Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-492

Patriot Advanced Capability-3 Missile Segment Enhancement (PAC-3 MSE)

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

~~This document contains information that may be exempt from mandatory disclosure under the FOIA.~~

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[redacted] Sensitivity Originator

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The Aggregate Report Sensitivity has been defined as (U//FOUO) with the following explanation: Markings in accordance with Patriot Air and Missile Defense System Security Classification Guide, dated February 27, 2012, and operational security reviews.

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name
Patriot Advanced Capability-3 Missile Segment Enhancement (PAC-3 MSE)

DoD Component
Army

Responsible Office

(b)(6)

(b)(6)

Phone:
Fax:
DSN Phone:
DSN Fax:
Date Assigned: July 12, 2017

References

SAR Baseline (Production Estimate)
Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 16, 2015

Approved APB
Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 16, 2015

Mission and Description

The Patriot Advanced Capability-3 Missile Segment Enhancement (PAC-3 MSE) is a high velocity, hit-to-kill, surface-to-air missile capable of intercepting and destroying Tactical Ballistic Missiles (TBM) and air-breathing threats. The PAC-3 MSE is the follow-on variant of the PAC-3 missile. The PAC-3 MSE's improved capability is achieved through a higher performance solid rocket motor, modified lethality enhancer, more responsive control surfaces, upgraded guidance software, and insensitive munitions improvements. The PAC-3 MSE employs kinetic energy to destroy targets through a hit-to-kill capability and provides the range, accuracy, and lethality to effectively defend against TBMs armed with weapons of mass destruction as well as providing expanded battlespace performance against complex threats. Integration of the PAC-3 MSE missile requires minor modifications to the launching station to accommodate cabling changes and an improved canister. Improved PAC-3 MSE kinematic capabilities are realized with system upgrades for Post Deployment Build-8 software and Radar Digital Processor.

Executive Summary

Program Highlights Since Last Report

The PAC-3 MSE requirements are stable and funding is adequate to meet cost, schedule, and performance objectives established in the current approved APB. There are no increased risks to the PAC-3 MSE program since the last SAR.

On June 14, 2017, at the White Sands Missile Range (WSMR), New Mexico, the Lower Tier Project Office (LTPO), in conjunction with the U.S. Army Operational Test Command (OTC), successfully conducted the first of three operational missile flight tests in support of the PAC-3 MSE FRP decision and Post Deployment Build-8 (PDB-8) software Materiel Release (MR). The test demonstrated the capability of the Patriot system, using PDB-8 to detect, track, engage, and kill representative Tactical Ballistic Missiles and Air Breathing Threats. Patriot units engaged targets following operational doctrine with tactical loadouts, which included PAC-3 MSE and PAC-2 Guidance Enhanced Missile-Tactical missiles, as well as collection of data for Reliability and Maintainability assessment of the ground system and missiles.

On September 17, 2017, at the Reagan Test Site, Kwajalein Atoll, the LTPO, OTC, and soldiers of the 3-43 Air Defense Artillery (ADA) Patriot Battalion, successfully conducted the second of three operational missile flight tests supporting the PAC-3 MSE FRP decision and PDB-8 software MR. The test demonstrated PAC-3 MSE extended battlespace engagements, Patriot remote launch, long-range target acquisition, and improved software data processing, all of which are capabilities of the Patriot Configuration 3+ system.

On November 16, 2017, at the WSMR, soldiers of the 3-43 ADA Patriot Battalion successfully conducted the third operational missile flight test by engaging and destroying two threat representative missiles. This flight test was the last of the series of operational missile flight tests supporting the PAC-3 MSE FRP decision and PDB-8 software MR. The test demonstrated PAC-3 MSE high-altitude capabilities and the Patriot system's ability to handle multiple, near-simultaneous engagements and debris mitigation. Data analysis indicated a successful intercept of targets and successful completion of all test objectives.

On November 2, 2017, the LTPO PM submitted a Program Deviation Report (PDR) to notify the Army Acquisition Executive (AAE) of an APB Procurement cost breach. The program received Congressionally authorized funding increases in FY 2014 through FY 2017 and an above threshold reprogramming action in 1st Quarter FY 2018, which increased total Procurement funding. The additional funds caused the Procurement Current Estimate to exceed the approved threshold. On December 21, 2017, the AAE concurred with the PDR. An update to the APB will be implemented with the PAC-3 MSE FRP decision planned for 2nd Quarter FY 2018.

On December 21, 2017, the FY 2018 PAC-3 MSE Production contract was awarded to Lockheed Martin Missiles and Fire Control, Dallas, Texas, as an undefinitized contract action as part of the FY 2017 - FY 2018 contract and is expected to be definitized as a Fixed Price Incentive Firm contract in June 2018. The FY 2017 - FY 2018 contract is a follow-on production contract to the program's previous LRIP contracts awarded FY 2014 through FY 2016.

On January 24, 2018, the LTPO PM submitted a PDR to notify the AAE of an O&S cost breach. The cumulative program increases caused the current O&S cost estimate to exceed the threshold. An update to the APB will be implemented with the PAC-3 MSE FRP decision planned for 2nd Quarter FY 2018.

On January 25, 2018, the AAE approved an increase to the PAC-3 MSE LRIP quantity. This request is a result of multiple annual Congressional increases and OSD reprogramming to procure additional PAC-3 MSE missiles.

The FY 2019 PB includes a program increase of $647.0M in FY 2018 for procurement of additional MSE missiles to support combatant commanders.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
March 2014	On March 27, 2014, the DAE signed the Milestone C ADM authorizing the PAC-3 MSE to enter Production and Deployment and proceed with LRIP.
March 2014	The FY 2014 PAC-3 MSE Production Fixed Price Incentive Firm Target Undefinitized Contract Action was awarded on March 28, 2014, following approval of the PAC-3 MSE Milestone C.
January 2015	The DAE approved the PAC-3 MSE Production APB.
October 2015	PAC-3 MSE First Unit Equipped was established with 3-2 Air Defense Artillery (ADA) on October 23, 2015.
May 2016	On May 10, 2016, the DAE delegated milestone decision authority for the PAC-3 MSE program to the Secretary of the Army. The PAC-3 MSE program was designated ACAT IC with milestone decision authority assigned to the Army Acquisition Executive (AAE).
July 2016	PAC-3 MSE IOC was established with the 3-2 ADA on July 5, 2016.
August 2016	On August 10, 2016, the AAE approved an increase to the PAC-3 MSE LRIP quantity. This request is a result of multiple annual Congressional increases to procure additional PAC-3 MSE missiles.
December 2017	On December 21, 2017, the AAE as the MDA, concurred with a PDR that provided notification of a breach to the approved APB Procurement Cost threshold. The PM reported a breach due to receipt of additional missile procurement funding in FY 2014 through FY 2018. The program increase supports procurement to the Army Acquisition Objective.
January 2018	On January 24, 2018, the PM submitted a PDR to notify the AAE of an O&S Cost breach. The cumulative program increases caused the current O&S Cost estimate to exceed the threshold. An APB change will be implemented with the PAC-3 MSE FRP decision planned for 2nd Quarter FY 2018.
January 2018	On January 25, 2018, the AAE approved an increase to the PAC-3 MSE LRIP quantity. This request is a result of multiple annual Congressional increases and OSD reprogramming to procure additional PAC-3 MSE missiles.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☑
	MILCON	☐
	Acq O&M	☐
O&S Cost		☑
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Explanation of Breach

The Procurement Cost breach is due to increased quantities from 1,057 to 1,723 missiles to support the Total Army Munitions Requirements. The O&S Cost breach is a result of the quantity increase.

On November 2, 2017, the LTPO PM submitted a Program Deviation Report (PDR) to notify the Army Acquisition Executive (AAE) of an APB Procurement Cost breach due to funding received in FY 2014 through FY 2018 to procure additional missiles. On December 21, 2017, the AAE concurred with the PDR.

On January 24, 2018, the LTPO Project Manager submitted a PDR to notify the AAE of an O&S Cost breach due to cumulative program increases. A revised APB will be implemented with the PAC-3 MSE FRP Decision planned for 2nd Quarter FY 2018.

Schedule

Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Acquisition Increment 2				
MSE First Intercept	Feb 2010	Feb 2010	Feb 2010	Feb 2010
MSE FUE	Dec 2015	Dec 2015	Jun 2016	Oct 2015
MSE Milestone C	Mar 2014	Mar 2014	Mar 2014	Mar 2014
MSE IOC	Dec 2016	Dec 2016	Jun 2017	Jul 2016
MSE FRP	Dec 2017	Dec 2017	Jun 2018	Mar 2018

Change Explanations

None

Notes

MSE FUE is achieved when the first Patriot Fire Unit is equipped with 12 MSE missiles.

MSE IOC is considered achieved when a Patriot Battalion, consisting of four Fire Units, is equipped with 12 MSE missiles per Fire Unit.

Acronyms and Abbreviations

FUE - First Unit Equipped

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
System Training				
Proficiency Level				
Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.	Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.	(T=O) Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.	Soldiers (Operators, Maintainers, and Leaders) were able to perform critical tasks to standard 95% of the time after training during logistics demonstration and test unit training.	Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.
Time to Train				
Duration of institutional training shall be no more than 20 weeks for AOC 14A and MOSs 14E, H, T, 140A, 35 weeks for MOS 140E to train to use the system capabilities properly.	Duration of institutional training shall be no more than 20 weeks for AOC 14A and MOSs 14E, H, T, 140A, 35 weeks for MOS 140E to train to use the system capabilities properly.	(T=O) Duration of institutional training shall be no more than 20 weeks for AOC 14A and MOSs 14E, H, T, 140A, 35 weeks for MOS 140E to train to use the system capabilities properly.	Fire Centers of Excellence currently conducts AOC 14A in 18 weeks 3 days, 14E in 19 weeks 4 days, 14H in 11 weeks 3 days, 14T in 10 weeks, 140A in 19 weeks 2 days and 140E in 35 weeks and 4 days.	Duration of institutional training shall be no more than 20 weeks for AOC 14A and MOSs 14E, H, T, 140A, 35 weeks for MOS 140E to train to use the system capabilities properly.
Training Retention				
Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.	Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.	(T=O) Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.	Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually in accordance with FM 3 -01.86, Air Defense Artillery Patriot Brigade Gunnery Program.	Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.
Training Support				
Training resources shall be capable of providing 95% of training individual and collective critical	Training resources shall be capable of providing 95% of training individual and collective critical	Training resources shall be capable of providing 90% of training individual and collective critical	All training support materials to include preliminary technical manuals, New Equipment Training	Training resources shall be capable of providing 95% of training individual and collective critical

tasks (march-order and emplacement, operations, maintenance, force operations, and engagement operations) related to tactically deployed systems while missiles are loaded.	tasks (march-order and emplacement, operations, maintenance, force operations, and engagement operations) related to tactically deployed systems while missiles are loaded.	tasks (march-order and emplacement, operations, maintenance, force operations, and engagement operations) related to tactically deployed systems while missiles are loaded.	Plans, Task Analysis', and Doctrine Impact Reports were provided to Fires Center of Excellence Directorate of Training Development and Doctrine.	tasks (march-order and emplacement, operations, maintenance, force operations, and engagement operations) related to tactically deployed systems while missiles are loaded.
Training Interoperability				
System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.	System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.	(T=O) System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.	The Patriot weapons system supports live, virtual and constructive training environments by using TADSS to conduct multi-level training for both operators and maintenance personnel. With the addition of DIS and TADIL-J demonstrated the ability to participate in a virtual environment in both AC-12 and JC-14. The constructive environment was demonstrated during PoP Test 1 (connected two PCOFT labs in different states) and PoP Test 2 (connected two PCOFT labs in different countries.)	System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.
Net Ready				
The PAC-3 Increment 2 system must fully support execution of all operational activitives and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and	The PAC-3 Increment 2 system must fully support execution of all operational activitives and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and	The PAC-3 Increment 2 system must fully support execution of joint critical operational activitives and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and	TBD	The PAC-3 Increment 2 system must fully support execution of all operational activitivies and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and

must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) Solution architecture products; (2) Compliant with Net-Centric data strategy and Net-Centric Services strategy; (3) Compliant with GIG Technical Guidance; (4) Information assurance requirements; (5) Supportability requirements.	must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) Solution architecture products; (2) Compliant with Net-Centric data strategy and Net-Centric Services strategy; (3) Compliant with GIG Technical Guidance; (4) Information assurance requirements; (5) Supportability requirements.	must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) Solution architecture products; (2) Compliant with Net -Centric data strategy and Net-Centric Services strategy; (3) Compliant with GIG Technical Guidance; (4) Information assurance requirements; (5) Supportability requirements.		must satisfy the technical requirements for transition to Net-Centric military operations to include: (1) Solution architecture products; (2) Compliant with Net-Centric data strategy and Net-Centric Services strategy; (3) Compliant with GIG Technical Guidance; (4) Information assurance requirements; (5) Supportability requirements.
Sustainment Reliability				
The material sustainment reliability will exceed 41 hours MTBCMF.	The material sustainment reliability will exceed 41 hours MTBCMF.	The material sustainment reliability will exceed 20 hours MTBCMF.	Will be demonstrated during Post Deployment Build-8 and Radar Digital Processor-Configuration Operational testing.	The material sustainment reliability will exceed 20 hours MTBCMF.

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

Patriot Advanced Capability-3 (PAC-3) Increment 2 CPD dated January 24, 2013

Change Explanations

None

Acronyms and Abbreviations

AC-12 - Austere Challenge 2012
AOC - Area of Concentration
DIS - Distributive Interactive Simulation
DoDAF - Department of Defense Architecture Framework
FM - Field Manual
GIG - Global Information Grid
JC-14 - Juniper Cobra 2014
MOS - Military Occupational Specialty
MTBCMF - Mean Time Between Critical Mission Failure
O - Objective
PCOFT - Patriot Conduct of Fire Trainer
PoP - Proof of Principle
T - Threshold
TADIL-J - Tactical Digital Information Link-Joint
TADSS - Training Aids, Devices, Simulators and Simulations

Track to Budget

RDT&E

Appn	BA	PE
Army 2040	05	0605456A

Project	Name	
PA3	PATRIOT PAC-3/Missile Segment Enhancement	(Sunk)

Procurement

Appn	BA	PE
Army 2032	02	0605456A

Line Item	Name
C53101	MSE Missile

MILCON

Appn	BA	PE
Army 2050	01	0072896A

Project	Name
85904	Industrial Base Recapitalization Construction

Acq O&M

Appn	BA	PE
Army 2020	04	0702806A

Subactivity Group	Name	
435	Acquisition and Management Support: LTPO	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2014 $M			BY 2014 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	940.8	940.8	1034.9	932.9	871.1	871.1	869.8
Procurement	5087.2	5087.2	5595.9	7357.9[1]	5840.7	5840.7	8241.3
Flyaway	--	--	--	6712.8	--	--	7515.5
Recurring	--	--	--	6631.4	--	--	7434.3
Non Recurring	--	--	--	81.4	--	--	81.2
Support	--	--	--	645.1	--	--	725.8
Other Support	--	--	--	645.1	--	--	725.8
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	9.0	9.0	9.9	8.8	10.5	10.5	10.5
Acq O&M	0.0	0.0	--	1.4	0.0	0.0	1.4
Total	6037.0	6037.0	N/A	8301.0	6722.3	6722.3	9123.0

[1] *APB Breach*

Current APB Cost Estimate Reference

Army Cost Position dated February 28, 2014

Cost Notes

In accordance with section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

APB Procurement Cost Breach: The program current estimate exceeds the APB threshold for Procurement cost. The program received Congressional funding increases in FY 2014 through FY 2017 and an OSD reprogramming action in 1st Quarter FY 2018 to procure additional missiles. Due to the funding increases, the program Current Estimate exceeds the approved APB Procurement Cost threshold. The AAE concurred with the Program Deviation Report on December 21, 2017. An updated APB will be implemented with the PAC-3 MSE FRP decision planned for 2nd Quarter FY 2018.

