Precision Fires
Rocket and Missile Systems

Presentation to
Precision Strike Association
Annual Review

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Recipients of the 2008
William J. Perry Award
Any Warfighter, Anywhere, All The Time

• All systems are supporting the Global War on Terrorism
• Currently supporting Operation Iraqi Freedom and Operation Enduring Freedom
• Performance is above Army Standards
• Launchers returning in excellent condition requiring only routine and minimal maintenance

M270A1
98% Readiness Rate

HIMARS
99% Readiness Rate

GMLRS Unitary
1,124 Rockets Fired
As of 5 Mar 09
98% Reliability

ATACMS
543 Missiles Fired
As of 10 Dec 09
98% Reliability
1,124 Total Rockets Fired As Of 5 Mar 2009

Who Shoots GMLRS-U:
- **US Army**: 648, 57.65%
- **USMC**: 27, 2.4%
- **UK**: 449, 39.95%
- **M270A1**: 51%
- **M142**: 12%
- **M270B1**: 37%

Who Requests GMLRS-U:
- **Army**: 421, 65%
- **USMC**: 121, 19%
- **Other**: 106, 16%

How GMLRS-U is employed:
- **Troops in Contact**: 183, 28%
- **Pre-Planned**: 465, 72%

Environments employed:
- **Urban/COIN**: 619, 96%
- **Other (TD/Test)**: 29, 4%

Operationally Effective: 98.3%

Capability Gap: Persistent, responsive, all-weather, rapidly-deployable, long-range, surface-to-surface, precision-strike capability.

Description
- GPS-Augmented Inertial Guidance
- 200lb-Class HE IM-Compliant Warhead
- Multi-Fuze Selection (Point Detonating, Delay, Proximity)
- 15-70km Range

Current Targets
- Precisely Located/Mensurated Point targets
- Congested/Complex Urban Targets
- Targets in Areas Where Collateral Damage is of Concern

Effectiveness/Reliability
- BDA Shows High Level of Effectiveness
- Rare Reports of Minor Collateral Damage
- Reliability of US Army Missions: 98.68%
OIF/OEF MISSIONS

Who uses ATACMS?

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<tbody>
<tr>
<td>Army</td>
<td>145</td>
<td>28%</td>
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<tr>
<td>Marines Joint Operations</td>
<td>77</td>
<td>15%</td>
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<tr>
<td>USAF</td>
<td>290</td>
<td>57%</td>
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How ATACMS is Employed:

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<tbody>
<tr>
<td>Time-Sensitive Targets</td>
<td>205</td>
<td>40%</td>
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<tr>
<td>Pre-Planned</td>
<td>307</td>
<td>60%</td>
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Employment Environments:

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<tr>
<td>Initial OIF Conflict</td>
<td>460</td>
<td>90%</td>
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<tr>
<td>COIN</td>
<td>52*</td>
<td>10%</td>
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</table>

*QRU & T2K Unitary

Mission Process

- Target located by Multiple Sensors
- Target refined using Precision Strike Suite - Special Operation Forces or Mensuration via Rainstorm / Raindrop, etc.
- Passed to AFATDS for tactical fire control
- Launcher receives and executes mission

543 Total Missiles Fired as of 10 Dec 2008

Any Warfighter, Anywhere, All The Time
• All FAL variants (M270, M270A1, M270B1 and M142) have supported GWOT operations
• Launchers variants currently support both OIF and OEF operations
  – 13 Army M142s support OIF / OEF
  – 4 UK M270B1s support OEF
  – 16 Army M270A1s support OIF
  – 6 USMC M142s support OIF
• Launchers deployed in Theatre continue to perform above Army Standards
  – Operational readiness exceeds 97%
  – Reliability is over 350 hours between System Abort Failures
  – No maintenance issues
• M142 and M270A1 launchers returning from both Theaters are in excellent condition requiring minimal Reset
Any Warfighter, Anywhere, All The Time

MOU PARTNERS

- Canada** {17}
- SLOVAKIA [26] 1/
- FINLAND (22)
- NORWAY (12)
- DENMARK (12)
- PERU** {6}
- GREECE (36) (A-100)
- TURKEY (12) (A-71)
- EGYPT (26)
- ISRAEL (48)
- BAHRAIN (9) + [6] (A-30)
- OMAN** {20}
- JORDAN** {18}
- SOUTH KOREA (48) [10] (A-220)
- JAPAN (77) + [22] *
- SINGAPORE {18}
- UAE (20) (A-101)

(A) ATACMS

1/ RM-70 Modular Launchers / 810 M26 Rockets

** Potential

* Co-Production
Requirement: Suppress, neutralize, destroy various armored or soft, mobile or fixed, active or passive, precisely or imprecisely located, high-payoff area and point targets

Cluster Munitions Policy Memo (19 Jun 08)
- After 2018, cluster munitions must not produce >1% UXO; limit will not be waived
- No differentiation between types of UXO (hazardous or non-hazardous duds)
- All cluster munition stocks that exceed operational planning requirements will be removed from the inventory as soon as possible, but not later than Jun ‘09

