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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

# **Modernized Selected Acquisition Report (MSAR)**

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

FY 2024 President's Budget

Effective: December 31, 2023

Defense Acquisition Visibility Environment

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**(U) Common DoD Abbreviations**

\$B	Billions of Dollars
\$K	Thousands of Dollars
\$M	Millions of Dollars
ACAT	Acquisition Category
Acq O&M	Acquisition-Related Operations and Maintenance
ADM	Acquisition Decision Memorandum
APA	Additional Performance Attribute
APB	Acquisition Program Baseline
APPN	Appropriation
APUC	Average Procurement Unit Cost
BA	Budget Authority or Budget Activity
Blk	Block
BY	Base Year
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCE	Component Cost Estimate
CCP	Component Cost Position
CDD	Capability Development Document
CLIN	Contract Line Item Number
CPD	Capability Production Document
CY	Calendar Year or Constant Year
DAB	Defense Acquisition Board
DAE	Defense Acquisition Executive
DAES	Defense Acquisition Executive Summary
DAVE	Defense Acquisition Visibility Environment
DoD	Department of Defense
DSN	Defense Switched Network
EMD	Engineering and Manufacturing Development
EVM	Earned Value Management
FD	Full Deployment
FDD	Full-Deployment Decision
FMS	Foreign Military Sales
FOC	Full Operational Capability
FRP	Full-Rate Production
FY	Fiscal Year
FYDP	Future Years Defense Program
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
Inc	Increment
IOC	Initial Operational Capability
IT	Information Technology
JROC	Joint Requirements Oversight Council
KPP	Key Performance Parameter
KSA	Key System Attribute

LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
MILCON	Military Construction
N/A	Not Applicable
O	Objective
O&M	Operations and Maintenance
O&S	Operating and Support
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
PAUC	Program Acquisition Unit Cost
PB	President's Budget
PE	Program Element
PEO	Program Executive Officer
PM	Program Manager
POE	Program Office Estimate
R&MF	Revolving and Management Funds
RDT&E	Research, Development, Test, and Evaluation
SAR	Selected Acquisition Report
SCP	Service Cost Position
T	Threshold
TBD	To Be Determined
TY	Then Year
U.S.	United States
U.S.C	United States Code
UCR	Unit Cost Reporting
USD(A&S)	Under Secretary of Defense (Acquisition and Sustainment)

**(U) Program Description****Full Name**

Patriot Advanced Capability-3 Missile  
Segment Enhancement

**PNO**

492

**Lead Component**

Department of the Army

**Joint Program**

No

**Adaptive Acquisition Pathway**

Major Capability Acquisition

**Acquisition Category**

IC

**Acquisition Status**

Active Acquisition

**Short Name**

PAC-3 MSE

**Milestone Decision Authority**

Component Acquisition Executive

**Program Executive Office**

PEO Missiles & Space (M&S)

**Acquisition Type**

Major Defense Acquisition Program

**Acquired Systems**

PAC-3 MSE

**Mission**

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 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.

**(U) Responsible Office****Program Executive Officer**

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## (U) Executive Summary

### Program Highlights Since Last Report

The increase to the FY29 Total Munitions Requirement (TMR) due to increased US and global demand has driven the Army to explore an increase in the Army Acquisition Objective (AAO). There are no increased risks to the PAC-3 MSE program since the last SAR. The procurement cost deviation does not introduce risk into the program because it is due simply to receiving additional tranche funding in FY 2023. The O&S cost deviation is due to the increased quantities resulting from FY 2023 tranches. The PM plans to submit a Program Deviation Report to the MDA.

On December 29, 2022, the U.S. Government awarded Lockheed Martin Missiles and Fire Control a modification to contract W31P4Q-20-C-0023 to award the FY22 Production Assurance Phase 2 effort. This effort will increase the MSE missile production rate from 500 to 550 per year beginning 4th quarter calendar year 2024.

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

### (U) History of Significant Developments Since Program Inception

Date	Description
September 2022	On September 22, 2022, the Government of Switzerland signed a Patriot LOA to become the 17th Patriot International Partner. The LOA value is \$1.6B.
October 2021	On October 18, 2021, Lockheed Martin completed production of the 1000th PAC-3 MSE missile at their Camden, Arkansas facility.
April 2020	On April 30, 2020, the U.S. Government awarded Lockheed Martin Missiles and Fire Control a Firm Fixed Price contract for the FY 2021 - FY 2023 production of U.S. and Foreign Military Sales (FMS) PAC-3 MSE missiles and ancillary hardware with a total potential contract value of \$9.5B.
December 2019	On December 5, 2019, a FY 2020 PAC-3 MSE Production contract modification was awarded to Lockheed Martin Missiles and Fire Control, Dallas, Texas, for U.S./FMS PAC-3 MSE missiles; U.S./FMS Launcher Modification Kits; and associated hardware. On December 30, 2019, an additional FY 2020 PAC-3 MSE Production contract modification was awarded to Lockheed Martin Missiles and Fire Control, Dallas, Texas, for the remaining U.S. PAC-3 MSE missiles and to incorporate the OUSD enablers.
July 2019	On July 31, 2019, the Government of the Kingdom of Bahrain signed the Patriot LOA to become the 16th Patriot International Partner. The LOA value is \$1.1B.
December 2018	On December 21, 2018, the FY 2019 PAC-3 MSE Production contract was awarded to Lockheed Martin Missiles and Fire Control, Dallas, Texas. The contract contains the first PAC-3 MSE FRP quantities. The FY 2019 - FY 2020 contract is a follow-on production contract to the program's previous LRIP contracts awarded FY 2014 through FY 2018.
July 2018	On July 17, 2018, the Army Acquisition Executive (AAE) approved the PAC-3 MSE APB Change 1.
June 2018	On June 13, 2018, the AAE signed an ADM authorizing PAC-3 MSE to proceed to FRP.
April 2018	On April 16, 2018, the AAE chaired the PAC-3 MSE Army System Acquisition Review Council and approved Full Rate Production (FRP).
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