FY 2019 Procurement funding includes $260.0M Overseas Contingency Operations funding to procure additional missiles.

The PAC-3 MSE APB objective Cost and Quantity represent total Army requirements with planned procurement from FY 2014 through FY 2025. The Army continues to assess complex threats, technology improvements, and material obsolescence for impacts and implementation to the current product configuration baseline.

Beginning in FY 2019, the Army realigned direct civilian personnel pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	1057	1057	1723
Total	1057	1057	1723

Quantity Notes

The PAC-3 MSE APB procurement is 1,057 missiles; however, the program received additional Congressional funding, OSD reprogramming and FY 2019 PB increases to bring the current estimate to 1,723 missiles.

Cost and Funding

Funding Summary

Appropriation Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	869.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	869.8
Procurement	2485.9	1106.0	1131.3	512.8	734.2	727.0	813.3	730.8	8241.3
MILCON	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	10.5
Acq O&M	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.4	1.4
PB 2019 Total	3355.7	1106.0	1131.5	513.0	744.9	727.2	813.5	731.2	9123.0
PB 2018 Total	3248.7	459.0	510.4	540.7	523.4	524.9	513.5	793.4	7114.0
Delta	107.0	647.0	621.1	-27.7	221.5	202.3	300.0	-62.2	2009.0

Quantity Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	482	244	240	93	160	160	196	148	1723
PB 2019 Total	0	482	244	240	93	160	160	196	148	1723
PB 2018 Total	0	457	93	95	95	95	95	106	149	1185
Delta	0	25	151	145	-2	65	65	90	-1	538

Cost and Funding

Annual Funding By Appropriation

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	62.5
2005	--	--	--	--	--	--	53.2
2006	--	--	--	--	--	--	101.8
2007	--	--	--	--	--	--	113.9
2008	--	--	--	--	--	--	60.5
2009	--	--	--	--	--	--	75.6
2010	--	--	--	--	--	--	115.7
2011	--	--	--	--	--	--	125.1
2012	--	--	--	--	--	--	67.2
2013	--	--	--	--	--	--	25.3
2014	--	--	--	--	--	--	33.0
2015	--	--	--	--	--	--	33.7
2016	--	--	--	--	--	--	2.3
Subtotal	--	--	--	--	--	--	869.8

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2014 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	74.5
2005	--	--	--	--	--	--	61.6
2006	--	--	--	--	--	--	114.7
2007	--	--	--	--	--	--	125.4
2008	--	--	--	--	--	--	65.3
2009	--	--	--	--	--	--	80.6
2010	--	--	--	--	--	--	121.5
2011	--	--	--	--	--	--	128.9
2012	--	--	--	--	--	--	68.2
2013	--	--	--	--	--	--	25.2
2014	--	--	--	--	--	--	32.3
2015	--	--	--	--	--	--	32.5
2016	--	--	--	--	--	--	2.2
Subtotal	--	--	--	--	--	--	932.9

Annual Funding 2032 | Procurement | Missile Procurement, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	70.4	70.4	--	70.4
2013	--	--	--	10.8	10.8	--	10.8
2014	92	508.9	--	--	508.9	39.1	548.0
2015	108	492.7	--	--	492.7	39.9	532.6
2016	112	464.5	--	--	464.5	50.4	514.9
2017	170	731.4	--	--	731.4	77.8	809.2
2018	244	1005.2	--	--	1005.2	100.8	1106.0
2019	240	1032.7	--	--	1032.7	98.6	1131.3
2020	93	473.3	--	--	473.3	39.5	512.8
2021	160	671.1	--	--	671.1	63.1	734.2
2022	160	662.7	--	--	662.7	64.3	727.0
2023	196	737.1	--	--	737.1	76.2	813.3
2024	116	489.9	--	--	489.9	46.6	536.5
2025	32	164.8	--	--	164.8	29.5	194.3
Subtotal	1723	7434.3	--	81.2	7515.5	725.8	8241.3

Annual Funding 2032 | Procurement | Missile Procurement, Army							
Fiscal Year	Quantity	BY 2014 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	70.8	70.8	--	70.8
2013	--	--	--	10.6	10.6	--	10.6
2014	92	496.7	--	--	496.7	38.1	534.8
2015	108	474.5	--	--	474.5	38.4	512.9
2016	112	439.8	--	--	439.8	47.7	487.5
2017	170	680.7	--	--	680.7	72.4	753.1
2018	244	918.9	--	--	918.9	92.2	1011.1
2019	240	926.1	--	--	926.1	88.4	1014.5
2020	93	416.2	--	--	416.2	34.7	450.9
2021	160	578.5	--	--	578.5	54.4	632.9
2022	160	560.1	--	--	560.1	54.3	614.4
2023	196	610.7	--	--	610.7	63.2	673.9
2024	116	398.0	--	--	398.0	37.8	435.8
2025	32	131.2	--	--	131.2	23.5	154.7
Subtotal	1723	6631.4	--	81.4	6712.8	645.1	7357.9

Annual Funding 2050 | MILCON | Military Construction, Army	
Fiscal Year	TY $M Total Program
2021	10.5
Subtotal	10.5

Annual Funding 2050 | MILCON | Military Construction, Army	
Fiscal Year	BY 2014 $M Total Program
2021	8.8
Subtotal	8.8

Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	TY $M Total Program
2019	0.2
2020	0.2
2021	0.2
2022	0.2
2023	0.2
2024	0.2
2025	0.2
Subtotal	1.4

Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	BY 2014 $M
	Total Program
2019	0.2
2020	0.2
2021	0.2
2022	0.2
2023	0.2
2024	0.2
2025	0.2
Subtotal	1.4

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	8/6/2004	1/25/2018
Approved Quantity	148	750
Reference	Milestone B ADM	Army Acquisition Executive ADM
Start Year	2010	2014
End Year	2011	2018

The Current Total LRIP Quantity is more than 10% of the total production quantity due to receipt of additional Congressional funding and OSD reprogramming to buy additional missiles.

The March 27, 2014, Milestone C ADM approved a PAC-3 MSE LRIP quantity of 330 based on the Army Acquisition Objective of 3,376 missiles.

On August 10, 2016, the MDA approved a PAC-3 MSE LRIP increase from 330 to 600 missiles.

On January 25, 2018, the MDA approved a PAC-3 MSE LRIP increase from 600 to 750 missiles.

(U//FOUO) Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Description
(b)(4)				

(U//FOUO) Notes

PAC-3 MSE was approved for FMS sales to all 13 existing Patriot partners and numerous potential partners with specific international interest from the following existing partners: United Arab Emirates, Germany, Korea, Kingdom of Saudi Arabia, Qatar, Kuwait, Taiwan, Japan, The Netherlands and Romania; and the following potential partners: Turkey, Poland and Sweden.

The first PAC-3 MSE FMS quantities (b)(4) were placed on the FY 2016 PAC-3/PAC-3 MSE Production contract on May 26, 2016. Deliveries are expected to begin in 3rd Quarter FY 2018.

Additional PAC-3 MSE FMS missile quantities were placed on the FY 2017 PAC-3/MSE Production contract on December 22, 2016. During this SAR reporting period, the (b)(4) FMS missile quantities were reduced from (b)(4) to prioritize U.S. production requirements. Deliveries are expected to begin in 4th Quarter FY 2019.

Additional PAC-3 MSE FMS missile quantities (b)(4) were placed on the FY 2018 PAC-3/MSE Production contract on December 21, 2017. Deliveries are expected to begin in 4th Quarter FY 2020.

Additional PAC-3 MSE FMS missile quantities (b)(4) were placed on the FY 2018 PAC-3/MSE Production contract on February 6, 2018. Deliveries are expected to begin in 4th Quarter FY 2020.

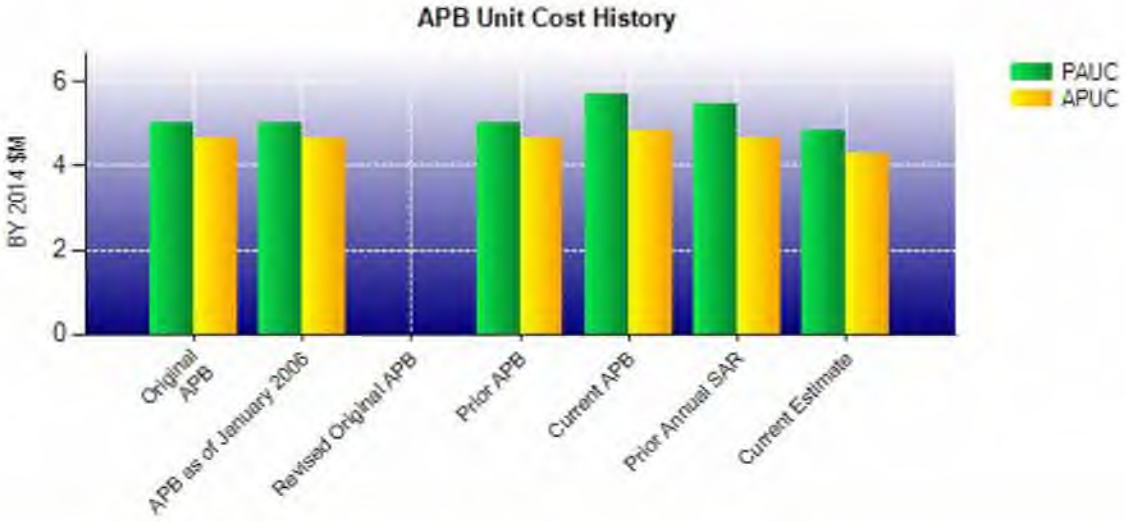
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2014 $M Current UCR Baseline (Jan 2015 APB)	BY 2014 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	6037.0	8301.0	
Quantity	1057	1723	
Unit Cost	5.711	4.818	-15.64
Average Procurement Unit Cost			
Cost	5087.2	7357.9	
Quantity	1057	1723	
Unit Cost	4.813	4.270	-11.28

