

PROGRAM EXECUTIVE OFFICE MISSILES AND SPACE

The Declining Missile Business Base, Are We Taking Too Much Risk?

*Presented to
42nd Annual Armament Systems:
Gun and Missile Systems
Conference and Exhibition*

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24 April 2007

ANY SOLDIER - ANYWHERE - ALL THE TIME...



THE ERODING ADVANTAGE U.S. ARMY TACTICAL MISSILE SYSTEMS

- Existing Capability Gaps Are Not Being Met
- Performance Gap Closing Between Existing U.S. and Foreign Systems
- Targets and Threats are Evolving and Presenting Greater Challenges
- U.S. Science and Technology No Longer Leads World in Many Missile-Relevant Categories
- No New Development of 'Next Generation' Tactical Missiles
 - No New Systems Since Inception of Javelin
 - Lack of Any New 6.3 Level Missile Technology Demonstrations
 - Budgetary Constraints Resulting in Handful of Existing Projects Being Cancelled or at Risk

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PERFORMANCE GAP IS CLOSING



Foreign systems continue to improve and challenge our systems in performance



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FUTURE WARFARE TRENDS

THREAT AND TARGET TRENDS

- ✦ **Direct Fire and Air to Ground Targets-Threats**
 - ✦ Much More Than Just Tanks-Vehicles, Structures, Dismounts...
BUT must account for.....
 - ✦ Evolving Base Armor and Explosive Reactive Armor Becoming More Efficient
 - ✦ 2ND Generation Thermal Optics: Detection Up to 5km
 - ✦ Increased Use and Integration of Soft and Hard-Kill Active Protection Systems
- ✦ **Air to Ground and NLOS/BLOS Targets-Threats**
Direct fire concerns +
 - ✦ Development of Modernized Air Defense Systems Such As Skyshield Which Can Shoot Down MLRS, ATACMS, Hellfire
 - ✦ Global Positioning System Jamming

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FUTURE WARFARE TRENDS

THREAT AND TARGET TRENDS

- ✦ **Ground to Air Targets - Threats**
 - ✦ **UAV Proliferation, Miniaturization and Weaponization**
 - ✦ **Large Caliber Rocket Proliferation and Accuracy Improvement**
 - ✦ **Cruise Missile Proliferation With Reduced Signatures and On Board Electro-optical Countermeasures**
 - ✦ **Maneuvering Reentry Vehicles**

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THE ERODING BUSINESS BASE

Programs In Development

PAC-3 Missile Segment Enhancement



Precision Attack Munition



Joint Common Missile (JCM) /
Joint Air to Ground Missile (JAGM)

