

**CLEARED
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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Selected Acquisition Report (SAR)



Advanced Anti-Radiation Guided Missile - Extended Range (AARGM-ER)

FY 2024 President's Budget

**Defense Acquisition Visibility Environment
(DAVE)**

Table of Contents

Acronyms and Abbreviations 3

Program Information 5

Responsible Office 5

Mission and Description 6

Executive Summary 7

Schedule 7

Performance 9

Acquisition Budget Estimate 10

Unit Cost 12

Risks 13

Low Rate Initial Production 14

Contracts 15

Deliveries and Expenditures 20

Operating and Support Costs 21

Common Acronyms and 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

APB - Acquisition Program Baseline

APPN - Appropriation

APUC - Average Procurement Unit Cost

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

FMS - Foreign Military Sales

FOC - Full Operational Capability

FRP - Full Rate Production

FY - Fiscal Year

FYDP - Future Years Defense Program

ICE - Independent Cost Estimate

Inc - Increment

IOC - Initial Operational Capability

JROC - Joint Requirements Oversight Council

KPP - Key Performance Parameter

LRIP - Low Rate Initial Production

MDA - Milestone Decision Authority

MDAP - Major Defense Acquisition Program

MILCON - Military Construction

N/A - Not Applicable

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
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Advanced Anti-Radiation Guided Missile - Extended Range

DoD Component

Navy

Responsible Office

Program Manager

Name: CAPT Alexander Dutko

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Mission and Description

The AGM-88G Advanced Anti-Radiation Guided Missile-Extended Range (AARGM-ER) is an air-launched missile with the capability to rapidly engage air-defense threats. The AARGM-ER configuration will leverage previous investments on the AGM-88E AARGM and incorporate a new solid rocket motor for increased range. AARGM-ER will be integrated on the F/A-18E/F Super Hornet and EA-18G Growler aircraft and configured for internal carriage on the F-35 Lightning II. AARGM-ER requirements are documented in the AARGM-ER CDD that was approved via Joint Requirements Oversight Committee Memorandum (JROCM) serial number 052-16, dated June 16, 2016.

Executive Summary

AARGM-ER

Program Highlights Since Last Report

The third and fourth Developmental Test (DT) flight test events were successfully completed on April 26, 2022 and November 30, 2022 respectively. At the conclusion of the Continuing Resolution, the Low Rate Initial Production (LRIP) 2 contract option to fully execute the procurement of the total LRIP 2 quantities was exercised on April 25, 2022. The LRIP 3/4 Request for Proposal (RFP) was issued to the contractor on April 27, 2022. The contractor responded to the LRIP 3/4 RFP in August 2022. However, they only proposed to LRIP 3 citing ongoing supplier/industry and market disruptions causing purchase order quotes to be valid for only a few weeks rather than a customary 120-day or greater period. Contract award is expected in third quarter of fiscal year 2023. A new RFP will be issued for LRIP 4 in 2023. There are no significant software-related issues with this program at this time; however, staffing to support software development is constraining the contractor.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Nov - 2022	Fourth Developmental Test flight conducted.
Apr - 2022	Third Developmental Test flight conducted.
Jan - 2022	Second Developmental Test flight conducted.
Dec - 2021	LRIP 2 contract award.
Sep - 2021	Approved entry into Production and Deployment phase.
Sep - 2021	Low Rate Initial Production (LRIP) 1 Contract award.
Jul - 2021	First Developmental Test flight conducted.
Feb - 2020	Critical Design Review conducted.
Mar - 2019	Engineering and Manufacturing Development (EMD) contract award.
Mar - 2019	Program initiation at Milestone B.

Schedule

AARGM-ER

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Knowledge Point 2 Complete	Jan 2019	Jan 2019	Jan 2019	Jan 2019	
Knowledge Point 4 Complete	Sep 2021	Sep 2021	Sep 2021	Jul 2021	
IOC Complete	Sep 2023	Sep 2023	Jul 2024	Mar 2024	
FRP Complete	Nov 2024	Nov 2024	May 2025	Nov 2024	

Notes

Change 1: The IOC current estimate changed from Sep 2023 to March 2024 due to delays in test assets, developmental testing and weapons safety certifications.