Self Destruct Fuze (SDF) Development and Performance
- Previous UXO Requirement: <2% 20-60km; <4% <20km and >60km
  Does not Comply with the new DOD Policy
- GMLRS DPICM w/pSDF demonstrated “hazardous” dud rate of only 0.15%, overall UXO 3.7%:
  Does not comply with the new DOD Policy

In 2019, the Army will no longer have the ability to efficiently engage inaccurately located and area targets!
- GMLRS DPICM in Full Rate Production, yet no longer deemed politically suitable
- Unacceptable rate of unexploded ordnance
- Long range radar accuracy is not adequate for efficient GMLRS unitary target engagements beyond cannon artillery ranges

**ORD Target #1**

**ORD Target #2**

**ORD Target #3**
Serviceable Rocket Inventory 2008-2019

<table>
<thead>
<tr>
<th>Munition</th>
<th>Available munitions</th>
<th>Range</th>
<th>Available munitions</th>
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<tr>
<td>M26 (DPICM)</td>
<td>360,192</td>
<td>32.5km</td>
<td>0</td>
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<tr>
<td>M26A2 (DPICM)</td>
<td>3,924</td>
<td>45.0km</td>
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<td>M30 (DPICM)</td>
<td>1,914</td>
<td>70.0km</td>
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<td>M31A1 (Unitary)</td>
<td>204</td>
<td>70.0km</td>
<td>33,006</td>
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Operational Risks

- GMLRS AWP production schedule may not provide sufficient numbers by 2019 to support COCOM operational plans
- AMSAA/ARL approved models for AWP technologies
• Program composition
  • ACAT 1C with two variants
    • DPICM in Full Rate Production (FRP)
    • Unitary Completing LRIP headed to FRP Decision
  • Variants share documentation
    • APB
    • Common Funding (RDTE and Procurement) Lines

Second Order Effects
• Impact to APB
• Item C of Nunn-McCurdy ADM (April 2007)
• Future of DPICM Production
• Elimination of DPICM, impact on the USMC and FMS Customers
• Meets DPICM ORD requirements in servicing targets
• Produce no residual cluster munition UXO
• Achieve required warhead IM rating
• Compatible with the M270A1 and HIMARS Launchers
GMLRS System Description

Unitary Unique Components

- Electronic Safe & Arm Fuze (ESAF)
- Warhead
- Prox Sensor
- Radome
- Canards
- Battery
- Nose Cap
- Electronic Safe & Arm Device (ESAD)

GMLRS Common Components

- Spring Fins
- Roll Motor
- Guidance Processor Electronics
- Control Actuation System
- Canards

Alternative Warhead Unique Components

- Warhead
- Fuze TBD
- Prox Sensor TBD
- Nose Cap TBD

Payload Dispensing Core Assembly

- Sub-munitions
Any Warfighter, Anywhere, All The Time

### AWP Schedule Overview

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#### Tech Development Outputs
- Update AOA, TEMP
- LFT&E Waiver Request
- Affordability Assessment
- Design Readiness Review
- Update Cost & Manpower Estimate
- Update Acquisition Plan & Strategy
- Validate Syst. Maint. Obj. Requirements

#### System Development and Demonstration
- Temp & Test Reports
- System Functional Specs
- Affordability Assessment
- Initial Production Baseline
- Demo Product Support Baseline
- Performance Based Log Strategy
- Update Acquisition Plan & Strategy

#### Low Rate Initial Production Outputs
- Update AOA, APB
- Risk Assessment
- AFR, CARD, CCA
- Product Support Strategy & Plan
- Performance Based Log Strategy
- Validate AOA
- Update Acquisition Plan & Strategy

#### Design Readiness
- Update AOA; TEMP
- LFT&E Waiver Request
- Affordability Assessment
- System Performance Spec
- Update Cost & Manpower Estimate
- Update Acquisition Plan & Strategy
- Validate Sys. Maint. Obj. Requirements

#### Affordability Assessment, CARD & ICE
- Final Production Baseline, PCA, & POE
- Integrated Baseline Review & SEP
- Update Cost & Manpower Estimate, & AOA
- Implement Performance Based Log
- Update Acquisition Plan & Strategy & APB
- Economic Analysis
- Test Reports, TEMP, OTRRS, & IOT&E

#### Configuration Steering Board
- Validates the Requirement, Technology Development Strategy, and Contracting Plan
- Agrees to Resource the AWP
- Confirms Compliance with the Prototyping Strategy

#### Warhead Approach (Concept Refinement)
- USG Approve Multiple Concepts to Prototype
- Mature Technology Development Strategy
- Perform Alternative System Review
- Staff Technology Development Strategy

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**Unclassified**
• Current pSDF (nor DPICM) is not compliant with DoD cluster munition policy
• Must demilitarize all non-compliant DPICMs after 2018; cost TBD
• UAE DPICM Procurement in FRP 4
• USMC Unexercised DPICM Option in FRP 4

Recommend Build Unitary in Lieu of DPICM FY09-FY13
Questions?