Programs Transitioning from Tech Base FY08-13

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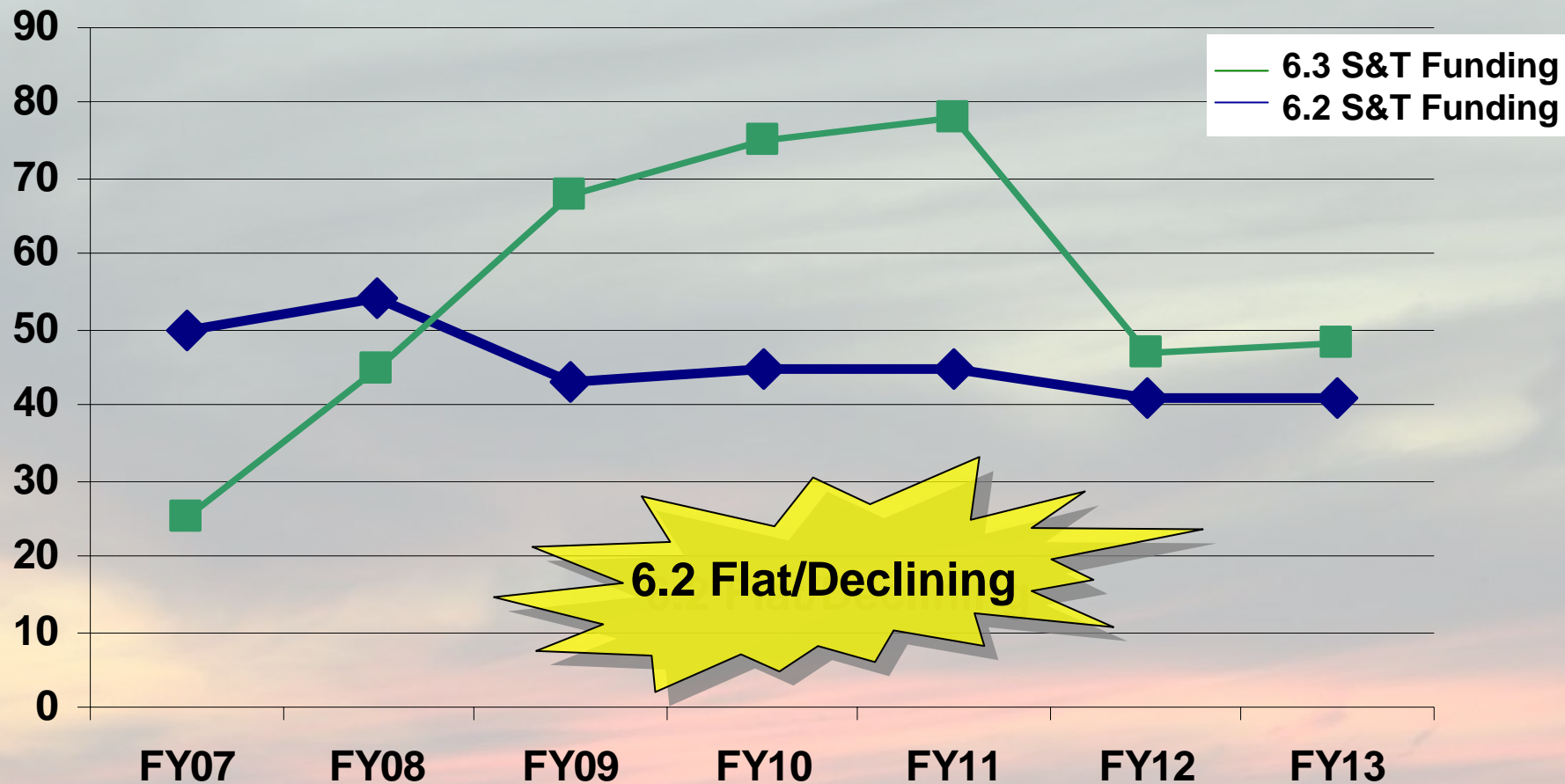
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MISSILE SCIENCE & TECHNOLOGY