Deviation Explanation

No deviations for this program/subprogram

Performance

AARGM-ER

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation
(KPP) - Availability Am				
	(T=O) >=0.8	>=0.8	TBD	(T=O) >=0.8
(KPP) - Availability Ao				
	(T=O) >=0.9	>=0.9	TBD	(T=O) >=0.9

Requirement Reference

Validated:

CDD dated October 21, 2021

Deviation Explanation

No deviations for this program/subprogram

Notes

Acquisition Budget Estimate

AARGM-ER

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2021	781.7	781.7	859.9	756.6	793.5	
Procurement	2021	2,769.4	2,769.4	3,046.3	2,705.8	3,573.7	
MILCON	2021	0	0	0	0	0	
Acq. O&M	2021	0	0	0	0	0	
Total		3,551.1	3,551.1		3,462.4	4,367.2	
PAUC	2021	1.693	1.693	1.862	1.651	2.083	
APUC	2021	1.331	1.331	1.464	1.301	1.718	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

The PB 2024 Budget estimate utilizes PB-24 (2023) escalation indices

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	17	17
Procurement	2080	2080
O&M-Acquired		0

Quantity Notes

Unit Cost**AARGM-ER**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2021	Current UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost

Cost	3,551.1	3,462.4	
Quantity	2,097	2,097	
Unit Cost	1.693	1.651	-2.47%

Average Procurement Unit Cost

Cost	2,769.4	2,705.8	
Quantity	2,080	2,080	
Unit Cost	1.331	1.301	-2.26%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2019	Original UCR Baseline	Current Estimate	% Change

Program Acquisition Unit Cost

Cost	3,442.1	3,315.2	
Quantity	2,097	2,097	
Unit Cost	1.641	1.581	-3.66%

Average Procurement Unit Cost

Cost	2,693.5	2,590.8	
Quantity	2,080	2,080	
Unit Cost	1.295	1.246	-3.8%

Cost Growth Details**Current Baseline PAUC Breach Explanation****Current Baseline APUC Breach Explanation****Original Baseline PAUC Breach Explanation****Original Baseline APUC Breach Explanation****Impacts of Schedule Changes on Unit Cost****Impacts of Performance Changes on Unit Cost****Actions Taken or Proposed to Control Future Cost Growth**

Risk and Sensitivity Analysis

AARGM-ER

Risk and Sensitivity Analysis

Current Procurement Cost(December - 2022)

1. The current estimate is aligned with the PB 2024 budget submission. PB 2024 includes AARGM-ER AUR unit cost then year increases due to the current macroeconomic environment and material uncertainty.
2. The production estimate continues to be sensitive to the annual quantities assumed. PB 2024 assumes inclusion of United States Air Force AARGM-ER All Up Rounds in FY 2023 to FY 2026.

Original Baseline Estimate (February - 2019)

After review of the programmatic and technical baseline at KP-2, the MDA directed AARGM-ER to utilize the Component Cost Position as the funding requirement. The OSD CAPE performed an ICE which independently validated the procurement estimate, however they identified risk to the development associated with schedule. The production estimate is sensitive to the annual quantities assumed. The Baseline Estimate includes United States Air Force quantities through FY 2023.

Current Baseline Estimate (September - 2021)

Schedule Risk		
Current	2022-12-30	Delays in final software build affecting IOC date and operational test commencement.
Technical Risks		
Current	September 18, 2023	1. Component Energetics Qualification.

Low Rate Initial Production

AARGM-ER

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	03/14/2019	12/02/2020
Approved Quantity	208	312
Reference	KP#2 ADM	KP#4 Acquisition Strategy ADM
Start Year	2021	2021
End Year	2023	2024

Rationale if quantity exceeds 10% of the total number of articles to be procured:

The Current Total LRIP Quantity is more than 10% of the total production quantity due to adding an LRIP lot that increased the LRIP quantity from 10% to 15% to reduce schedule risk to FRP.