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2014 $M Original UCR Baseline (Aug 2004 APB)	BY 2014 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	7664.0	8301.0	
Quantity	1528	1723	
Unit Cost	5.016	4.818	-3.95
Average Procurement Unit Cost			
Cost	7096.2	7357.9	
Quantity	1528	1723	
Unit Cost	4.644	4.270	-8.05



APB Unit Cost History					
Item	Date	BY 2014 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Aug 2004	5.016	4.644	5.272	4.957
APB as of January 2006	Aug 2004	5.016	4.644	5.272	4.957
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Aug 2004	5.016	4.644	5.272	4.957
Current APB	Jan 2015	5.711	4.813	6.360	5.526
Prior Annual SAR	Dec 2016	5.467	4.672	6.003	5.261
Current Estimate	Dec 2017	4.818	4.270	5.295	4.783

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.272	0.311	0.411	0.398	0.000	0.126	0.000	-0.158	1.088	6.360

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
6.360	-0.045	-0.722	-0.178	0.000	-0.248	0.000	0.128	-1.065	5.295

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.957	0.287	0.286	0.398	0.000	-0.244	0.000	-0.158	0.569	5.526

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.526	-0.045	-0.400	-0.178	0.000	-0.248	0.000	0.128	-0.743	4.783

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	Mar 2014	Mar 2014	Mar 2014
IOC	N/A	Dec 2016	Dec 2016	Jul 2016
Total Cost (TY $M)	N/A	8056.0	6722.3	9123.0
Total Quantity	N/A	1528	1057	1723
PAUC	N/A	5.272	6.360	5.295

Cost Variance

Summary TY $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	871.1	5840.7	10.5	--	6722.3
Previous Changes					
Economic	-0.6	-35.7	--	--	-36.3
Quantity	--	+462.3	--	--	+462.3
Schedule	--	-113.3	--	--	-113.3
Engineering	--	--	--	--	--
Estimating	-0.7	+80.5	--	--	+79.8
Other	--	--	--	--	--
Support	--	-0.8	--	--	-0.8
Subtotal	-1.3	+393.0	--	--	+391.7
Current Changes					
Economic	-0.1	-41.7	-0.1	--	-41.9
Quantity	--	+2528.1	--	--	+2528.1
Schedule	--	-192.8	--	--	-192.8
Engineering	--	--	--	--	--
Estimating	+0.1	-507.9	+0.1	+1.4	-506.3
Other	--	--	--	--	--
Support	--	+221.9	--	--	+221.9
Subtotal	--	+2007.6	--	+1.4	+2009.0
Total Changes	-1.3	+2400.6	--	+1.4	+2400.7
CE - Cost Variance	869.8	8241.3	10.5	1.4	9123.0
CE - Cost & Funding	869.8	8241.3	10.5	1.4	9123.0

Summary BY 2014 $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	940.8	5087.2	9.0	--	6037.0
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	+365.2	--	--	+365.2
Schedule	--	-30.6	--	--	-30.6
Engineering	--	--	--	--	--
Estimating	-8.0	+120.6	+0.1	--	+112.7
Other	--	--	--	--	--
Support	--	-5.9	--	--	-5.9
Subtotal	-8.0	+449.3	+0.1	--	+441.4
Current Changes					
Economic	--	--	--	--	--
Quantity	--	+2098.3	--	--	+2098.3
Schedule	--	-34.7	--	--	-34.7
Engineering	--	--	--	--	--
Estimating	+0.1	-440.4	-0.3	+1.4	-439.2
Other	--	--	--	--	--
Support	--	+198.2	--	--	+198.2
Subtotal	+0.1	+1821.4	-0.3	+1.4	+1822.6
Total Changes	-7.9	+2270.7	-0.2	+1.4	+2264.0
CE - Cost Variance	932.9	7357.9	8.8	1.4	8301.0
CE - Cost & Funding	932.9	7357.9	8.8	1.4	8301.0

Previous Estimate: December 2016

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
RDT&E Subtotal	+0.1	0.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-41.7
Total Quantity Variance resulting from an increase of 538 missiles from 1,185 to 1,723. (Subtotal)	+2075.1	+2500.1
Quantity Variance resulting from an increase of 538 missiles from 1,185 to 1,723. (Quantity)	(+2098.3)	(+2528.1)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-34.7)	(-41.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+11.5)	(+13.8)
Schedule Variance due to missile procurement realignment in FY 2018 - FY 2025. (Schedule) (QR)	0.0	-151.0
Revised estimate for program increases in FY 2017 - FY 2023 and missile production realignment. (Estimating) (QR)	-460.8	-531.3
Adjustment for current and prior escalation. (Estimating)	+10.3	+11.0
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability. (Estimating)	-1.4	-1.4
Adjustment for current and prior escalation. (Support)	+0.7	+0.7
Revised estimate of support to reflect increase in missile quantity. (Support) (QR)	+197.5	+221.2
Procurement Subtotal	+1821.4	+2007.6

(QR) Quantity Related

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Realignment of funding from FY 2019 to FY 2021 to align depot capability induction of missiles. (Estimating)	-0.4	0.0
MILCON Subtotal	-0.3	0.0

Acq O&M	$M	
Current Change Explanations	Base Year	Then Year
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and	+1.4	+1.4

auditability. (Estimating)		
Acq O&M Subtotal	+1.4	+1.4

[redacted] Contracts

Contract Identification	
Appropriation:	Procurement
Contract Name:	FY 2015 PAC-3/MSE Production
Contractor:	Lockheed Martin Missiles and Fire Control
Contractor Location:	P.O. Box 650003 Dallas, TX 75265-0003
Contract Number:	W31P4Q-14-C-0034/2
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	July 23, 2015
Definitization Date:	

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1314.1	N/A	108	1436.2	1546.0	330	1436.2	1436.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to realignment of FMS hardware requirements and definitization of multiple Not-To-Exceed (NTE) orders during FY 2016 and FY 2017.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

General Contract Variance Explanation

Cost and Schedule Variance are not reported for this contract because EVM reporting has not commenced due to ongoing negotiations. The majority of the FY 2015 PAC-3 Production requirements were definitized on December 16, 2015. The remaining NTE requirements will be negotiated and definitized separately. Definitization is expected to be completed no later than March 30, 2018. EVM reporting on this contract will begin when all contract requirements are definitized.

[redacted] Notes

On July 23, 2015, the contract was modified to add FY 2015 production requirements: [redacted]

(b)(4)

This modification also included NTEs for tooling and obsolescence requirements.

On June 30, 2016, the contract was modified to realign hardware requirements. Final hardware procurement is: (b)(4)

(b)(4)

FY 2015 PAC-3 MSE deliveries began in 2nd Quarter FY 2017.

Contract Identification

Appropriation: Procurement
Contract Name: FY 2016 PAC-3/MSE Production
Contractor: Lockheed Martin Missiles and Fire Control
Contractor Location: P.O. Box 650003
Dallas, TX 75265-0003
Contract Number: W31P4Q-14-C-0034/3
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 16, 2015
Definitization Date:

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1210.0	N/A	336	1380.9	1514.0	336	1380.9	1380.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the exercise of the FY 2016 Option on multiple occasions to realign hardware requirements and definitization of multiple Not-To-Exceed (NTTE) orders during FY 2016 and FY 2017.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

General Contract Variance Explanation

Cost and Schedule Variance are not reported for this contract because EVM reporting has not commenced due to ongoing negotiations. The majority of the contract requirements were definitized on December 16, 2015; however, the remaining NTE requirements remain in negotiation and are projected to be completed no later than March 30, 2018. EVM reporting on the contract will begin when all contract requirements are definitized.

[redacted] Notes

On December 16, 2015, the contract was modified to exercise the FY 2016 option production requirements. The modification added only a part of total requirements due to Continuing Resolution Authority limitations in effect at the time of the modification. Contract requirements include: (b)(4)

(b)(4)

The contract was modified several times in FY 2016 (March, April, May, and June) and final requirements include: (b)(4)

(b)(4)

PAC-3 MSE deliveries are scheduled to begin in 3rd Quarter FY 2018.

Contract Identification

Appropriation: Procurement
Contract Name: FY17 PAC-3/MSE Production
Contractor: Lockheed Martin Missiles and Fire Control
Contractor Location: P.O. Box 650003
Dallas, TX 75265-0003
Contract Number: W31P4Q-17-C-0006/1
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 22, 2016
Definitization Date:

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1453.0	N/A	263	1193.1	1253.5	298	1193.1	1193.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to definitization of FY 2017 hardware pricing at less than planned target.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

General Contract Variance Explanation

Cost and Schedule Variance are not reported for this contract because EVM reporting has not commenced due to ongoing negotiations. The majority of the contract requirements were definitized on December 21, 2017; however, the remaining Not -To-Exceed (NTE) requirements remain in negotiation and are expected to definitized in June 2018. EVM reporting on this contract will begin when all contract requirements are definitized.

[redacted] Notes

The FY 2017 PAC-3 MSE Production contract was awarded on December 22, 2016, to Lockheed Martin Missiles and Fire Control as an undefinitized contract action with a NTE value of $1.453B (U.S. and FMS). This award added only a part of the total requirements due Continuing Resolution Authority limitattions in effect at the time of award. The FY 2017 requirements included: (b)(4)
(b)(4)

The FY 2017 PAC-3 MSE Production contract was modified on July 14, 2017, to incorporate Congressional missile plus-ups and Continuing Resolution Authority funding. The modification increased the U.S. PAC-3 MSE missile total to (b)(4)
(b)(4) PAC-3 MSE Storage and Aging; parts library and added U.S. missile Cost and Software Data Reporting.

The FY 2017 PAC-3 MSE Production contract was modified on December 21, 2017, to definitize most of the FY 2017 requirements and to exercise the first FY 2018 Option Production requirements. The modification increased the U.S. PAC-3 MSE missile total to (b)(4)
(b)(4) PAC-3 MSE Storage and Aging; parts library and added U.S. missile Cost and Software Data Reporting.

FY 2017 PAC-3 MSE deliveries are scheduled to begin in 4th Quarter FY 2019.