Date	Description
	procure additional PAC-3 MSE missiles.
January 2018	On January 24, 2018, the Program Manager (PM) provided a PDR notifying the AAE of an O&S Cost breach. The cumulative program increases caused the O&S Cost current estimate to exceed the threshold.
December 2017	On December 21, 2017, the AAE as the Milestone Decision Authority (MDA), concurred with a Program Deviation Report (PDR) that provided notification of a deviation from the approved APB Procurement Cost threshold. The PM reported a deviation due to receipt of additional missile procurement funding in FY 2014 through FY 2018. The program increase supports procurement to the Army Acquisition Objective (AAO).
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.
July 2016	PAC-3 MSE IOC was established with the 3-2 ADA on July 5, 2016.
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).
October 2015	PAC-3 MSE First Unit Equipped was established with 3-2 Air Defense Artillery (ADA) on October 23, 2015.
January 2015	On January 16, 2015, the DAE approved the PAC-3 MSE Production Acquisition Program Baseline (APB) Initial Operational Capability (IOC).
March 2014	On March 27, 2014, the Defense Acquisition Executive (DAE) signed the Milestone C Acquisition Decision Memorandum (ADM) authorizing the PAC-3 MSE to enter Production and Deployment and proceed with Low Rate Initial Production (LRIP).
March 2014	The FY 2014 PAC-3 MSE Production Fixed Price Incentive Firm Target Unfinalized Contract Action was awarded on March 28, 2014, following approval of the PAC-3 MSE Milestone C.



**(U) Schedule**

**(U) Schedule Events**

Events		Production APB (Milestone) 1/16/2015 Objective	APB Change 1 (Current) 7/17/2018 Objective / Threshold		Current Estimate 12/31/2023	Actual
MSE Milestone C	MS C	Mar 2014	Mar 2014	Mar 2014	-	31 Mar 2014
MSE FRP	FRP Decision	Dec 2017	Apr 2018	Apr 2018	-	30 Apr 2018
MSE IOC	IOC	Dec 2016	Jul 2016	Jul 2016	-	29 Jul 2016
<b>Acquisition Increment 2</b>						
MSE FUE	Other	Dec 2015	Oct 2015	Oct 2015	-	30 Oct 2015
MSE First Intercept	Other	Feb 2010	Feb 2010	Feb 2010	-	28 Feb 2010

**Notes**

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

**Schedule Baseline Deviation Explanation**

None

**(U) Current Significant Schedule Risks and Risks Identified at Milestones/Decisions**

None

(U) Performance

(U) Performance Attributes

System Training		KPP
Training Support		KPP
Current Estimate 12/31/2023		Will meet Objective. 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.
Demonstrated Performance -		All training support materials to include preliminary technical manuals, New Equipment Training Plans, Task Analysis, and Doctrine Impact Reports were provided to Fires Center of Excellence Directorate of Training Development and Doctrine.
APB Change 1 (Current)	Objective	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.
7/17/2018	Threshold	Training resources shall be capable of providing 90% 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.
Production APB (Milestone)	Objective	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.
1/16/2015		
Time to Train		KPP
Current Estimate 12/31/2023		Will meet Objective. 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.
Demonstrated Performance -		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.
APB Change 1 (Current)	Objective	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.
7/17/2018	Threshold	(T=0) 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.
Production APB (Milestone)	Objective	Duration of institutional training shall be no more than 20 weeks for AOC 14A and MOSs 14E, H, T, 140A, 35 weeks

1/16/2015		for MOS 140E to train to use the system capabilities properly.
<b>Training Interoperability</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Will meet Objective. System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.
<b>Demonstrated Performance</b> -		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.)
<b>APB Change 1 (Current)</b>  7/17/2018	<b>Objective</b>	System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.
	<b>Threshold</b>	(T=0) System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.
<b>Production APB (Milestone)</b>  1/16/2015	<b>Objective</b>	System specific training capabilities shall interoperate with and support collective training with existing live, virtual, and constructive training environments throughout the system lifecycle.
<b>Training Retention</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Will meet Objective. Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.
<b>Demonstrated Performance</b> -		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.
<b>APB Change 1 (Current)</b>  7/17/2018	<b>Objective</b>	Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.
	<b>Threshold</b>	(T=0) Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.
<b>Production APB (Milestone)</b>  1/16/2015	<b>Objective</b>	Soldier sustainment training to maintain proficiency shall be required quarterly, semi-annually, and annually.
<b>Proficiency Level</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Will meet Objective. Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.
<b>Demonstrated Performance</b> -		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.
APB Change 1 (Current)  7/17/2018	Objective	Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.
	Threshold	(T=0) Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.
Production APB (Milestone)  1/16/2015	Objective	Soldiers (Operators, Maintainers, and Leaders) are able to perform critical tasks to standard 95% of the time after training.
<b>Net Ready</b>		<b>KPP</b>
Current Estimate 12/31/2023		Will meet Objective. The PAC-3 Increment 2 system must fully support execution of all operational activities 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.
Demonstrated Performance -		TBD. The Net Ready KPP applies to the integration of the PATRIOT command and control system into IBCS and is not specific to the performance of the MSE missile. Demonstrated Performance will coincide with IBCS First Unit Equipped.
APB Change 1 (Current)  7/17/2018	Objective	The PAC-3 Increment 2 system must fully support execution of all operational activities 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.
	Threshold	The PAC-3 Increment 2 system must fully support execution of joint critical operational activities 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.
Production APB (Milestone)	Objective	The PAC-3 Increment 2 system must fully support execution of all operational activities and information exchanges identified in the DoD Enterprise Architecture

1/16/2015		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.
<b>Sustainment Reliability</b>		<b>KPP</b>
<b>Current Estimate</b> 12/31/2023		Will meet Threshold. The material sustainment reliability will exceed 20 hours MTBCMF.
<b>Demonstrated Performance</b> -		Will be demonstrated during Post Deployment Build-8.1 Operational testing.
<b>APB Change 1 (Current)</b> 7/17/2018	<b>Objective</b>	The material sustainment reliability will exceed 41 hours MTBCMF.
	<b>Threshold</b>	The material sustainment reliability will exceed 20 hours MTBCMF.
<b>Production APB (Milestone)</b> 1/16/2015	<b>Objective</b>	The material sustainment reliability will exceed 41 hours MTBCMF.

