Precision Fires Rocket and Missile Systems

New and Evolving Armaments and Subsystems for Future Conflicts

Paul E. Turner
Engineering Director & Chief Engineer
Precision Fires Rocket & Missile Systems Project Office

27 April 2016
Program Executive Office Missiles & Space

**MISSION**
To Develop, Field, and Sustain Missile and Space Systems for the U.S. Army, Joint and Coalition Warfighters that Provide a Decisive Battlefield Advantage

**What We Do:**
- Centralized Management for All Army Tactical and Air Defense Missile Programs and Selected Army Space Programs
- Full Life-Cycle Management of Assigned Systems
- World Wide Support of Fielded Weapon Systems
- Key Link Between the User and Tech Base

**What We Manage:**
- Eight Project Offices
- 3 Pre-MDAP, 14 ACAT I, 5 ACAT II and 11 ACAT III Programs
- International Cooperative Development Programs

**VISION**
To be a Highly Efficient, Effective, Agile, and Innovative Warfighter - Focused Organization for Developing and Sustaining Missile and Space Systems

**Workforce:**
- Government ~1100
- Support Contractors ~700

**FY16 Appropriated Budget**
~ 3.4B

**FMS: Total Case Value**
$43.2B, 39 Countries

To Support the Warfighter

*Always On Target!*
## AVIATION

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<td>IFPC Inc 2-I</td>
<td>RAM Warn</td>
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## UNCLASSIFIED

**Always On Target!**
Precision Fires Rocket & Missile Systems

Through effective program management and a professional workforce; develop, produce, field, and sustain the Precision Fires family of launchers and munitions to fulfill the long-range artillery requirements of the U.S. Warfighter and Allies.

**What We Do:**
- Centralized Management for all Army Multiple Launch Rocket System Launcher platforms and associated Munitions suite
- Full Life-Cycle Management of Assigned Systems
- World Wide Support of Fielded Weapon Systems
- Key Link Between the User and Tech Base

**What We Manage:**
- Two Field Artillery Rocket / Missile Launcher Platforms
- Three MLRS Rocket and Two Missile Programs
- MLRS International Cooperative Development Program
- Fifty-five active FMS Cases with total case value of $1.28B
- Japanese Fire Control and Rocket Co-production

**Vision:**
Be a values based team providing the best long-range precision fires capability to the U.S. Warfighter and Allies.

**Workforce:**
- Military 8
- Government 219
- Support Contractors 82

Managing FY15
- President's Budget $675M
- FMS Undelivered Value $212M, 11 Countries

To Support the Warfighter.
M270A1 Multiple Launch Rocket System (MLRS)

- Combat-proven tracked launcher
- Mounted on modified Bradley M993 chassis
- Lightly Armored / man-rated 3 Man crew cab
- Rapidly deployable via C-17 and C-5
- Operable 24/7 in all weather and visibility conditions
- Fires entire MLRS / ATACMS Family of Munitions
- Carries 2 Pods of 6 Rockets or 1 Missile each
- Uses Improved Fire Control System (IFCS)
- On-board Self Reload / Self Location systems

M142 High Mobility Artillery Rocket System (HIMARS)

- Combat-proven wheeled MLRS
- Mounted on modified M1140A1 five-ton FMTV chassis
- Armored / man-rated 3 Man crew cab
- Rapidly deployable via C-130 and C-17
- Operable 24/7 in all weather and visibility conditions
- Fires entire MLRS / ATACMS Family of Munitions
- Carries 1 Pod of 6 Rockets or 1 Missile
- Uses Universal Fire Control System (UFCS)
- On-board Self Reload / Self Location system
PFRMS Munitions Overview

GMLRS DPICM (M30)
- Range: 15 – 84 km
- Payload: 404 M101s
- Guidance: Inertial w/ GPS Aided
- Quantity Produced: 3,936
- Expenditures: US: 0

GMLRS Unitary (M31 / M31A1)
- Range: 15 – 84 km
- Payload: 200lb-Class High Explosive / Blast Fragmentation
- Guidance: Inertial w/ GPS Aided
- Quantity Produced: 17,184
- Expenditures: 3,141 (US: 1,255; USMC: 1,069; UK: 817)

GMLRS Alternative Warhead (M30A1)
- Range: 15 – 84 km
- Payload: 200lb-Class High Explosive with Penetrators
- Guidance: Inertial w/ GPS Aided
- Quantity Produced: N/A
- Expenditures: N/A

Practice Rocket (M28A1 / M28A2)
- Range: 8 – 15 km
- Payload: Inert
- Guidance: None
- Quantity Produced: 110,748
- Expenditures: US: 42,000+

ATACMS Block I (M39)
- Range: 25-165 km
- Payload: 950 M74s
- Guidance: Inertial
- Quantity Produced: 1,650
- Expenditures: Desert Storm: 32 / OIF: 379

ATACMS Block IA (M39A1)
- Range: 70-300 km
- Payload: 300 M74s
- Guidance: Inertial w/ GPS Aided
- Quantity Produced: 610
- Expenditures: OIF: 74

ATACMS Quick Reaction Unitary (M48)
- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-141/B PD Fuse
- Guidance: Inertial w/ GPS Aided
- Quantity Produced: 176
- Expenditures: OIF: 16 / OEF: 42

ATACMS TACMS 2000 (M57)
- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-161/B PD Fuse / Proximity Sensor
- Guidance: Inertial w/ GPS Aided
- Army Acq Obj: TBD
- Expenditures: N/A

ATACMS Modifications (M57)
- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-161/B PD Fuse / Proximity Sensor
- Guidance: Inertial w/ GPS Aided
- Army Acq Obj: TBD
- Expenditures: N/A

Long Range Precision Fires (TBD)
- Range: 75-499 km
- Payload: TBD
- Guidance: TBD
- Army Acq Obj: TBD
- Expenditures: N/A
UNCLASSIFIED

Field Artillery

Precision Guided Munitions

ATACMS – Army Tactical Missile System
AW – Alternative Warhead
HEGM – High Explosive Guided Mortar
km – kilometer
LRPF – Long Range Precision Fires
PGK – Precision Guidance Kit
POR – Program of Record

◆ = In Development
Program of Record (POR)
Guided Multiple Launch Rocket System (GMLRS) Unitary & AW

**Program Description**

- Three GMLRS variants, differentiated by warhead:
  1. GMLRS DPICM no longer in production but in inventory
  2. GMLRS Unitary in production
  3. GMLRS AW production cut-into FRP 10 in FY15

- Prime Contractor: Lockheed Martin, Dallas TX and Camden AR

**Recent Milestones or Events**

- Jun 15: AW production contract awarded
- Nov 15: DASD(DT&E) approval of TEMP
- Mar 16: IM Propulsion System qualification contract awarded

**Near Term Milestones or Events**

- FY16: AW Initial Operational Capability (IOC)
GMLRS Unitary and Alternative Warhead Commonality

**Unitary and AW Rockets are 90% Common**

### Unitary Warhead (GD-OTS)
- Explosively Formed Steel Case Fragments
- Multiple Fuzing Options
- Precision Strike with Low Collateral Damage

### Alternative Warhead (ATK)
- Pre-formed Penetrators
- Insensitive Munitions Design (Blow-out Venting)
- Area and Imprecisely Located Targets

**Successful AW EMD Flight Tests:**
- Total of 99 rockets with 99% point reliability (98 of 99 success)

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**Legend:**
- Common Components
- Unique Components

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**Always On Target!**
Army Tactical Missile System (ATACMS) SLEP

Program Description

- Take expired ATACMS Block I missiles and reset their shelf life
- Replace the existing M74 bomblets with a DoD Cluster Munition policy compliant warhead
- Refresh propellant and electronics
- 300 km maximum range with a 500 lb warhead
- PM Precision Fires Rocket & Missile Systems (PFRMS), Redstone Arsenal, AL
- Decision Authority: PEO M&S
- Prime contractor: Lockheed Martin, Dallas TX

Recent Milestones or Events

- Sep 15: ATACMS PDR
- Oct 15: Static test of re-grained rocket motors
- Nov 15: Began modifications to Camden production facility
- Nov 15: AAE signed ADM for ACAT III designation

Near Term Milestones or Events

- May 16: SLEP Development contract definitization
- May 16: ATACMS SLEP IPR #2
- Jul 16: Flight Test #1
LRPF Increment 1 Program Overview

• **LRPF Increment 1 Description:**
  - Increment 1: 300+ km ballistic missile to replace ATACMS
  - Attack critical and time sensitive area and point targets including threat air defense, missile launchers, and assembly/staging areas
  - Services: Army Development/Production
  - Technology upgrades via Open Systems Architecture
  - Growth capabilities for follow-on increments

• **CDD Approval Status:**
  - Army approval expected 2QFY16; Document is in HQs DA staffing in support of MSA

• **ACAT Level: Pre-MDAP (ACAT 1D)**

• **MDA:** USD (AT&L); Honorable Frank Kendall

• **CAE:** ASA (ALT); Honorable Katrina McFarland

• **PEO:** Mr. Barry Pike

• **PM:** COL James Mills

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**Abbreviations:**

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<th>Abbreviation</th>
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<td>ACAT</td>
<td>Acquisition Category</td>
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<td>ASA(ALT)</td>
<td>Assistant Secretary of the Army (Acquisition, Logistics and Technology)</td>
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<td>ATACMS</td>
<td>Army Tactical Missile System</td>
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<td>BG(P)</td>
<td>Brigadier General (promotable)</td>
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<td>CAE</td>
<td>Component Acquisition Executive</td>
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<td>CDD</td>
<td>Capability Development Document</td>
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<td>COL</td>
<td>Colonel</td>
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<td>GPS</td>
<td>Global Positioning System</td>
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<td>HIMARS</td>
<td>High Mobility Artillery Rocket System</td>
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<td>In insensitive Munition</td>
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<td>km</td>
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<td>PM</td>
<td>Project Manager</td>
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<td>QFY</td>
<td>Quarter, Fiscal Year</td>
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<td>USD(AT&amp;L)</td>
<td>Undersecretary of Defense (Acquisition, Technology and Logistics)</td>
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LRPF Increment 1 Concept System

- Insensitive Munition-compliant Composite Motor Case
- Cables & Tunnel
- New Design Control Actuation System, Housing, & Control Surfaces
- Warhead Skin
- Insensitive Munition-compliant Propellant, Igniter & Arm / Fire Device
- Fusing Options - Point / Delay / Proximity (Height of Burst Selectable)
- Cluster Munition-Compliant Area Effects Warhead
- New Launch Pod Missile Container (LPMC)
- Compatible with Current Launchers
  - M270A1
  - High Mobility Artillery Rocket System (HIMARS) M142

New Launch Pod Missile Container (LPMC)

Always On Target!
Questions