Contract Identification

Appropriation: Procurement
Contract Name: FY18 PAC-3/MSE Production
Contractor: Lockheed Martin Missiles and Fire Control
Contractor Location: P.O. Box 650003
Dallas, TX 75265-0003
Contract Number: W31P4Q-17-C-0006/2
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 21, 2017
Definitization Date:

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1403.0	N/A	418	1403.0	1468.0	418	1570.0	1570.0

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

General Contract Variance Explanation

Cost and Schedule Variance are not reported for this contract because EVM reporting has not commenced due to ongoing negotiations. The majority of the contract requirements was executed on December 21, 2017; however, the remaining Not-To-Exceed (NTE) requirements remain in negotiation and are expected to be definitized in June 2018. EVM reporting on this contract will begin when all contract requirements are definitized.

(U//FOUO) Notes

This is the first time this contract is being reported.

The FY 2017 PAC-3 MSE Production contract was modified on December 21, 2017, to definitize most of the FY 2017 requirements and to exercise the first FY 2018 Option Production requirements. The FY 2018 requirements include: (b)(4) (b)(4) (b)(4) The Estimated Price at Completion includes total contract requirements. At award, requirements were held to Continuing Resolution Authority limitations; however, full funding was received and the remaining missile quantities were added to the contract in February 2018.

The second option to the FY 2017/2018 PAC-3 MSE Production Contract was exercised on February 6, 2018. This modification increased the number of PAC-3 MSE missiles for the FY 2018 Option by 210. The option incorporates a Congressional increase of $647M for additional missiles and hardware. The FY 2018 second option requirements included: (b)(4) and associated ground support equipment.

FY 2018 PAC-3 MSE deliveries are scheduled to begin in 4th Quarter FY 2020.

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	0	0	0	--
Production	176	184	1723	10.68%
Total Program Quantity Delivered	176	184	1723	10.68%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	9123.0	Years Appropriated	15
Expended to Date	2042.0	Percent Years Appropriated	68.18%
Percent Expended	22.38%	Appropriated to Date	4461.7
Total Funding Years	22	Percent Appropriated	48.91%

The above data is current as of February 12, 2018.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	February 14, 2018
Source of Estimate:	POE
Quantity to Sustain:	1723
Unit of Measure:	Total Quantity
Service Life per Unit:	30.00 Years
Fiscal Years in Service:	FY 2015 - FY 2057

The current O&S cost estimate for the PAC-3 MSE was updated since APB approval to reflect the program procurement quantity current estimate. The estimate includes the repair and recertification of PAC-3 MSE missiles and includes all sustainment tasks needed to maintain the missile.

Sustainment Strategy

The missile is transported and operates in a hermetically sealed canister as a self-contained major end item. There is no missile field maintenance; however, Preventive Maintenance Checks and Services are conducted only on the external canister. Removal and Replacement of failed exterior canister minor hardware components, approved "render safe" procedures and semi-annual Missile Field Test status testing are completed by the Patriot user. All other maintenance is considered sustainment (depot) level maintenance. The missile will be certified twice, at ten-year intervals, within its 30-year planned service life. Interim Contractor Support will be the sustainment strategy until an organic capability is established in FY 2025. Once established, missiles will be shipped to Letterkenny Army Depot for diagnosis/testing, de-canning, repair and return of faulty or degraded missile subassemblies, reassembly, re-coating and re-canning. Checkout and fault detection/isolation will be accomplished using depot test, measurement and diagnostic equipment and peculiar test/support equipment. Missile sub-assemblies (five major sections) are returned to the original equipment manufacturer for repair. After the missile is repaired, an inspection will be performed prior to reinserting the missile into its canister to verify that current tactical software was uploaded as required.

Antecedent Information

No Antecedent

Annual O&S Costs BY2014 $M		
Cost Element	**PAC-3 MSE Average Annual Cost Per Total Quantity**	**No Antecedent (Antecedent)**
Unit-Level Manpower	--	--
Unit Operations	--	--
Maintenance	55.755	--
Sustaining Support	14.877	--
Continuing System Improvements	13.608	--
Indirect Support	--	--
Other	--	--
Total	84.240	--

Item	Total O&S Cost $M			
	PAC-3 MSE			No Antecedent (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	2660.6	2926.7	3622.3[1]	N/A
Then Year	4354.3	N/A	5842.8	N/A

[1] *APB O&S Cost Breach*

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

On January 24, 2018, the Lower Tier Program Office submitted a Program Deviation Report to notify the Army Acquisition Executive of an O&S cost breach. The cumulative program increases caused the current O&S cost estimate to exceed the threshold. An updated APB will be implemented with the PAC-3 MSE FRP Decision planned for 2nd Quarter FY 2018.

Equation to Translate Annual Cost to Total Cost

Total Missile O&S = $84.24M (Average Annual O&S Cost) x 43 (years of service life) = $3622.32M

O&S Cost Variance		
Category	**BY 2014 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2016 SAR	2867.0	
Programmatic/Planning Factors	755.3	Quantity increase of 538 missiles.
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	755.3	
Current Estimate	3622.3	

Disposal Estimate Details

Date of Estimate: February 14, 2018

Source of Estimate: POE

Disposal/Demilitarization Total Cost (BY 2014 $M): Total costs for disposal of all Total Quantity are 22.0

Demilitarization costs were provided by Army Environmental Command.