**(U) Requirement Source:**

Sponsor(s): None

1. Document Type Not Provided

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

**Notes**

None

**Performance Deviation Explanation**

None

**(U) Acquisition Budget Estimate**

**(U) Total Acquisition Estimates and Quantities**

Category (\$M) Base Year: 2014	Production APB (Milestone) 1/16/2015 CY\$ obs Objective	APB Change 1 (Current) 7/17/2018 CY\$ obs Objective / Threshold		Current Estimate PB 2024 CY\$ obs / TY\$ obs	
		RDT&E	940.8	927.8	1,020.6
Procurement	5,087.2	12,134.5	13,348.0	<b>13,686.2*</b>	17,430.9
MILCON	9.0	25.3	27.8	23.1	30.0
O&M	0.0	36.1	39.7	34.1	46.7
R&MF	-	-	-	-	-
Total Acquisition	6,037.0	13,123.7	-	14,676.7	18,377.4
Program Acquisition Unit Cost	5.711	4.233	4.656	4.050	5.071
Average Procurement Unit Cost	4.813	3.914	4.305	3.777	4.810
Program End-Item Quantity					
Development	0	0		-	
Procurement	1057	3100		3624	
O&M-Acquired	-	-		-	

\* Baseline Deviation

**Budget Notes**

Army Acquisition Executive approved Current APB, July 17, 2018.

CAPE Cost Risks: A Program Office Estimate was completed to reflect programmatic changes to the procurement buy profile. The program baseline estimate included the effect of notional FMS requirements in addition to U.S. requirements when determining total quantities for costing. If FMS quantities do not materialize, then the U.S. procurement costs could increase, impacting quantities to be procured. Leveraging FMS investments enables cost sharing, contract pricing synergies, production efficiencies, and mitigates risks of future production gaps.

**Quantity Notes**

Army Procurement Objective (APO) is 3,100 missiles; increased total estimated quantity of 3,624 missiles reflects supplemental funding received in FY 2022 and FY 2023 and funding requested across the FYDP. There are no thresholds for quantities; therefore, an increase in total quantity does not constitute a quantity breach.

**Cost Baseline Deviation Explanation**

Parameter	Explanation
Acquisition Cost (Procurement)	The procurement cost deviation is due to receipt of Presidential Drawdown tranche funding in FY 2023.

**(U) Risk and Sensitivity Analysis**

Current Procurement Estimate Risks (12/31/2023)
None
Current Baseline Risks (7/17/2018)
The July 17, 2018, Army-approved PAC-3 MSE FRP APB Change 1 established the program baseline estimate, which reflects the Army Cost Position approved at the FRP decision. The Deputy Assistant Secretary of the Army for Cost and Economics (DASA(CE)) directed the program baseline estimate to include the effect of notional FMS requirements in addition to U.S. requirements when determining total quantities to be costed. Concurrent FMS quantities create contract pricing synergies.
Original Baseline Risks (8/6/2004)
The August 6, 2004, Patriot/MEADS Combined Aggregate Program (CAP) Milestone B ADM directed the Army to fully fund to the OSD Cost Analysis Improvement Group estimate. At the time, no cost risks were documented.

**(U) Unit Costs**

**(U) Current Estimate Compared with Current Baseline**

Category (CY\$M) Base Year: 2014	Current Baseline 07/17/2018	Current Estimate PB 2024	% Change
<b>Program Acquisition Unit Cost</b>			
Acquisition Cost	13,123.7	14,676.7	
Program Quantity	3,100	3,624	
PAUC	4.233	4.050	-4.33%
<b>Average Procurement Unit Cost</b>			
Procurement Cost	12,134.5	13,686.2	
Procurement Quantity	3,100	3,624	
APUC	3.914	3.777	-3.51%

**(U) Current Estimate Compared with Original Baseline**

Category (CY\$M) Base Year: 2004	Original Baseline 08/06/2004	Current Estimate PB 2024	% Change
<b>Program Acquisition Unit Cost</b>			
Acquisition Cost	6,220.9	12,031.8	
Program Quantity	1,528	3,624	
PAUC	4.071	3.446	-15.35%
<b>Average Procurement Unit Cost</b>			
Procurement Cost	5,760.0	11,219.8	
Procurement Quantity	1,528	3,624	
APUC	3.770	3.221	-14.56%

The Current Estimate's constant-year dollars have been converted from Base Year 2014 to Base Year 2004 using the National Defense Budget Estimates for FY 2014 (Green Book).

**Notes**

Army Procurement Objective (APO) is 3,100 missiles; increased total estimated quantity of 3,624 missiles reflects supplemental funding received in FY 2022 and FY 2023 and funding requested across the FYDP. There are no thresholds for quantities; therefore, an increase in total quantity does not constitute a quantity breach. Increased unit costs are caused by omitting FY 2023 classified tranche quantities while including tranche funding. These increased unit costs do not result in a Nunn-McCurdy breach.



**(U) Life-Cycle Costs**

**(U) Operating and Support and Disposal Cost Estimates Compared with Baseline**

Category (\$M) Base Year: 2014	Production APB (Milestone) 1/16/2015 CY\$ obs Objective	APB Change 1 (Current) 7/17/2018 CY\$ obs Objective / Threshold		Current Estimate CY\$ obs / TY\$ obs	
Total O&S	2,660.6	5,155.7	5,671.3	<b>5,865.8*</b>	10,365.7
Total Disposal	-	-	-	47.6	-

\* Baseline Deviation

**(U) Current Cost Estimate Sources**

**Operating and Support Cost**

Type: Program Office Estimate

Approved by: PEO, December 01, 2023

Note: FRP Army Cost Position dated April 06, 2018. Sustainment Review O&S cost position updated as Independent Cost Estimate 8/22/2022 by DASA-CE.

**Disposal/Demilitarization Cost**

Type: Program Office Estimate

Approved by: PEO, December 01, 2023

Note: The current cost estimate does not breakout disposal costs.

**Operating and Support Baseline Deviation Explanation**

The O&S cost deviation is due to planned procurement quantities above the current baseline.

