flight systems integration, gathering thermal protection system performance data to assist in anchoring analytical models, and demonstrating advanced aerodynamic control features.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

| | | |
|--|--|-------------------------------|
| APPROPRIATION/ BUDGET ACTIVITY RDTE, Defense Wide BA# 5 | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program | PROJECT P165 |
|--|--|-------------------------------|

FY2008 ACCOMPLISHMENTS

The AHW program has successfully completed the following reviews:

1. System Requirements Review
2. Integrated Baseline Review
3. Concept Design Review

Initial Range Command Council (RCC) tailoring in support of range operations has been completed. The program office has submitted the Program Introduction to the relevant ranges and has received the Reagan Test Site (RTS) Statement of Capability.

The program has completed an initial review of policy and treaty implications by the Compliance Review Group (CRG) and received certification to execute flight test 1A. This certification was pursued under the original program baseline.

Initial Instrumentation and Range Safety Group meetings have been held and the proposed Flight Termination System (FTS) for flight test 1A has been briefed.

| <u>Accomplishments/Planned Program Title:</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|--|----------------|----------------|----------------|
| Test Range Development | 7.964 | 8.590 | 20.623 |

This sub-project will complete design, assembly and delivery of power/telemetry subsystems; assemble and integrate components to check command/control and verify range safety functions.

| <u>Accomplishments/Planned Program Title:</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> |
|--|----------------|----------------|----------------|
| OSD CPGS Studies | 3.491 | 5.163 | 7.923 |

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.

Complete the study of strategic policy compliance to include CPGS basing alternatives and measures to avoid misinterpretation of intent; policy compliance, and operational requirements validation.

FY2008 ACCOMPLISHMENTS: To date this studies line has commissioned the Air Force to conduct a more detailed study of areas initially examined during the Joint PGS AOA to include:

Clarify if the AoA assumed the CONUS and Forward missiles were ballistic or endo-atmospheric.

Rework the cost analysis to reflect only the incremental cost of adding CPGS capability to sunk costs.

Actions required to add KEP ground and sled tests to the schedule.

List of range safety constraints and compatibility/impact on weaponized test objectives.

OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

APPROPRIATION/ BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

RDTE, Defense Wide BA# 5

0604165D8Z - Prompt Global Strike Program

P165

All areas will be reported on during 2nd and 3rd qtr FY09

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

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.

OSD RDT&E COST ANALYSIS (R3)

| BUDGET ACTIVITY | | | PE NUMBER AND TITLE | | | | | | | PROJECT | | | | |
|---|------------------------|--|--|--------------|--------------------|--------------|--------------------|---------------|--------------------|-------------|--|------------------|--------------|--------------------------|
| 5 - System Development and Demonstration (SDD) | | | 0604165D8Z - Prompt Global Strike Program | | | | | | | P165 | | | | |
| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | FY 2010 Cost | FY 2010 Award Date | | | Cost To Complete | Total Cost | Target Value of Contract |
| Hypersonic Glide Experiments and Concept Demonstration Development/Support | N/A | Peterson AFB, CO, Washington, DC | | 34000 | 1-4Q | 51000 | 1-4Q | 91460 | 1-4Q | | | Cont. | Cont. | |
| Alternative Reentry System/Warhead Engineering and Delivery Vehicle Options/Development | NA | Huntsville, AL, Washington, DC | | 23900 | 1-4Q | | 1-4Q | 46907 | 1-4Q | | | Cont. | Cont. | |
| Test Range Development | NA | Washington, DC, Peterson AFB, CO, Huntsville, AL | | 35000 | 1-4Q | 1000 | 1-4Q | 20623 | 1-4Q | | | Cont. | Cont. | |
| OSD CPGS Studies | N/A | Washington, DC | | 3491 | 1-4Q | 4163 | 1-4Q | 7923 | 1-4Q | | | Cont. | Cont. | |
| Army SMDC Advanced Hypersonic Weapon (AHW) | | Huntsville, AL | | | 1-4Q | 18000 | 1-4Q | | 1-4Q | | | Cont. | Cont. | |
| Subtotal: | | | | 96391 | | 74163 | | 166913 | | | | Cont. | Cont. | |
| Remarks: | | | | | | | | | | | | | | |
| The CPGS Defense-Wide Account has distributed FY2009 funds via suballocations to the Services (USA, USAF) for technology development efforts. As of this date no Test and Evaluation activities have taken place. | | | | | | | | | | | | | | |
| II. Support Costs | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | FY 2010 Cost | FY 2010 Award Date | | | Cost To Complete | Total Cost | Target Value of Contract |
| Subtotal: | | | | | | | | | | | | | | |
| III. Test And Evaluation | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | FY 2010 Cost | FY 2010 Award Date | | | Cost To Complete | Total Cost | Target Value of Contract |
| Subtotal: | | | | | | | | | | | | | | |
| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | FY 2010 Cost | FY 2010 Award Date | | | Cost To Complete | Total Cost | Target Value of Contract |
| Subtotal: | | | | | | | | | | | | | | |
| Project Total Cost: | | | | 96391 | | 74163 | | 166913 | | | | Cont. | Cont. | |

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration (SDD)

PE NUMBER AND TITLE
0604165D8Z - Prompt Global Strike Program

PROJECT
P165

| Event Name | FY 08 | | | | FY 09 | | | | FY 10 | | | | FY 13 | | | | FY 14 | | | | FY 15 | | | |
|----------------------------|-------|---|---|---|---|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (1) Navy Range Safety Demo | | | | | ▲ ₁ FTS Test | | | | | | | | | | | | | | | | | | | |
| (2) DARPA Flight Test, (3) | | | | | Demo Flt 1 ▲ ₂ ▲ ₃ Demo Flt 2 | | | | | | | | | | | | | | | | | | | |
| (4) Army AHW | | | | | | | | | | | | | | | | | | | | | | | | |
| (5) USAF CSM Demo Flt | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

Schedule Profile (R4a Exhibit)

May 2009

| | | | | | | | | |
|--|----------------|---|----------------|----------------|----------------|----------------|------------------------|----------------|
| BUDGET ACTIVITY 5 - System Development and Demonstration (SDD) | | PE NUMBER AND TITLE 0604165D8Z - Prompt Global Strike Program | | | | | PROJECT P165 | |
| <u>Schedule Detail</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>FY 2012</u> | <u>FY 2013</u> | <u>FY 2014</u> | <u>FY 2015</u> |
| Navy Range Safety Demo | | 3Q | | | | | | |
| DARPA Flight Test | | 4Q | | | | | | |
| | | | 1Q | | | | | |
| Army AHW | | | | | | | | |
| USAF CSM Demo Flt | | | | | | | | |

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED