



U.S. AIR FORCE

Precision Strike Annual Review 21 Mar 2012

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Program Executive Officer for Weapons
Commander, Air Armament Center

Integrity - Service - Excellence



Overview



- **Air Armament Center Mission**
- **Precision Strike Weapon Status**
- **Better Buying Power Initiatives**
- **Weapon Buying Opportunities**



AAC Mission



To develop, acquire, and test war-winning weapons. We deliver state-of-the-art weapons to the warfighter, provide top quality installation support to all AAC and tenant units, and serve as responsible stewards of our resources.





The Weapons Life Cycle



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Technology



Science and Technology with AFRL and others

Acquisition



Product Support and Weapon Lifecycle Development

Testing



Developmental and Operational Test and Evaluation

Training

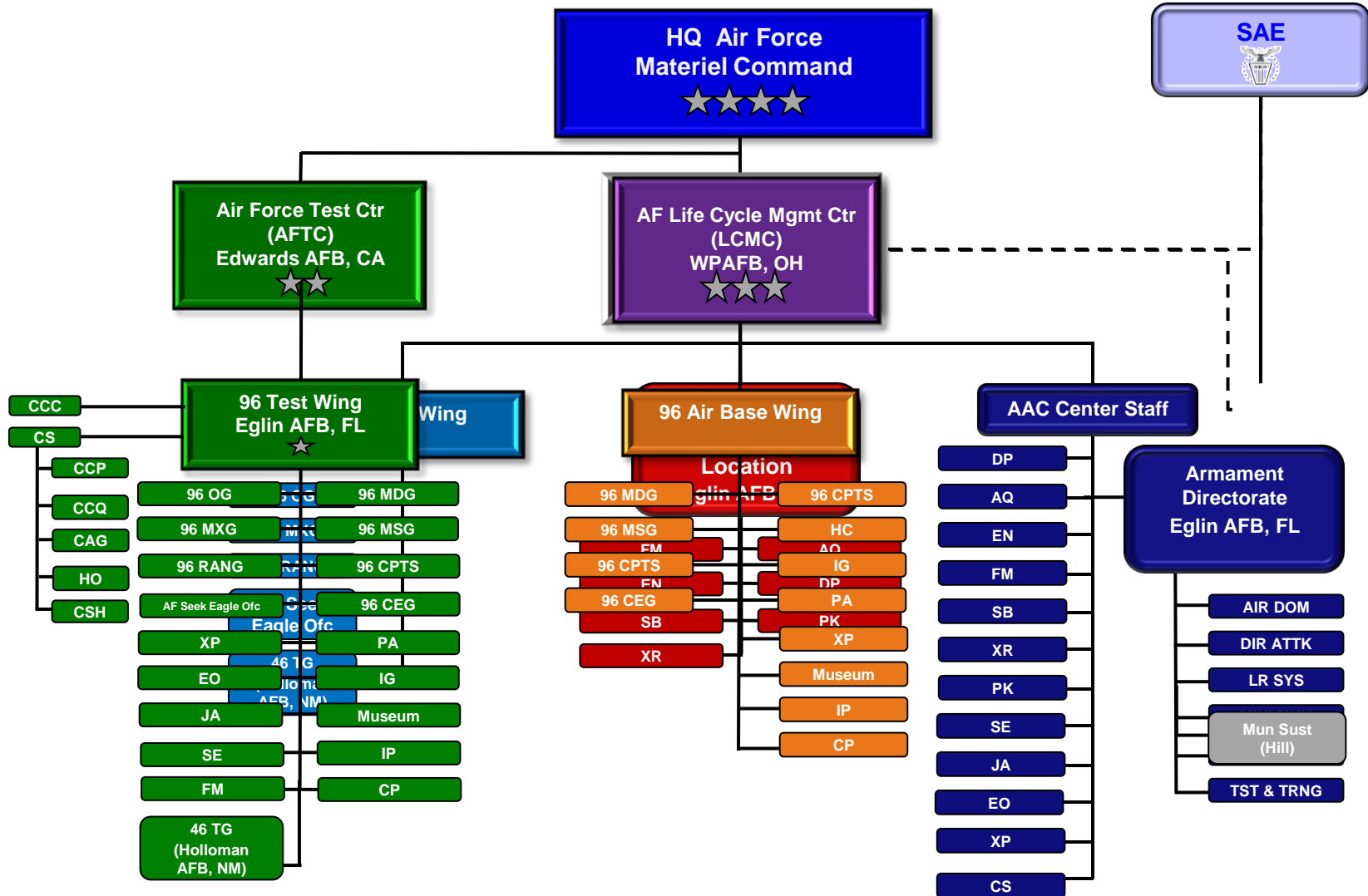


Training Future Pilots, Maintainers, EOD Personnel and others

Transition Technology to Weapon Systems and Provide War Winning Capabilities On Time, On Cost



AAC Now...to Proposed





Precision Strike Weapon Systems



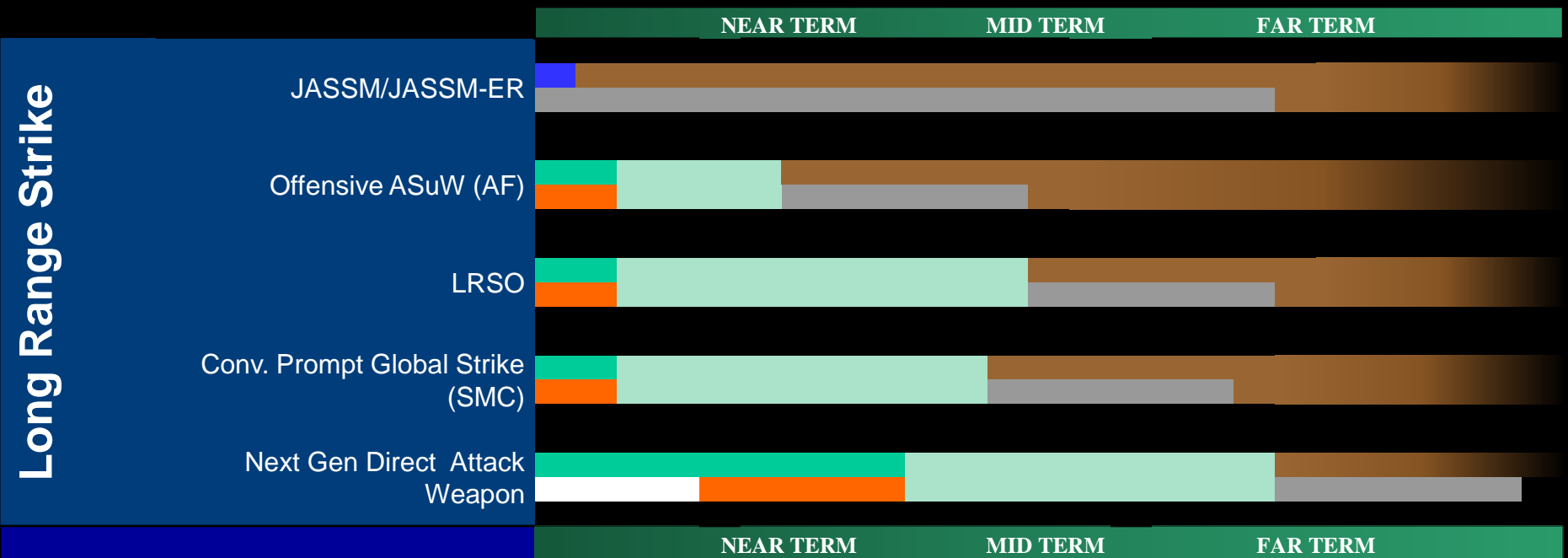
- Long Range Strike Weapons
 - JASSM-ER
- Air Superiority Weapons
 - Next Generation Missile
- Hard Deeply Buried Target Weapons
 - HTM
- Close Controlled Strike Weapons
 - SDB II



Long Range Strike Weapons Roadmap (Notional)



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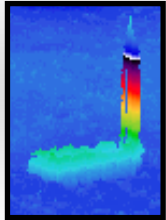
CP
 DP
 S&T
 Acq Program
 Future Acq Program
 O&S
 Production



Long Range Strike Weapon Technologies



Advanced Guidance for Surface Targets

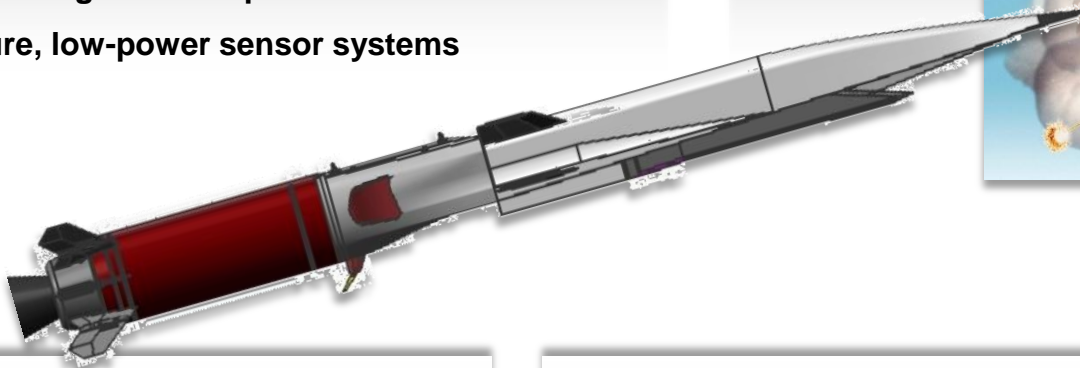


- High temperature sensors and apertures
- Precise sensor pointing through boundary layer
- Millisecond guidance update
- Miniature, low-power sensor systems

Precision Selectable Effects Warhead

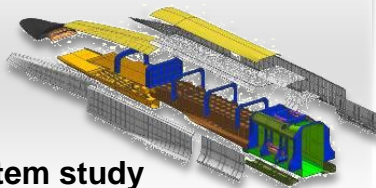


- Tailored blast pulse
- Target coupling



High Speed Weapon Integration and Demonstration

- Platform Integration
- High Speed Dispense
- TRESPAS/TRESPALS2 system study
- Control Surface aerodynamics
- Propulsion and Warhead integration
- Low Cost structure materials

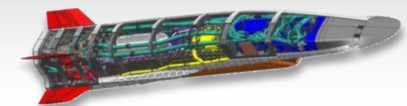


Efficient High Speed Expendable Propulsion

- Scramjet - Mach 6
- High Mach turbojet – Mach 3+



Engine Ground tests



X-51A flight tests



JASSM-ER



- Program Description

- Conventional >500 NM stealthy missile
- 1000 lb penetrator, blast/frag warhead
- GPS/INS with IIR terminal seeker
- On B-1 (T); B-2, B-52, F-15, F-16 (O)
- Procuring 2500 w/15 yr warranty



- Status / Recent Successes

- IOT&E 4 of 5, 5 nominal hits awaiting AFOTEC scoring - 11 shots remain
- 12 Test missiles deliver May-Jul 2012 to complete operational test
- First 30 production missiles on contract! Arriving in field early CY2013

- Way ahead

- Complete remaining IOT&E shots, deliver Low Rate Initial Production missiles
- Program tracking to successful Full Rate Production Decision in 3QFY13

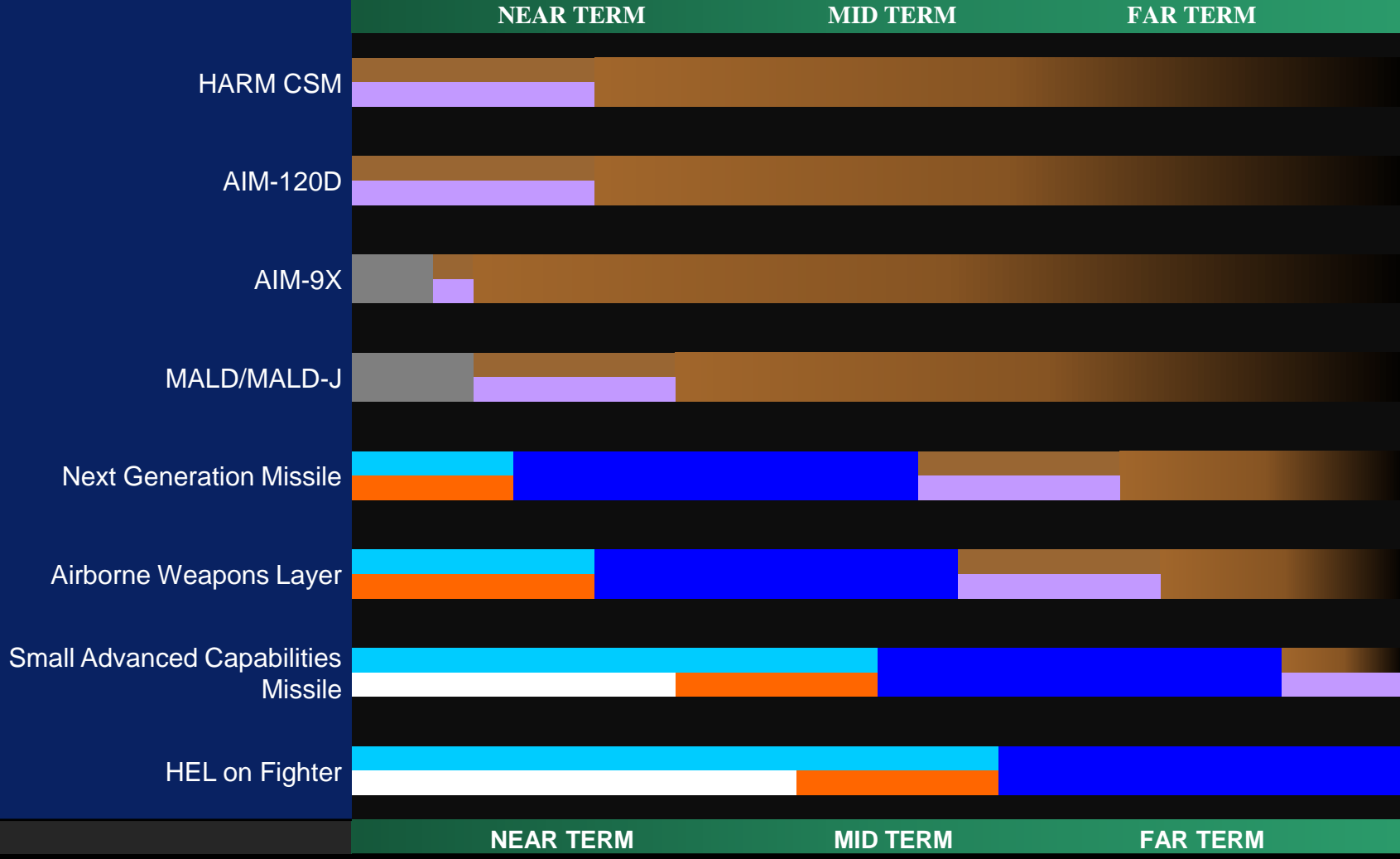


Air Superiority Weapons Roadmap (Notional)



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Air Dominance

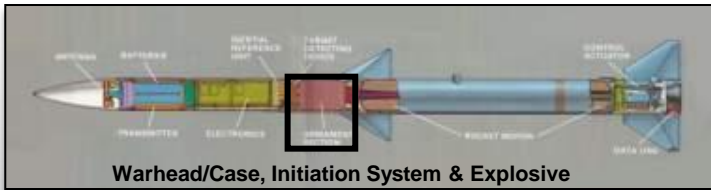


CP
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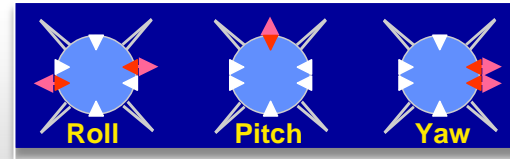
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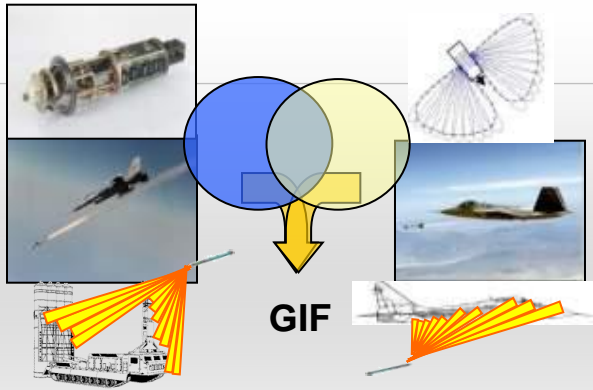
Air Dominance Technologies



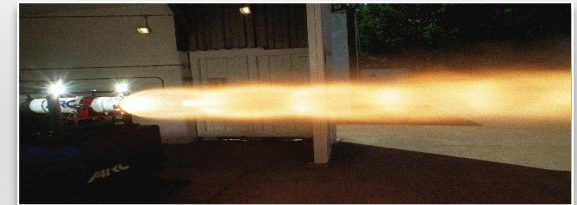
Adaptable Multi-Point Initiated Mass-Focusing, Enhanced Lethality Warhead



High Maneuverability Hybrid Aerodynamic Fin / Reaction-Jet Control System



Guidance Integrated Fuzing (GIF) Weapon Seeker/Fuzing Integration With Dual-Role Target Set Capability



Multi-Pulse Solid Rocket Motor & Other Advanced Propulsion Concepts

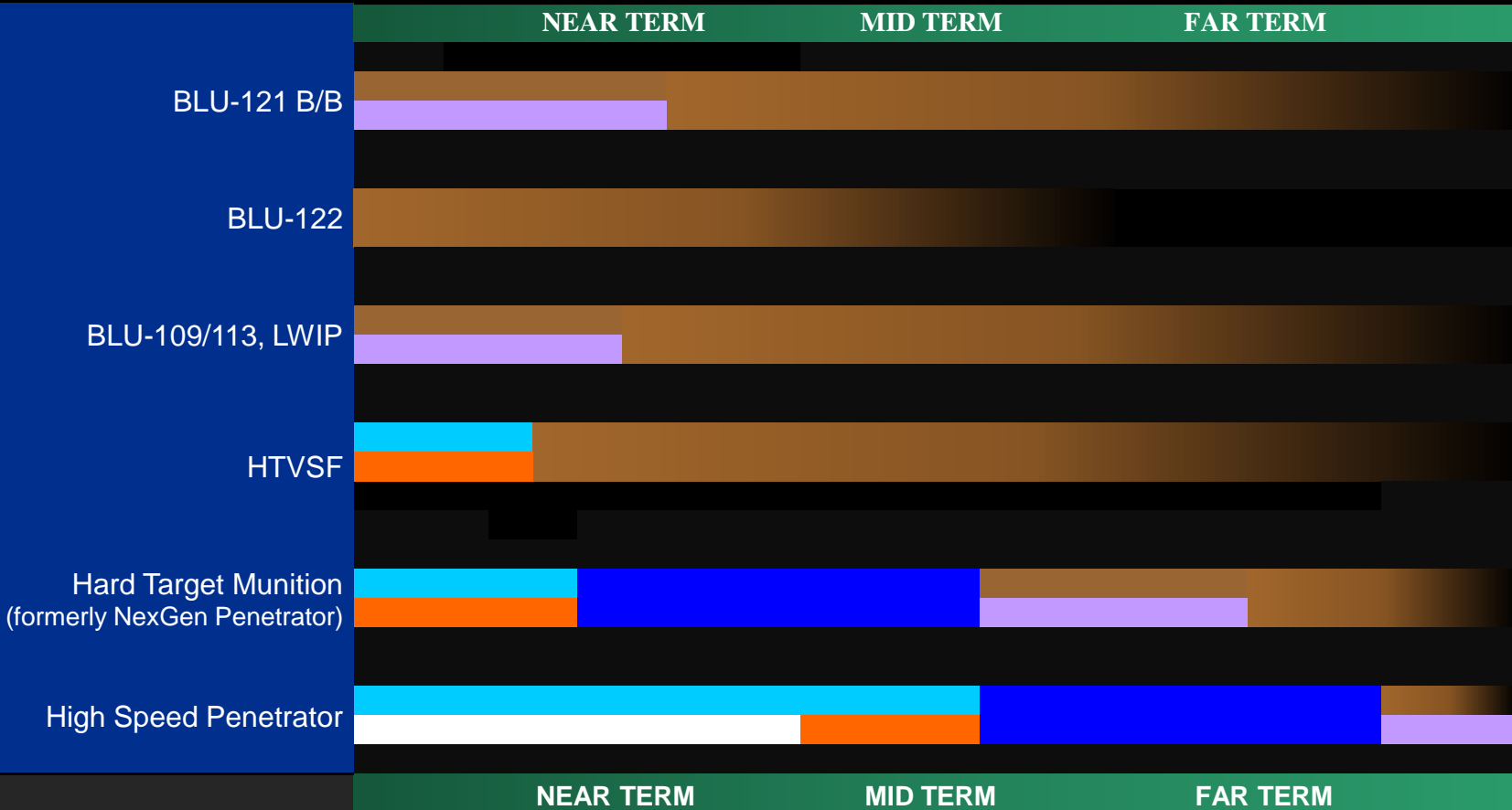


HDBT Weapons Roadmap (Notional)



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Hard & Deeply Buried Targets



CP
 DP
 S&T
 Acq Program
 Future Acq Program
 O&S
 Production



HDBT Weapon Technologies



Advanced Guidance for Denied/Degraded GPS Environment

- Maintain accuracy in GPS denied/degraded environment
- Adverse weather requirement



Warhead Hardening

- Survivable warhead case
- No internal plumbing
- Robust Fuze well



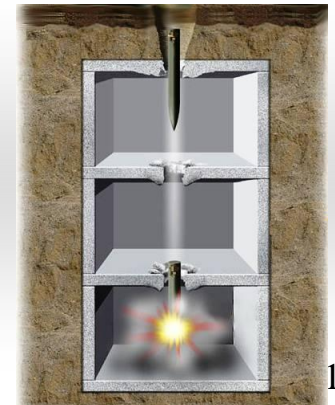
Energetic Materials Issues

- Survivable
- Maintain Performance
- Alternate Kill Mechanisms



Fuzing

- Void Sensing
- Survivable





Hard Target Munition



- Program Description

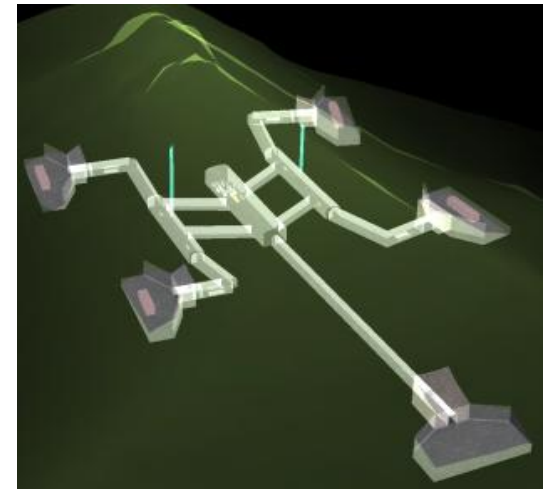
- HTM Program will develop and produce munition(s) (includes: fuze, explosive, case, GNC, propulsion, etc.) to hold Hard and Deeply Buried Targets (HDBTs) at risk
 - Effective against current and future target set
 - Available for multiple platforms
 - Smaller than today's "gargantuan types"
 - Deny sanctuary to the adversary
 - Explore multiple alternatives to fill capability gaps

- Status/ Recent Successes

- AF Requirements Oversight Council (Nov 2011)
- AF Review Board (Jan 2012)

- Way ahead

- Material Development Decision (Apr 2012)
- Analysis of Alternatives (FY12-FY13, pending MDD approval)
- Potential Acquisition Program start (FY14)

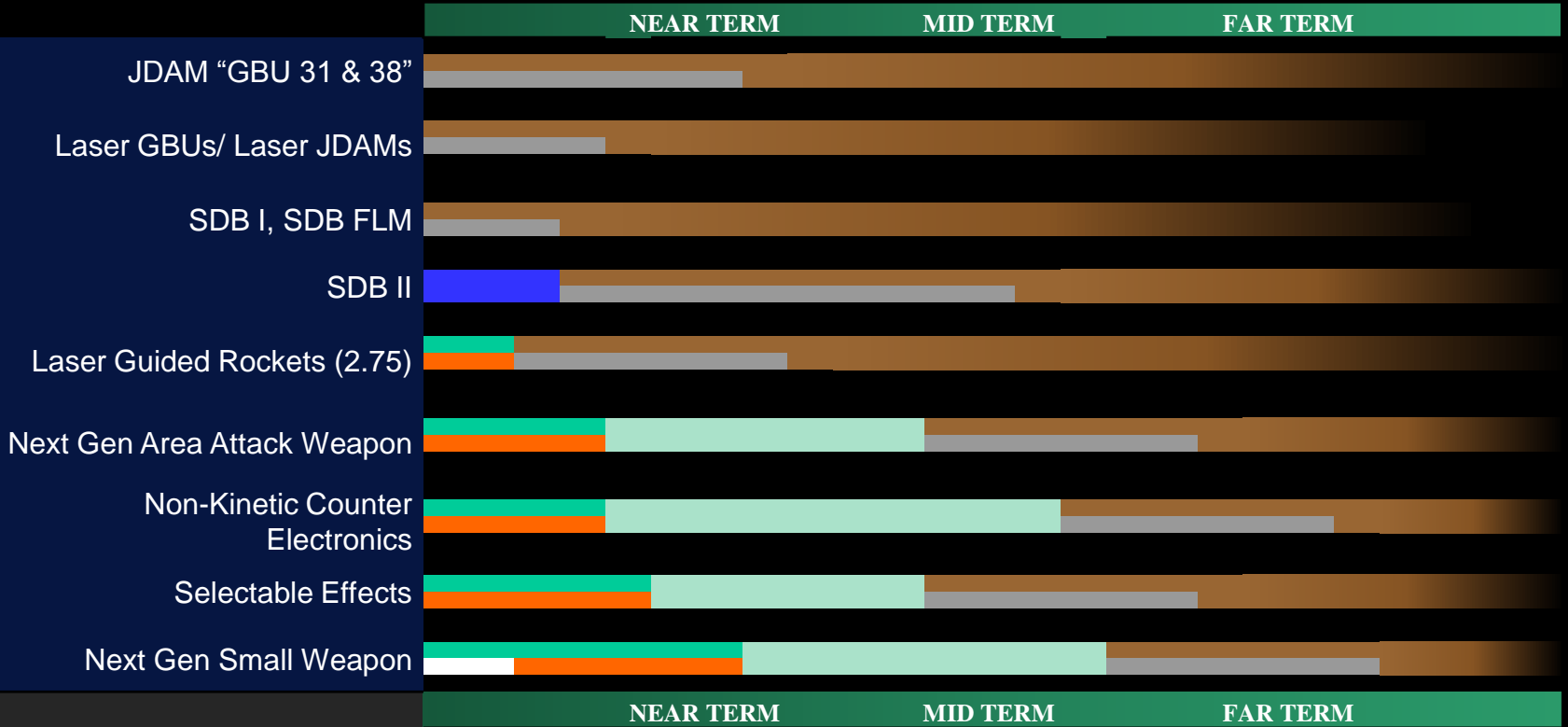




Close Controlled Strike/Intra-Theatre Strike Weapons Roadmap



Intra-Theater/Close Controlled Strike



CP DP S&T Acq Program
 Future Acq Program O&S Production



Small Diameter Bomb II



Program Description

- 250-lb Class, Precision Guided, A/G Munition
- Attack moving targets in adverse weather
- Tri-Mode (millimeter wave, IR, laser) Seeker
 - Normal Attack (moving target engagement)
 - Coordinate Attack
 - Laser Illuminated Attack
- Dual-Band Weapon Data Link (Link 16 & UHF)
- Threshold Platforms: F-15E, F-35B, F-35C
- Range: 40NM
- Targets: Tracked, Wheeled, Boats



Status/ Recent Successes

- To date EVM Performance: Green; Fixed-price contract awarded Aug 2010
- Feb 2012 – 2nd round of Captive Flight Test completed: verified tri-mode seeker hardware and software ability to search, acquire, and track both moving and stationary targets
- Dec 2011, ODASD(SE) concluded Critical Design Review complete
- Dec 2011 - Baseline testing of F-15E to SDB II software interface (UAI) completed

Way ahead

- Program is on track for MS C (FY13) and F-15E Required Assets Available (FY16)
- F-35B & F-35C Risk Reduction Activities Underway
- Guided Test Vehicle drop scheduled for early 3QFY12; first shot against a moving target

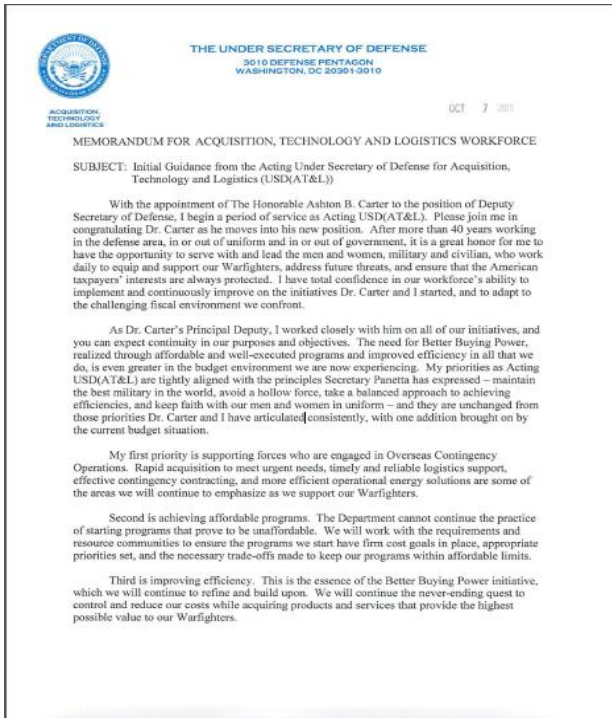


Better Buying Power Initiatives



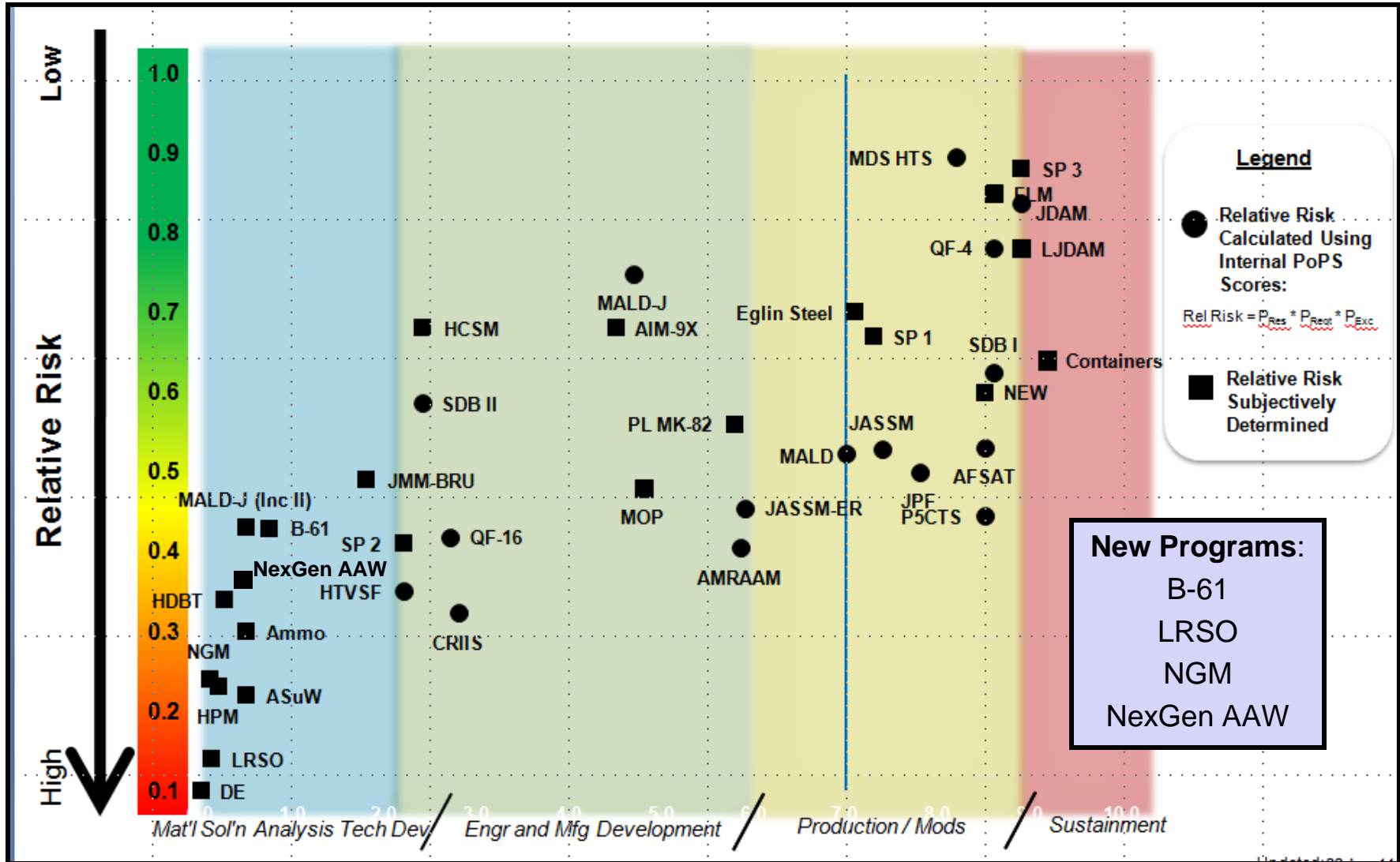
- DoD can no longer start/continue unaffordable programs
- We will continue the never-ending quest to control and reduce our costs while acquiring products and services that provide the highest possible value to our Warfighters

- Industry is our partner in the defense acquisition enterprise; without the industrial base, we could not equip and support our Warfighters
- We must make sound investments in the next generation of technologies to maintain our military superiority





Acquisition Programs 3-5 Year Outlook





Context for 5th Gen Air Armament



- Change
- Reduced Budgets = Program Cancellations
- Smaller Workforce
- Increased Competition
- Increased Collaboration for Better Business Deals
- Increased Focus on Process Improvement
- Increased Focus on Leadership



Better Buying Power Initiatives

- Comprehensive reviews of Indirect Costs with focus to increase buying power
- Maximizing efficiencies through competition and business strategies
- Identifying cost drivers and developing should costs for production programs
- Analyzing benefit/need of weapons warranties

VECP Success Factors

- USG customer, Program Office and PCO, Understands VECPs
- FY Program Budget Includes Funding to Implement VECPs.
- Early USG customer Buy-in/Participation in VE Study
- Incentivized
- Use of VECP
- Trained P

Opportunities in Production

CRIs

- Quality Improvements
- Yield Improvements
- Rework Reduction
- Lead time Reduction
- Some Include Performance Improvements

VECPs

JSOW: Three VECPs Invested \$3.5M Saved \$11K per unit
 AMRAAM: CAS VECP Investing \$24M. Potential 50% Reduction in CAS (\$20K)
 AMRAAM: SFM/DCLO VECP with NRE of \$3.7M; Savings of \$7,100 per unit. Implemented for Lot 24 (FY2010) - Continues for 60 months.
 Phoenix: Six VECPs Invested \$30M saved \$40M

	S-Tr	Average	Average	Ave Price	% Savings
	QTY	Old Price	New Price	Savings	
Fixed Control Handle	388	\$ 6,830	\$ 1,775	\$ 5,055	74%
Flat Panel Display	426	\$ 15,270	\$ 30,750	\$ 4,510	30%
Torque Motor	1141	\$ 6,250	\$ 2,800	\$ 3,450	55%
WCC	240	\$ 202,240	\$ 122,955	\$ 79,285	39%
ICP	295	\$ 239,765	\$ 189,025	\$ 70,740	30%
DSX FLIR	242	\$ 377,600	\$ 177,075	\$ 200,525	27%

RAYTHEON PROPRIETARY

Scrap and Rework Costs

AMRAAM Monthly Rework and Scrap Cost

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
Warranty	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%

Hardware Unit Costs

AMRAAM Top 10 Supplier (Supplier Rating System)

Name	Quantity Rating 3 Months	Quality Rating 3 Months	Delivery Rating 3 Months	Comments
ALUANT TECHNOLOGIES INC	95%	100%	15%	Delivery schedule still recovering from WII explosion and failure maintenance. Delivered currently on hold by Lot 22 ICE issue. Schedule in backlog is ordinary.
AUTOMATIC INDUSTRIAL SYSTEMS INC	98%	100%	75%	Deliveries to CALNS M/F RB investigation
COGNATE TECHNOLOGICAL SYSTEMS INC	96%	100%	98%	Late deliveries to Lot 22 ramp-up
GENERAL TOWERS ELECTRONIC MANUFACTURING	100%	100%	100%	
HERLEY INDUSTRIES INC	100%	100%	100%	
LS COMMUNICATIONS INC	100%	98%	100%	
LS COMMUNICATIONS CORP (EEO)	100%	100%	100%	DTFT failure team looking into recent spike
RAYTHEON COMPANY (JACO)	97%	99.1%	93.8%	
RAYTHEON SYSTEMS LIMITED	100%	100%	100%	
SPACE AND AVIATION SYSTEMS (SAI)	98.1%	100%	94.2%	Late deliveries due to TIM connector issue

Looks Back at Past Performance of Top 10 Suppliers (by Spend)

AMRAAM Problem Suppliers

- L3-EDD (i.e. L3 "east"): (2%)
 - Traveling wave tube used in CT 4
 - Abandon/scrub rate of ~10% proposed
- AIS: (2%)
 - IMU for CALNS (GPS/INS system)
 - Experiencing 3M year compliance issue
 - GPS have problems meeting spec - will FREE/E Expedite
- ATK: (7%)
 - Rocket motors
 - Quality and "On time" Deliveries
- IMC (i.e. Raytheon Andover):
 - Circuit card assemblies (CR) and
 - Inadequate sub vendor parts man
 - Low monthly deliveries
 - Production bottlenecks

suppliers comprise 34% of AMRAAM Key Suppliers (by \$) time getting insight into Supplier rework

Sustainment Costs

AMRAAM ALIR Warranty Unit Costs (\$K)

AIM SX B/L CATM Warranty Repairs

Given out-year O&M budgets, we will have trouble sustaining the inventory



Better Buying Power Initiatives

Maintaining momentum of Joint Management Council (JMC)

- Explore cross-cutting efficiencies and "Better Buying Power" opportunities with our main industry partners
- Members (SEs & PMs):
 - NAVAIR NAVSEA
 - MDA DCMA
 - Armament Center Army PEO for Space and Missiles
- Capitalize on targets of opportunity for large savings
 - Synchronizing awards for alignment between programs
 - Multiple year contracts -- Base year plus options
 - Bundled material procurements
 - Common contract requirements language
 - Value Engineering Proposals/cost reduction initiatives

Leverage Buying Power Contracts

- Aligning Contract Awards
- Subcontractor Bundling
- How can RMS use its buying power to get better deals with

Leverage Buying Power Program Management

- Assess overall business strategy
 - Strive for "best business deal"
 - Portfolio-wide approach
- Understand and quantify all key cost elements
 - Focusing on production programs
- First pass potential payoff opportunities
 - Hardware unit costs
 - Sustainment costs
 - Manpower/Staffing costs
 - Scrap/Rework costs



Measures of Merit: fewer taxpayer dollars; more warfighter weapons; less program execution risk

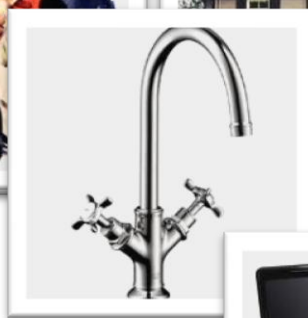
RMS JMC Teams & Targets of Opportunity		
Supply Chain	Leverage Buying Power	Contracts
<ul style="list-style-type: none"> • Brainstorm w/Vendors on Affordability • JMC Rep on CAB/CAPA • Scrap/Rework • Rationalize Supply Chain for major (Complex) subs <p>Lead: Robeson RMS: Collins USAF: Shellkoff PCO/WS: Boland NAVSEA: Freeman DCMA: Reesman</p>	<ul style="list-style-type: none"> • Scrap/Rework <ul style="list-style-type: none"> • Programs Drill Down • Random Inspection/Process QA • Incentives/Investment • Normalize/Understand SEPM • VECs • CAIV Performance Requirements, e.g MTBF tradeoffs (sustainment) <p>Lead: ? RMS: USAF: PCO/WS: Singer</p>	<ul style="list-style-type: none"> • Timing of Awards • Align Buys btwn Programs/ Sync awards (Bundle Vendors) • Pilots • Common contract requirements/ language • MYP • Base year w/options <p>Lead: Meade RMS: USAF: Troy Quarter PCO/WS: T. Bilkowski DCMA:</p>
<p>Next Steps: Expectations of Program Leads</p> <ul style="list-style-type: none"> • Scope => Review & Define • Prioritize based on ROI & Ease of implementation • Timeline - POA&M/ Time Phased • Members • Due: 30 Days ~ 3 June VTC 	<p>Cost</p> <ul style="list-style-type: none"> • FRPA Process Change - Kilpatrick • Rate Review <ul style="list-style-type: none"> • 06 Jun Tucson • 20 Jun Raytheon HQ <p>Lead: Sebado w/Ryan RMS: USAF: DCMA: Bastifos, Bradley, Dowd, PCO/WS:</p>	<p>Program</p> <ul style="list-style-type: none"> • Total TOA Initiatives • Test Data Analysis <p>Lead: Dave Janiec</p>

DCMA & Joint Buying Command Fully Engaged to Establish Better Rate Structure

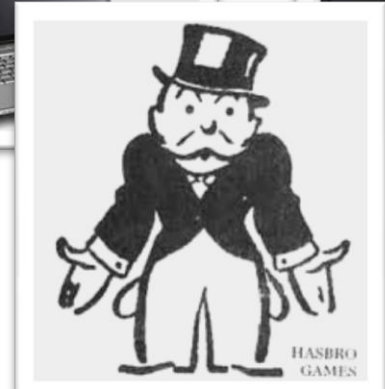


Today's Weapons Purchases

DEFENSE FINANCE AND ACCOUNTING SERVICE MILITARY LEAVE AND EARNINGS STATEMENT									
ID	NAME (Last, First,MI)	SOC. SEC. NO.	GRADE	PAY DATE	YRS SVC	ETS	BRANCH AF	ADSN/DSSN	PERIOD COVERED
ENTITLEMENTS		DEDUCTIONS		ALLOTMENTS		SUMMARY			
Type	Amount	Type	Amount	Type	Amount	+Amt Fwd		.00	
A	BASE PAY	FEDERAL TAXES		DISCRETIONARY ALT		+Tot Ent			
B	BAS	FICA-SOC SECURITY		TRICARE DENTAL		-Tot Ded			
C	BAH	FICA-MEDICARE				-Tot Allt			
D		SGLI				=N			
		AFRH							
		FAMILY SGLI							
		TSP							



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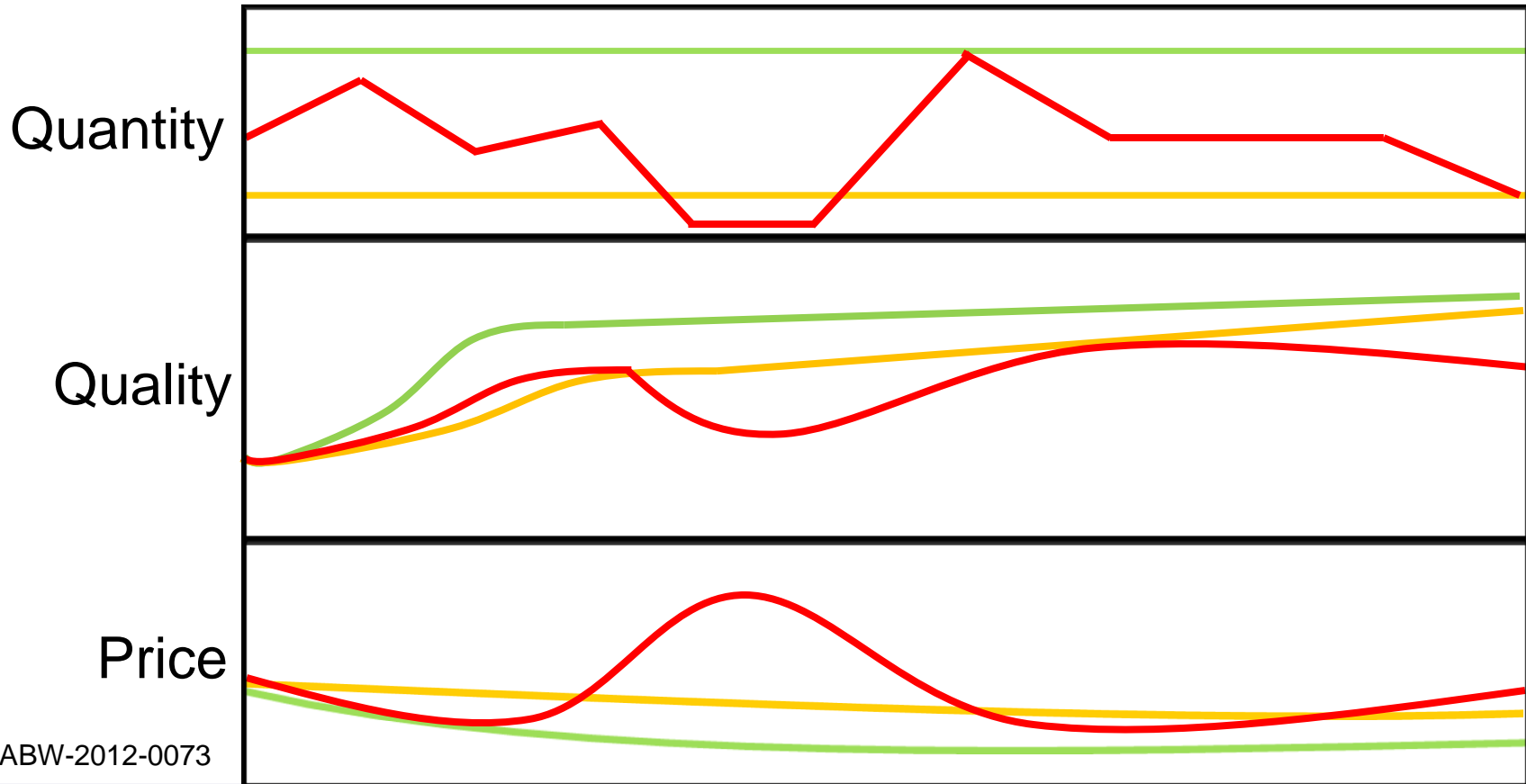




Quantity, Quality, and Price



EOQ Min Quantities Current Practice

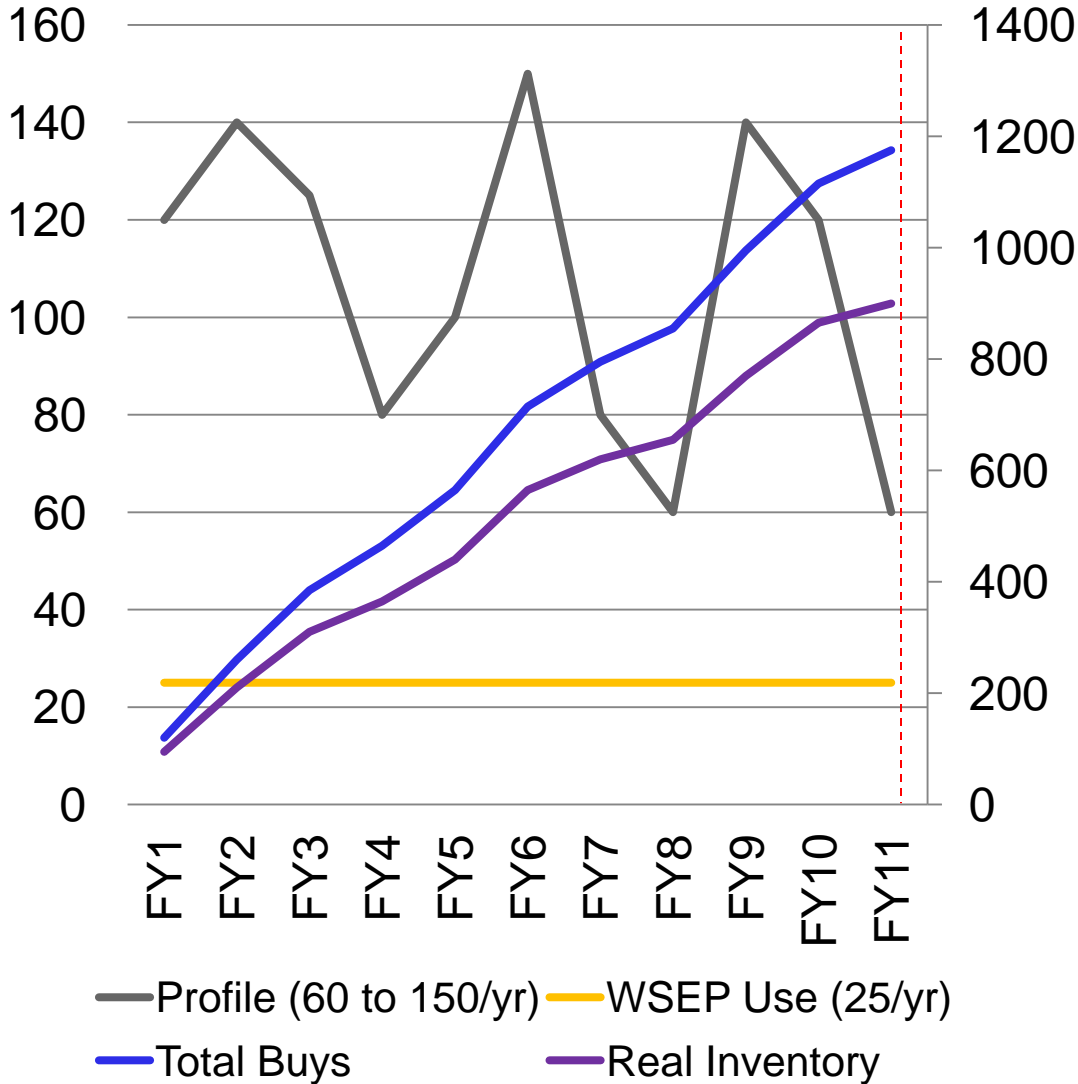


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Unstable buys cause the closure of production lines and the laying-off of skilled full-time workers. Specialized manufacturing capacity and human capital cannot be regenerated without great cost and significant time. (USA007065-11, pg1)



AIM-XXX Data (notional)



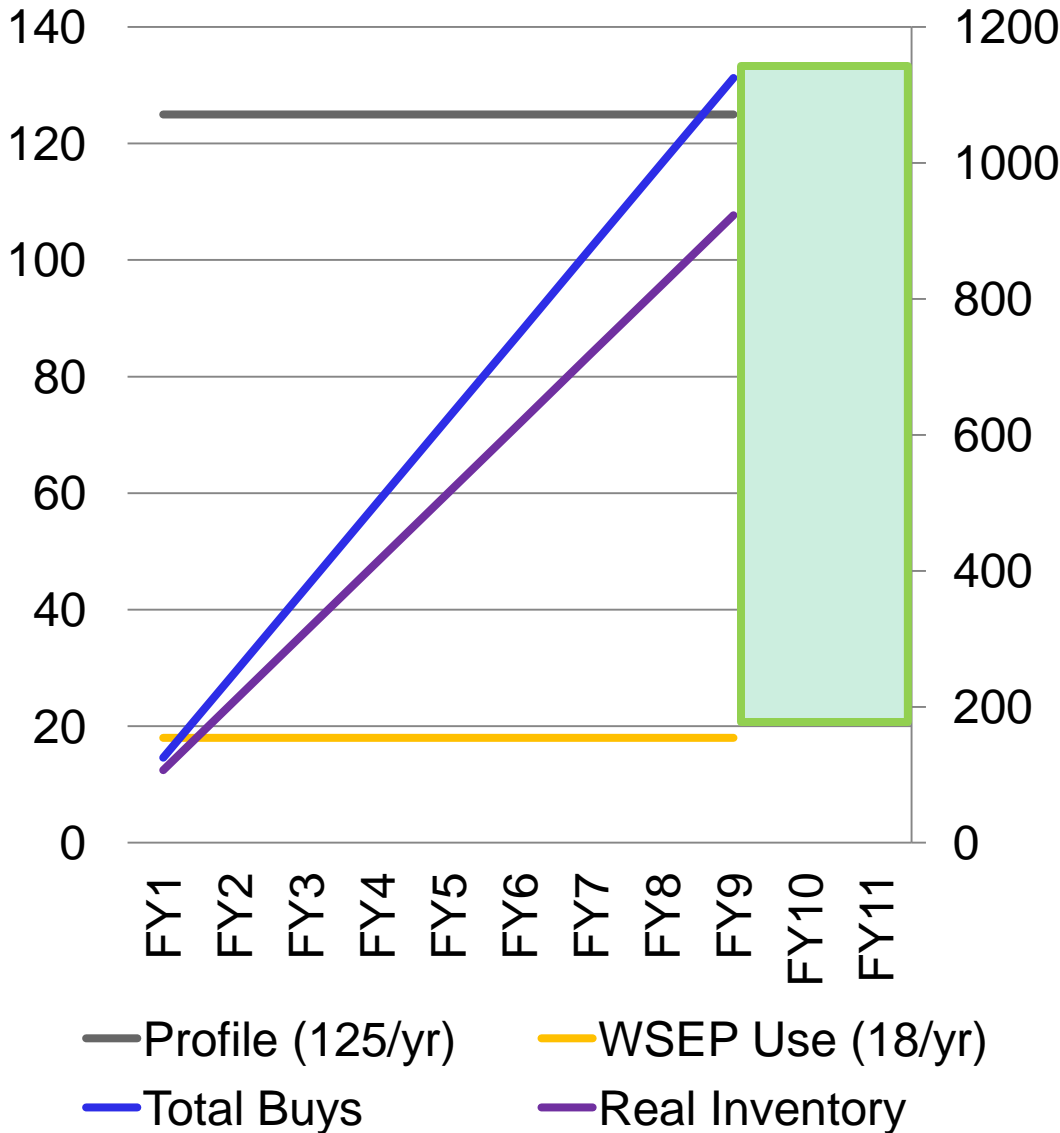
Unstable buys drive up per unit cost and reduce the industrial base's ability to sustain itself

Costly inventory lost to non-critical Test & Training (WSEP)

These inefficiencies ultimately extend the process allowing inflation to consume valuable TOA dollars



AIM-XXX Data (notional)



Stable buys drive down cost and steady demand provides a stable revenue flow & basis for long-range strategic investment

Practical weapon substitutions for WSEP

Avoided inflation and lower WSEP costs free TOA to enable competition/carry another contractor

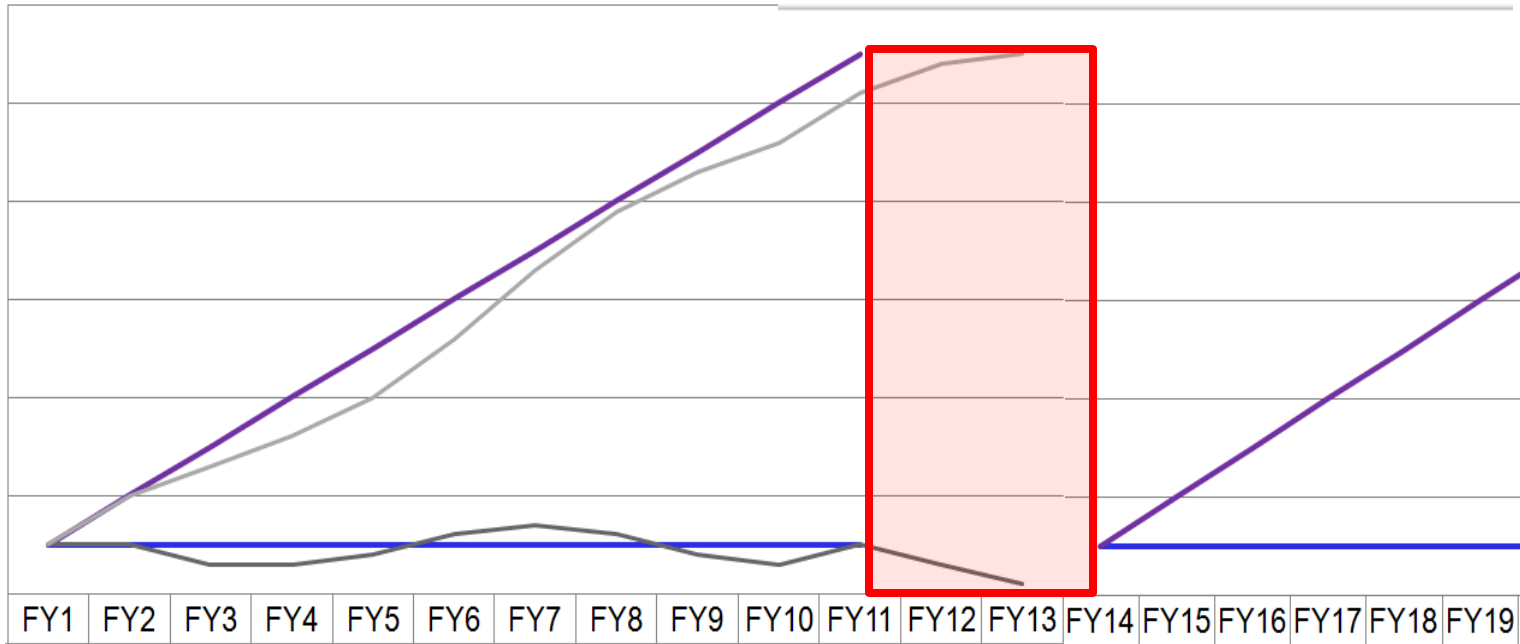


A-A Enterprise Look



AMRAAM

NGM



Missed opportunity to leverage buying efficiencies



Summary



- Current practice of unstable purchases inhibits our ability to leverage buying power
 - Inefficient use of TOA due to lack of EOQ and inflation
 - Causes production gaps – weakens industrial base
- Effective upfront spending, stable buy quantities, and effective WSEP use are vital to correction
- Predictable spending leads to smarter break points and more room to foster competition in next generation systems
- Rather than an individual profile, an enterprise view of our diverse capability is critical to leveraging better buying power



Final Thoughts



- Eglin has a diverse portfolio and will continue to evolve
- Declining Budgets Will Present Significant Opportunities
- Rapidly Changing Defense Landscape
 - Budgets, Leadership and Organizational Changes
- Programs That Can't Keep Up Will Not Survive
- The Defense Team Needs to Innovate
 - Not just on technology, but how we maximize procurement funds



QUESTIONS?