**Cost Notes**

None

**(U) Operating and Support Variance with Prior Estimate**

(CY\$M) Base Year: 2014	Estimate	
Prior Estimate (8/22/2022)	4,961.2	
Current Estimate	5,865.8	
<b>Category</b>		
	<b>Variance</b>	<b>Explanation</b>
Unit-Level Manpower	-	
Unit Operations	-	
Maintenance	988.6	

(CY\$M) Base Year: 2014	Estimate	
Sustaining Support	-202.2	Decrease in Sustaining Support is due to recategorization of certain cost elements.
Continuing System Improvements	115.1	
Other	3.1	
Not Categorized	0.0	

**(U) Operating and Support Cost Element Structure Estimates by Acquired System**

(CY\$M) Base Year: 2014							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
PAC-3 MSE	-	-	4,781.0	394.8	687.0	3.0	5,865.8
Program	-	-	4,781.0	394.8	687.0	3.0	5,865.8

**(U) Annual Operating and Support Costs per Unit Compared with Antecedent System**

(CY\$M) Base Year: 2014							
System	Unit-Level Manpower	Unit Operations	Maintenance	Sustaining Support	Continuing System Improvements	Other	Total
PAC-3 MSE	-	-	90.2	7.5	13.0	0.1	110.7

**(U) Operating and Support Cost Estimate Assumptions**

System	Quantity to Sustain	Unit Expected Service Life (Years)	Unit of Measure	Fiscal Years Operational
PAC-3 MSE	3,624	30.0	Total Quantity	2015 - 2062

**Additional O&S Estimate Assumptions**

None

**Antecedent Estimate Assumptions**

There is no antecedent system information at this time.

**O&S Annual Cost Calculation Memo**

None

## (U) Technologies and Systems Engineering

### (U) Current Significant Technical Risks and Risks Identified at Milestones/Decisions

Event	Date	Description
Current	12/30/2022	PAC-3 MSE Obsolescence. The program actively manages obsolescence redesign efforts. The PAC-3 MSE risk is assessed as Low.
MS C	3/30/2014	Supplier Viability. The supplier of missile thermal batteries is experiencing financial issues that may affect its ability to supply product for the PAC-3 MSE program. If interruptions occur, then missile production may be impacted. The missile prime contractor, Lockheed Martin, is assessing supplier health and seeking potential second source. Mitigation actions include using prime contractor internal funding to initiate early turn-on to support initial production quantities and identifying alternate source and conducting vendor qualification to support FY 2015 production requirements.
MS C	3/30/2014	Supplier Quality Management. The supplier of missile actuators is experiencing product quality issues that are creating cost and schedule program impacts to the PAC-3 MSE program. The current Vendor Rating/Supply Chain Management System has not prevented recent issues. The U.S. Government and Prime Contractor are leading a quality focus team to ensure high visibility on quality concerns. The supplier initiated the Achieving Competitive Excellence (ACE) Operating System at the Vergennes, VT facility. The supplier conducted purchase order flow-down reviews and First Article refresh activities with key suppliers. The suppliers are to execute controlled hardware builds and process certification activities.

**(U) Performing Activities and Contracts****(U) External Government Activities**

None

**(U) Contracts and Efforts**

Contract Title	Contract Number / Effort	Contractor	Phase
FY 2020 PAC-3/MSE Production	W31P4Q-19-C-0011 / 2	Lockheed Martin Missiles and Fire Control	Production
FY 21/FY 22/FY 23 PAC-3/MSE Production	W31P4Q-20-C-0023	Lockheed Martin Missiles and Fire Control	Production
Integrated Guidance Subsystem (IGS)	W31P4Q-20-C-0023 / 2	Lockheed Martin Missiles and Fire Control	Production
Seeker Block V	W31P4Q-20-C-0023 / 1	Lockheed Martin Missiles and Fire Control	Production

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	W31P4Q-19-C-0011	<b>Order Number:</b>	-
<b>Contract Title:</b>	FY 2020 PAC-3/MSE Production	<b>Strategy:</b>	FAR 16.603: Letter Contract
<b>CAGE:</b>	64059 - Lockheed Martin Missiles and Fire Control	<b>Contracting Office:</b>	ACC-RSA
<b>City, State/Province:</b>	Dallas, TX		
<b>Effort Number:</b>	2	<b>Supported Phase:</b>	Production
<b>Type:</b>	Fixed-Price Incentive (Firm Target)	<b>Award Date:</b>	March 1, 2019
<b>Latest Modification Date:</b>	March 3, 2022	<b>Definitization Date:</b>	March 3, 2022
<b>Latest Modification No.:</b>	PZ0112	<b>Work Start Date:</b>	March 1, 2019
<b>Technical Data Rights:</b>	None		
<b>Notes:</b>	<p>On December 21, 2018, the USG issued a continuation of contract modification (continuation of FY17/18 PAC-3 Production contract W31P4Q-17-C-0006), W31P4Q-19-C-0011, to exercise the FY 2019 option and to incorporate FY 2020 priced options for PAC-3 Production.</p> <p>On March 21, 2019, the FY 2020 Option was partially exercised, awarding 67 MSE missiles.</p> <p>On May 14, 2019, the FY 2020 Option was partially exercised, awarding an additional 50 MSE missiles.</p> <p>On September 9, 2019, the FY 2020 Option was partially exercised, awarding 120 FMS MSE missiles.</p> <p>On December 5, 2019, the FY 2020 Option was partially exercised, awarding the ground support equipment.</p> <p>On February 27, 2020, the FY 2020 Option was fully exercised.</p> <p>In March 2022, FY 2020 funds that were held to cover contingent liability for FY 2020 PPIF contract ceiling were released and realigned to the FY 2022 missile production</p>		

contract after a successful bilateral agreement to reduce contract ceiling was achieved. The corresponding FY 2022 funds that were released were obligated in September 2022.

Final Not-To-Exceed line items were definitized on March 3, 2022. This contract is now fully definitized.

FY 2020 PAC-3 MSE deliveries began in 1st Quarter FY 2023.