Missile Tech Base FY07-13

Based on FY08 POM Position



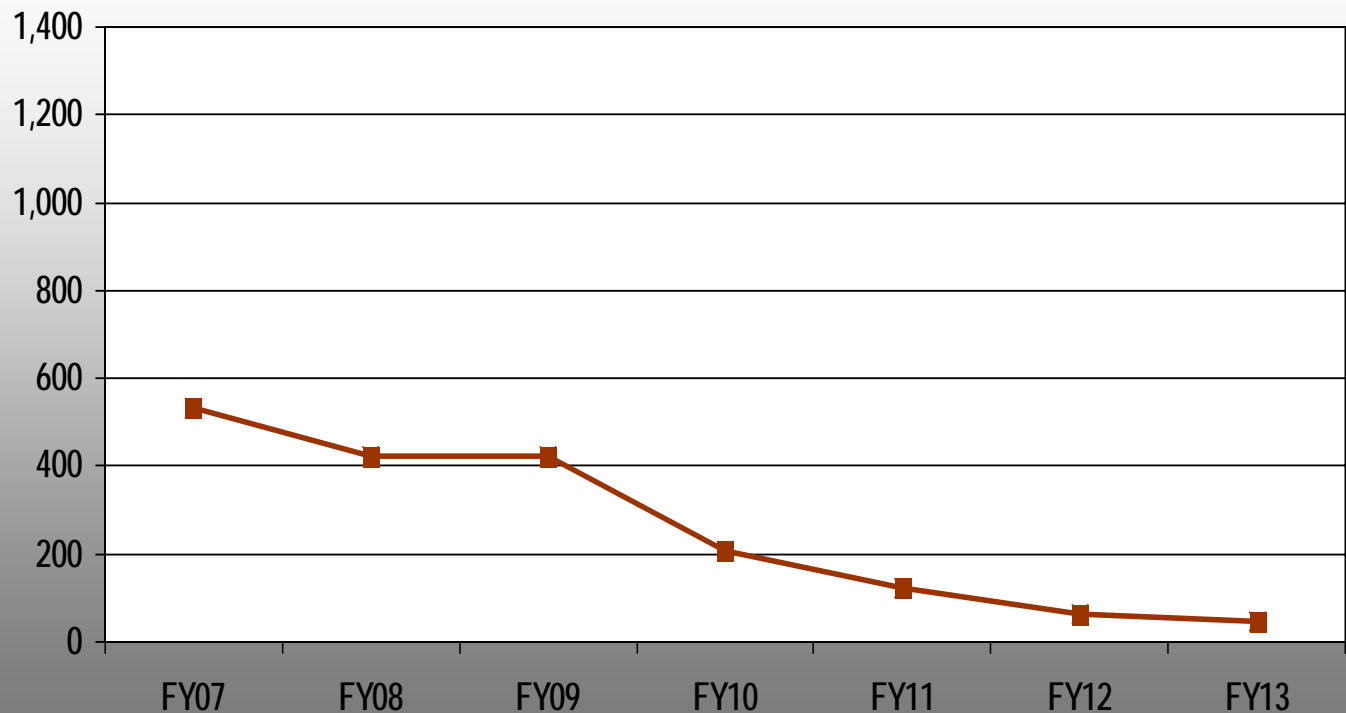
FY08-11 6.3 Increase due to Smaller Lighter Cheaper

MISSILE RDT&E

POM BES FY08

RDT&E Budget (\$M) Missiles Only

TOW 2A
 TOW 2B
 TOW 2B AERO Variants
 TOW Bunker Buster (BB)
 Javelin
 Javelin Block I
NLOS PAM
 BASIC and ER MLRS
GMLRS (XM30 / XM31)
GMLRS ALT WHD
 GMLRS P3I
 ATACMS Variants (BLK I, IA, II)
 ATACMS Unitary Variants
 Hellfire Variants (AGM-114A-N)
 Hellfire (AGM 114P+)
Joint Common Missile (JCM)
 APKWS II
 Hydra 70
 Hydra 70 Flechette (M255A1)
 Hydra 70 HE/PD (M151 / M423)
 Viper Strike
 Stinger Block I
 PAC-2
 GEM Variants
 PAC-3
MSE



Funded Missiles Shown in Red

***88% in 3 Missiles—PAM, JCM, and PAC-3 / Missile Segment Enhancement
No Investment in Direct Fire Missiles***

MILITARILY – SIGNIFICANT CRITICAL TECHNOLOGY ATROPHY

- Many Technologies Critical to DoD Systems are Not Readily Obtained Through Traditional Education Paths or Have Limited Commercial Markets
- Slow-Down / Cancellation of Missile System Programs Will Leave Critical National Technology Areas at Risk Through Loss of Well Trained Scientists and Engineers in the Government and Industry (Aging Workforce, BRAC, No New Development)

Missile Technology Areas % Loss of Base

Seeker Technologies	63
Propulsion	38
Modeling/Simulation	33
Aerodynamics / Controls	32

Erosion Of This Base Will Be Unrecoverable

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PATH FORWARD

- **Close Combat / Direct Fire Tactical Missile Development is a Very High Priority**
- **Cruise Missile Defense Efforts Deserve High Priority and Must Include Low Cost Counters to Large Caliber Rockets**
- **Develop Cost-Effective Counter to UAV Threat**
- **Must Fund Robust Stockpile Reliability Program to Preserve Existing Capability**
- **Reverse Downturn in Tech Base Funding**

Without Investment in These Capability Areas, May Lose the Human Capability to Address these Areas

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