Initial Price (TY\$M) Target / Ceiling		Current Price (TY\$M) Target / Ceiling		Estimate at Completion (TY\$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
1,565.9	1,635.8	1,666.3	1,740.6	1,462.7	1,462.7	312	312	152

Work Completed (%): 85.43%

Cost Variance (TY\$M): -11.2

Schedule Variance (TY\$M): -177.5

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

None

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

The unfavorable schedule variance is due to loans of missiles from the FY 2020 contract to the FY 2021 contract to support prioritized FMS MSE missile deliveries.

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	W31P4Q-20-C-0023	<b>Order Number:</b>	-
<b>Contract Title:</b>	FY 21/FY 22/FY 23 PAC-3/ MSE Production	<b>Strategy:</b>	FAR 15: Negotiated Contracts
<b>CAGE:</b>	64059 - Lockheed Martin Missiles and Fire Control	<b>Contracting Office:</b>	ACC-RSA
<b>City, State/Province:</b>	Dallas, TX		
<b>Effort Number:</b>	-	<b>Supported Phase:</b>	Production
<b>Type:</b>	Firm-Fixed-Price	<b>Award Date:</b>	April 30, 2020
<b>Latest Modification Date:</b>	July 31, 2023	<b>Definitization Date:</b>	March 31, 2021
<b>Latest Modification No.:</b>	P00100	<b>Work Start Date:</b>	March 31, 2021
<b>Technical Data Rights:</b>	None		

**Notes:** On April 30, 2020, the U.S. Government awarded Lockheed Martin Missiles and Fire Control a Firm Fixed Price contract for the FY 2021-FY 2023 production of U.S. and FMS PAC-3 MSE missiles and ancillary hardware with a total potential contract value of \$9.5B. In this award, the FMS missile requirements were awarded. The FY 2021/FY 2022/FY 2023 contract consists of three annual production contract options. The total quantity of U.S. and FMS missiles listed here will be procured across those options. On June 12, 2020, modification P00001 added Cost Plus Fixed Fee (CPFF) NTEs for Seeker Block V and the Integrated Guidance System (IGS). These two CLINs are reported separately on the following pages and are not included in the Current Target Price of the FFP CLIN listed here. On October 6, 2020, modification P00004 added the missile tooling and obsolescence associated with the missile production. On December 23, 2020, the initial FY 2021 U.S. production contract option was

exercised, procuring 134 U.S. PAC-3 MSE missiles and U.S./FMS ancillary hardware. Due to the limitations of the Continuing Resolution in place at the time of initial U.S. production award, an additional option to procure the remaining 12 FY 2021 U.S. PAC-3 MSE missiles was exercised on March 31, 2021.

The initial FY 2022 PAC-3 MSE production contract option was exercised in December 2021. This option procured 112 U.S., 84 Kuwait, and 34 The Netherlands MSE missiles. The second FY 2022 PAC-3 MSE production contract option was exercised on February 23, 2022. This option procured 42 U.S. PAC-3 MSE missiles and associated ancillary hardware.

The third FY 2022 PAC-3 MSE production contract option was exercised on April 29, 2022. This option procured 26 U.S. PAC-3 MSE missiles and associated ancillary hardware.

The initial FY 2023 PAC-3 MSE production contract option was exercised on June 15, 2022. This contract action was funded with Supplemental Funding and awarded 72 U.S. PAC-3 MSE Missiles and associated missile tooling.

The second FY 2023 PAC-3 MSE production contract option was exercised on August 30, 2022. This contract action was funded with Supplemental Funding and awarded 76 U.S. PAC-3 MSE Missiles and associated missile tooling.

The third FY 2023 PAC-3 MSE production contract option was exercised on September 27, 2022. This contract action was funded with Supplemental Funding and awarded Launcher Modification Kits (LMKs) and other ground equipment.

The fourth FY 2023 PAC-3 MSE production contract option was exercised on November 8, 2022. This contract action awarded 83 U.S. PAC-3 MSE Missiles and tooling and 54 U.S. PAC-3 LINK on ELES Kits.

The fifth FY 2023 PAC-3 MSE production contract option was exercised on December 21, 2022. This contract action awarded 55 U.S. PAC-3 MSE Missiles and tooling.

On 31 January 2023, the sixth FY23 Option exercise (modification P00077) was executed which awarded Switzerland GSE.

On 22 February 2023, the seventh FY23 Option exercise (modification P00070) was executed which awarded Defense of Guam GSE.

On 21 April 2023, the eighth FY23 Option Exercise (modification P00084) was executed which awarded US and FMS Missiles, Missile Tooling, Ground Equipment, Telemetry Kits, Parts Library, Storage and Aging, and CSDR Lot Reporting

On 28 April 2023, the ninth FY23 Option exercise (modification P00088) was executed which awarded US Missiles, Tooling, and CSDR Lot Reporting.

On 31 July 2023, the FY23 NTE efforts were awarded on modification P00100.

FY 2021 PAC-3 MSE deliveries began 3rd Quarter FY 2023.

FY 2022 PAC-3 MSE deliveries are scheduled to begin 3rd Quarter FY 2024.

FY 2023 PAC-3 MSE deliveries are scheduled to begin 3rd Quarter FY 2025.

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
4,196.9 -	9,687.7 -	- -	1,088	2,287	148

**(U) Contract and Effort Identification, Price, Quantity and Performance**

<b>Contract Number:</b>	W31P4Q-20-C-0023	<b>Order Number:</b>	-
<b>Contract Title:</b>	Integrated Guidance Subsystem (IGS)	<b>Strategy:</b>	FAR 15: Negotiated Contracts
<b>CAGE:</b>	64059 - Lockheed Martin Missiles and Fire Control	<b>Contracting Office:</b>	ACC-RSA
<b>City, State/Province:</b>	Dallas, TX		
<b>Effort Number:</b>	2	<b>Supported Phase:</b>	Production
<b>Type:</b>	Cost Plus Fixed Fee	<b>Award Date:</b>	April 30, 2020

**Latest Modification Date:** March 15, 2022                      **Definitization Date:** March 15, 2022  
**Latest Modification No.:** P00008                                      **Work Start Date:** June 10, 2020  
**Technical Data Rights:** None

**Notes:** Contract W31P4Q-20-C-0023 was modified on June 6, 2020 to add NTEs for Seeker Block V and the Integrated Guidance Subsystem (IGS) Redesign.  
 On March 15, 2022, modification P00008 to contract W31P4Q-20-C-0023 definitized the IGS Redesign NTE.  
 On June 4, 2021, an additional NTE for the IGS Backwards Compatibility effort was added. This modification has not yet been definitized.  
 The IGS efforts represented here are 100% FMS funded.

Initial Price (TY\$M) Target / Ceiling	Current Price (TY\$M) Target / Ceiling	Estimate at Completion (TY\$M) Contractor / PM	Initial Quantity	Current Quantity	Delivered Quantity
147.1      -	156.9      156.9	154.9      154.9	-	-	-

**Work Completed (%):** 54.84%  
**Cost Variance (TY\$M):** -18.6  
**Schedule Variance (TY\$M):** -11.5

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

Unfavorable CV is due to additional support required for complex software builds.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Unfavorable SV is due to component delays.

**(U) Contract and Effort Identification, Price, Quantity and Performance**

**Contract Number:** W31P4Q-20-C-0023                      **Order Number:** -  
**Contract Title:** Seeker Block V                                      **Strategy:** FAR 15: Negotiated Contracts  
**CAGE:** 64059 - Lockheed Martin                      **Contracting Office:** ACC-RSA  
**City, State/Province:** Dallas, TX

**Effort Number:** 1    **Supported Phase:** Production  
**Type:** Cost Plus Fixed Fee                                      **Award Date:** April 30, 2020  
**Latest Modification Date:** December 7, 2022                      **Definitization Date:** December 7, 2022  
**Latest Modification No.:** P00024                                      **Work Start Date:** June 12, 2020  
**Technical Data Rights:** None

**Notes:** Contract W31P4Q-20-C-0023 was modified on June 6, 2020 to add NTEs for Seeker Block V and the Integrated Guidance Subsystem (IGS) Redesign.  
 On December 7, 2022, modification P00024 to contract W31P4Q-20-C-0023 definitized the Seeker Block V Redesign NTE. The definitized baseline is not yet reflected in the earned value data.  
 On June 4, 2021, an additional NTE for the Seeker Block V Backwards Compatibility effort was added. This modification has not yet been definitized.  
 The Seeker Block V effort represented here is 16.5% US funded and 83.5% FMS funded.

Initial Price (TY\$M) Target / Ceiling		Current Price (TY\$M) Target / Ceiling		Estimate at Completion (TY\$M) Contractor / PM		Initial Quantity	Current Quantity	Delivered Quantity
405.0	-	461.4	-	416.1	416.1	-	-	-

Work Completed (%): 58.67%

Cost Variance (TY\$M): -12.5

Schedule Variance (TY\$M): -20.8

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

Unfavorable Cost Variance is due to overruns in the Seeker and Guidance Processor Unit Redesign (GPU-R) areas.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Unfavorable Schedule Variance is due to delays in the Seeker area.



**(U) Production****(U) Low-Rate Initial Production**

	Original LRIP Determination	Current LRIP Determination
Total LRIP Quantity	148	750
Date	8/6/2004	1/25/2018
Reference	Milestone B ADM	AAE ADM
LRIP Period	FY 2010 - 2011	FY 2014 - 2018
Total Procurement Quantity	1,528	3,100
LRIP Percentage of Total	9.7%	24.2%

**Rationale if LRIP Quantity Exceeds 10% of Total Procurement Quantity (Current Determination)**

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.

**LRIP Notes**

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) Deliveries and Expenditures**

**(U) Acquisition Funding**

	Total Estimate	Actual to Date	Actual, Percent Complete
Years Appropriated	26	21	80.8%
Appropriations (TY, \$M)	18,377.4	12,342.3	67.2%
Expenditures (TY, \$M)	18,377.4	6,000.4	32.7%

**(U) End Items Delivered**

	Total Required	Planned to Date	Actual to Date	Actual, Percent Complete
Procurement	3,624			
PAC-3 MSE		1,134	1,134	
<b>Total</b>	<b>3,624</b>	<b>1,134</b>	<b>1,134</b>	<b>31.3%</b>

**Notes**

None

## (U) International Program Aspects

### General Memo

No agreements at this time.

### Exportability and Business Issues

No Exportability Issues at this time

Is design for international exportability planned?	Yes	Industry/Partner Exportability Cost-Sharing?	No
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### Program Protection: Technology Security and Foreign Disclosure Issues

No issues to report at this time.

### (U) Agreements

No International Agreements have been defined for PAC-3 MSE



UNCLASSIFIED

## **Modernized Selected Acquisition Report Supplement**

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

FY 2025 President's Budget

Effective: December 31, 2023

UNCLASSIFIED

## **MSAR Supplement Sections**

Program Description

Program Use of the Adaptive Acquisition Framework

Technologies and Systems Engineering

Funding Sources (Acquisition)

Funding Sources (Operating and Support)

Acquisition Estimate and Quantity Summary

Annual Acquisition Estimates by Appropriation Account

Acquired System Annual End-Item Quantities by Appropriation Account

Nuclear Costs

Operational Fielding Plan

O&S Independent Cost Estimate

Annual Operating and Support Estimates by Cost Element

### Program Description

**Full Name**

Patriot Advanced Capability-3 Missile Segment Enhancement

**Short Name**

PAC-3 MSE

**PNO**

492

**Lead Component**

Army

**AAF Pathway**

MCA

**Acquisition Type**

MDAP

**Acquired Systems**

PAC-3 MSE

### Related Programs

Full Name	PNO	Pathway	Type	ACAT/ BCAT	Acquisition Status	Costs in SAR?	
						Acq	O&S

## **Program Use of the Adaptive Acquisition Framework**

PAC-3 MSE is a Major Defense Acquisition Program (MDAP) on the Major Capability Acquisition (MCA) pathway. Program initiation at Milestone B occurred in 2004 as a subprogram under the PATRIOT Medium Extended Air Defense System Combined Aggregate Program (MEADS CAP) program of record. PATRIOT MEADS CAP was canceled in 2013 and PAC-3 MSE became a standalone program of record. PAC-3 MSE achieved Milestone C in 2014 and Full Rate Production in 2018.

## Technologies and Systems Engineering

### Patriot Advanced Capability-3 Missile Segment Enhancement

#### Major Software Efforts

Title	Status	Fielding Date	Description
None for PAC-3 MSE program of record			

#### Major Engineering Changes

Title	Original Need Date	Fielding Date	Description, Rationale and Program Impacts
None for PAC-3 MSE program of record			



## Funding Sources (Acquisition)

### Acquisition Funding Notes

#### Patriot Advanced Capability-3 Missile Segment Enhancement

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
Procurement	2032A	02	8260C53101 - MSE Missile	0605456A	-		
RDT&E	2040A	05	0605456A - PAC-3/MSE Missile	0605456A	PA3 - PAC-3/MSE Missile		x
O&M	2020A	04	435 - Other Service Support	0702806A	-	x	
MILCON	2050A	01	08590400 - Fire Station	0702896A	-		

## Funding Sources (Operating and Support)

*Note: Budget lines fund activities executed by the Program Office or Sustainment Office.*

### Operating and Support Funding Notes

No data for 2023 MSAR.

### Patriot Advanced Capability-3 Missile Segment Enhancement

Category	Account	BA	Line Item	Program Element	RDT&E Project	Shared	Sunk
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## Acquisition Estimate and Quantity Summary

### Patriot Advanced Capability-3 Missile Segment Enhancement

#### Acquisition Estimates

Category	PB 2025	TY (\$M)	Current Base Year	Original Base Year	Report Fiscal Year
			CY2014 (\$M)	CY2004 (\$M)	CY2024 (\$M)
RDT&E		869.8	933.3	765.1	1,211.7
Procurement		17,430.9	13,686.2	11,219.8	17,769.7
MILCON		30.0	23.1	19.0	30.0
O&M		46.7	34.1	28.0	44.3
Total Acquisition		18,377.5	14,676.7	12,031.8	19,055.7
PAUC		5.071	4.050	3.320	5.258
APUC		4.810	3.777	3.096	4.903

#### Acquisition End-Item Quantities

System	PB 2025	Development	Procurement
PAC-3 MSE		-	3,624
<b>Total</b>		-	<b>3,624</b>

#### Unit Description

A unit is a PAC-3 MSE missile.

#### Current and Future Years Defense Program Summary, TY(\$M)

Appropriation	Prior	2024	2025	2026	2027	2028	2029	To Complete	Total
RDT&E	869.8	-	-	-	-	-	-	-	869.8
Procurement	10,259.6	1,212.8	963.1	975.4	1,132.5	1,462.0	1,204.6	220.9	17,430.9
MILCON	30.0	-	-	-	-	-	-	-	30.0
O&M	15.6	3.2	2.8	2.5	2.5	2.6	2.6	14.9	46.7
<b>PB 2025 Total</b>	<b>11,175.1</b>	<b>1,216.0</b>	<b>965.9</b>	<b>977.9</b>	<b>1,135.0</b>	<b>1,464.5</b>	<b>1,207.2</b>	<b>235.9</b>	<b>18,377.5</b>

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### Patriot Advanced Capability-3 Missile Segment Enhancement

Source for TY\$-CY\$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

2032A - Missile Procurement, Army									
fiscal year	End Item Recurring Flyaway	Non-End Item Recurring Flyaway	Non-Recurring Flyaway	Initial Spares	Depot Activation	Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2014 (\$M)
<b>Total</b>	<b>14,769.5</b>	<b>-</b>	<b>81.2</b>	<b>-</b>	<b>-</b>	<b>2,580.2</b>	<b>17,430.9</b>	<b>-</b>	<b>13,686.2</b>
2004							-	0.858682	-
2005							-	0.882854	-
2006							-	0.902359	-
2007							-	0.919915	-
2008							-	0.934145	-
2009							-	0.945906	-
2010							-	0.962300	-
2011							-	0.979309	-
2012			70.400				70.4	0.993674	70.8
2013			10.800				10.8	1.015079	10.6
2014	508.900					39.100	548.0	1.024883	534.7
2015	492.700					39.900	532.6	1.039843	512.2
2016	464.500					50.400	514.9	1.060219	485.7
2017	731.400					76.800	808.2	1.081886	747.0
2018	1,280.000					185.099	1,465.1	1.105839	1,324.9
2019	961.605					169.695	1,131.3	1.139635	992.7
2020	597.071					105.366	702.4	1.188373	591.1
2021	570.930					100.436	671.4	1.253038	535.8
2022	1,163.184					169.964	1,333.1	1.296395	1,028.3
2023	2,100.666					370.706	2,471.4	1.328723	1,860.0
2024	1,030.907					181.925	1,212.8	1.357588	893.4
2025	818.601					144.459	963.1	1.386182	694.8
2026	839.574					135.836	975.4	1.415292	689.2
2027	965.663					166.855	1,132.5	1.445013	783.7
2028	1,230.221					231.755	1,462.0	1.475358	990.9
2029	1,013.626					190.952	1,204.6	1.506341	799.7
2030						74.004	74.0	1.537974	48.1
2031						72.795	72.8	1.570271	46.4
2032						74.145	74.1	1.603247	46.2

**Annual Acquisition Estimates by Appropriation Account**

(Aligned to Budget Position: PB 2025)

**Patriot Advanced Capability-3 Missile Segment Enhancement**

Source for TY\$-CY\$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

<b>2040A - Research, Development, Test &amp; Eval, Army</b>					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2014 (\$M)
<b>Total</b>		<b>869.8</b>	<b>869.8</b>	<b>-</b>	<b>933.3</b>
2004		62.500	62.5	0.838449	74.5
2005		53.200	53.2	0.862661	61.7
2006		101.800	101.8	0.886837	114.8
2007		113.900	113.9	0.908241	125.4
2008		60.600	60.6	0.925636	65.5
2009		75.600	75.6	0.937464	80.6
2010		115.700	115.7	0.951647	121.6
2011		125.100	125.1	0.970355	128.9
2012		67.200	67.2	0.985643	68.2
2013		25.300	25.3	1.002403	25.2
2014		33.000	33.0	1.021714	32.3
2015		33.700	33.7	1.038868	32.4
2016		2.200	2.2	1.049905	2.1

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### Patriot Advanced Capability-3 Missile Segment Enhancement

Source for TY\$-CY\$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

2050A - Military Construction, Army					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2014 (\$M)
<b>Total</b>		<b>30.0</b>	<b>30.0</b>	<b>-</b>	<b>23.1</b>
2004			-	0.864708	-
2005			-	0.890569	-
2006			-	0.910631	-
2007			-	0.923830	-
2008			-	0.936233	-
2009			-	0.954176	-
2010			-	0.971202	-
2011			-	0.986502	-
2012			-	1.000110	-
2013			-	1.014438	-
2014			-	1.044590	-
2015			-	1.064666	-
2016			-	1.089376	-
2017			-	1.117646	-
2018			-	1.148962	-
2019			-	1.185563	-
2020			-	1.243507	-
2021		30.000	30.0	1.296308	23.1

## Annual Acquisition Estimates by Appropriation Account

(Aligned to Budget Position: PB 2025)

### Patriot Advanced Capability-3 Missile Segment Enhancement

Source for TY\$-CY\$ Conversion: ASN FMB-6 Inflation Rates and Outlay Factors for DA, DoN and DW accounts: 17 Jan 2024

2020A - Operation & Maintenance, Army					
fiscal year		Other/ Unallocated	Total TY(\$M)	Weighted Rate	Total CY2014 (\$M)
<b>Total</b>		<b>46.7</b>	<b>46.7</b>	<b>-</b>	<b>34.1</b>
2004			-	0.835149	-
2005			-	0.859507	-
2006			-	0.887121	-
2007			-	0.908047	-
2008			-	0.925420	-
2009			-	0.934830	-
2010			-	0.948446	-
2011			-	0.969047	-
2012			-	0.982898	-
2013			-	0.996472	-
2014			-	1.012194	-
2015			-	1.022306	-
2016			-	1.040600	-
2017			-	1.058124	-
2018			-	1.079335	-
2019		3.148	3.1	1.103891	2.9
2020		3.220	3.2	1.134121	2.8
2021		3.141	3.1	1.189598	2.6
2022		3.036	3.0	1.248530	2.4
2023		3.101	3.1	1.293486	2.4
2024		3.163	3.2	1.324012	2.4
2025		2.823	2.8	1.352284	2.1
2026		2.468	2.5	1.380682	1.8
2027		2.518	2.5	1.409677	1.8
2028		2.568	2.6	1.439280	1.8
2029		2.620	2.6	1.469505	1.8
2030		2.004	2.0	1.500364	1.3
2031		2.044	2.0	1.531872	1.3
2032		2.085	2.1	1.564041	1.3
2033		2.127	2.1	1.596886	1.3
2034		2.169	2.2	1.630421	1.3
2035		2.212	2.2	1.664660	1.3
2036		1.254	1.3	1.699617	0.7
2037		0.767	0.8	1.735309	0.4
2038		0.261	0.3	1.771751	0.1

## Acquired System Annual End-Item Quantities by Appropriation Account

(Aligned to Budget Position: PB 2025)

### Patriot Advanced Capability-3 Missile Segment Enhancement

2032A - Missile Procurement, Army				
fiscal year	PAC-3 MSE			Total
<b>Total</b>	<b>3,624</b>			<b>3,624</b>
Undistributed				-
2014	92			92
2015	108			108
2016	112			112
2017	170			170
2018	387			387
2019	274			274
2020	147			147
2021	146			146
2022	328			328
2023	252			252
2024	230			230
2025	230			230
2026	232			232
2027	272			272
2028	354			354
2029	290			290



## **Nuclear Costs**

### **Patriot Advanced Capability-3 Missile Segment Enhancement**

#### **Program's Use of Department of Energy Resources**

N/A

## Operational Fielding Plan

### Patriot Advanced Capability-3 Missile Segment Enhancement

#### System: PAC-3 MSE

#### Fielding and Inventory Notes

Inventory data is CUI.

#### PAC-3 MSE Fielding Plan and Inventory

fiscal year	Store	Field	Expend/Loss	Decommission	Inventory
2023					
2024					-
2025					-
2026					-
2027					-
2028					-
2029					-

## O&S Independent Cost Estimate

### Patriot Advanced Capability-3 Missile Segment Enhancement

#### Independent and Current Cost Estimate Comparison

Category	CY2014 (\$M)	Independent Cost Estimate 8/22/2022	Current Estimate 12/1/2023	Variance with ICE (%)
Unit-Level Manpower				-
Unit Operations				-
Maintenance		3,792.4	4,781.0	26%
Sustaining Support		597.0	394.8	-34%
Continued System Improvements		571.9	687.0	20%
Other			3.0	-
<b>Total O&amp;S</b>		<b>4,961.2</b>	<b>5,865.8</b>	<b>18%</b>

#### Independent Cost Estimate Source

Event: Operational Sustainment Review  
 Type: Independent Cost Estimate  
 Approved by: DASA-CE, August 22, 2022

#### Current Cost Estimate Source

Type: Program Office Estimate  
 Approved by: PEO, December 1, 2023  
 Note: Annual O&S Estimates not available at this time.

#### Cost Estimate Variance Explanation

Increases are due to increases in planned procurement quantities. Decrease in Sustaining Support is due to recategorization of certain cost elements.

**Annual Operating and Support Estimates by Cost Element****Patriot Advanced Capability-3 Missile Segment Enhancement****System: PAC-3 MSE**

Source for TY-CY Conversion:

Operating and Support Cost Elements							
fiscal year	1.0 Unit-Level Manpower	2.0 Unit Operations	3.0 Maintenance	4.0 Sustaining Support	5.0 Continuing System Improvements	Other	Total CY2014 (\$M)
<b>Total</b>	-	-	-	-	-	-	-