Notes

Knowledge Point 2 (KP-2) ADM approved LRIP quantities of up to 208 All Up Rounds (AURs). The Knowledge Point 4 (KP-4) Acquisition Strategy update approved an additional LRIP contracting year, increasing LRIP quantities up to 312 AURs.

Contracts & Efforts

Contract Data	
Contract Number	N0001919C0050
Effort Number	
Modification Number	P00036
Award Date	03/07/2019
Definitization Date	03/07/2019
Order Number	
CAGE Code/CAGE Legal Name	3EFM9/
Contract Title	AARGM-ER Engineering and Manufacturing Development (EMD)
Contract Address	Northridge, CA
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	February 01, 2023
Work Start Date	
Technical Data Rights	
Work Completed	79.42%

Contracts/Effort Price, Quantity, and Performance (TY\$M)

Initial Target Price	Current Target Price	
\$317.1	\$388.8	
Initial Ceiling Price	Current Ceiling Price	
\$317.1	\$407	
Contractor EAC	PM EAC	
\$435.8	\$437.1	
Initial Quantity	Current Quantity	Delivered Quantity
17	17	4
BAC	BCWP	ACWP
\$353.6	\$280.8	\$344.8

BCWS	Cost Variance	Schedule Variance
\$300.6	-\$63.9	-\$19.8

Contract Notes:

Contract Notes: The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an EMD contract modification, issued in September 1, 2021, which increased the target price of a contract line item number for Systems Engineering and Development for Electronic Safe Arm Device and Warhead.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

The unfavorable net change in the cost variance is due to rework caused by anomalies discovered during integration testing, investigation efforts, and additional resources required to complete planned efforts. Cost variance is not anticipated to recover and further growth is expected.

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

The unfavorable net change in the schedule variance is due to ongoing design modifications and material hardware delays. Schedule variance has potential to partially recover by end of contract.

Contract Data	
Contract Number	N00019-21-C-0044
Effort Number	
Modification Number	P00009
Award Date	09/14/2021
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	3EFM9/
Contract Title	AARGM-ER Low-Rate Initial Production (LRIP) 1 & 2
Contract Address	Northridge, CA
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price Level of Effort Term
Modification Date	January 17, 2023
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Notes:Cost Variance:No EVM reporting is required for this Firm-Fixed Price contract.Schedule Variance:No EVM reporting is required for this Firm-Fixed Price contract.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

External Government Activities

Activity Title		Government Entity		Supported Phase
CAGE			Work Start Date	
City			State/Province:	
Notes				

Deliveries and Expenditures

AARGM-ER

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	4	17	23.53%
Production			2,080	0.00%

Total Program Quantity Delivered	4	4	2097	0.19%
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Expended and Appropriated (TY \$M)				
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Years Appropriated to date: 8

Total Years Appropriated Funding (Current Baseline): 20

Percent Years Appropriated: 40.00%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 0.00%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 0.00%

Total Acquisition Cost: 4,367.21

Deliveries & Expenditures Notes:

This data is current as of March 13, 2023. Expenditures are updated as of February 28, 2023 to reflect RDT&E,N for USN (\$515.69M) and USAF (\$107.29M). This amount does not include CLIN 0008, USAF F-35A Integration Support and Test Asset Build. Expenditures also include \$16.22M for USN WPN.

Operating and Support Costs

AARGM-ER

O&S Cost Breakdown:

Category (BY\$ Million)	AARGM-ER
Unit-Level Manpower	.0
Unit Operations	.3
Maintenance	98.3
Sustaining Support	107.4
Continued System Improvements	73.9
Other	
Total	279.9

Cost Estimate Source: CCE dated June 22, 2021

O&S Cost Notes:

Type: Component Cost Estimate

Approved by: Center for Naval Analyses, June 22, 2021

Notes: Department of the Navy Component Cost Position from Knowledge Point 4 (June 22, 2021) updated with PB 2024

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
Total O&S	272.3	299.5	279.9	438.0	

Note:

The Life Cycle Sustainment Plan, approved April 6, 2021, addresses support activities and requirements required throughout the life cycle of the program. The AARGM-ER system will be supported by both organic and Contractor personnel in the execution of the Integrated Product Support elements. Additionally, the Department of Navy will have three levels of maintenance: Organizational, Intermediate, and Depot. The AARGM-ER maintenance approach is based on existing AARGM/High Speed Anti-Radiation Missile maintenance concepts. The AARGM-ER missile will utilize existing Navy support concepts and supply systems and will remain within current Navy ammunition logistical support channels. The AARGM-ER weapon system requires no major support changes at the field level. The missile will be provided to the users as an All-Up-Round requiring minimal maintenance in the field, with the exception of visual inspections, pre- and post-load checks, loading and unloading services, Built-In-Test, and packaging, storage, and transport. The O&S Cost estimate concentrates on the costs for the AGM-88G AARGM-ER All Up Round missiles. The 2080 quantity to sustain does not include 17 developmental assets that are not maintained. - Quantity to Sustain: 2080 - First Operational Fiscal Year: FY 2024- Final Operational Fiscal Year: FY 2051- Unit Expected Service Life: 15.00 Years AARGM-ER Total costs for disposal is \$2.3M (BY\$ 2021) based on the Knowledge Point #4 Department of the Navy Component Cost Position updated with PB 2024 quantity profile and PB-24 (2023) inflation indices.

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs**AARGM-ER****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name: AARGM-ER	Antecedent System Name: AARGM
Quantity to Sustain	2,080	1,807
Unit of Measure	Average Annual Unitized Cost	Average Annual Unitized Cost
Unit Expected Service Life	15	15

Base Year:

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$K)	System Name: AARGM-ER	Antecedent System Name: AARGM
Unit-Level Manpower	0.0	0.0
Unit Operations	0.0	0.0
Maintenance	1.7	0.9
Sustaining Support	1.8	1.9
Continued System Improvements	1.3	0.9
Other	0.0	0.0
Total O&S	4.8	3.7

Disposal/Demilitarization Cost Estimate

(Base Year \$Millions)	System Name: AARGM-ER	Antecedent System Name: AARGM
Total Disposal	2.3	1.5

Cost Estimate Source - Disposal

Type:	Component Cost Estimate
Approval Authority and Date:	Center for Naval Analysis 06/22/2021
Note:	Department of the Navy Component Cost Position from Knowledge Point 4 (June 22, 2021) updated with PB 2024 quantity profile and 2023 inflation indices
Disposal Cost Notes:	AARGM-ER Total costs for disposal is \$2.3M (BY\$ 2021) based on the Knowledge Point #4 Department of the Navy Component Cost Position updated with PB 2024 quantity profile and PB-24 (2023) inflation indices.
Additional O&S Estimate Assumptions:	

The O&S cost estimate is in BY2021\$ as reflected in the current APB using PB-24 (2023) escalation indices. The estimate concentrates on the costs for the AGM-88G AARGM-ER All Up Round missiles. The quantity to sustain does not include 17 developmental assets that are not maintained.

Sustainment Strategy:

The Life Cycle Sustainment Plan, approved April 6, 2021, addresses support activities and requirements required throughout the life cycle of the program. The AARGM-ER system will be supported by both organic and Contractor personnel in the execution of the Integrated Product Support elements. Additionally, the Department of Navy will have three levels of maintenance: Organizational, Intermediate, and Depot. The AARGM-ER maintenance approach is based on existing AARGM/High Speed Anti-Radiation Missile maintenance concepts. The AARGM-ER missile will utilize existing Navy support concepts and supply systems and will remain within current Navy ammunition logistical support channels. The AARGM-ER weapon system requires no major support changes at the field level. The missile will be provided to the users as an All-Up-Round requiring minimal maintenance in the field, with the exception of visual inspections, pre- and post-load checks, loading and unloading services, Built-In-Test, and packaging, storage, and transport.

Antecedent Estimate Assumptions:

The Antecedent System is the AARGM. Data is based on a AARGM period of performance of FY 2012 - FY 2037 (26 years), vice FY 2024 - FY 2051 (28 years) for AARGM-ER. Historical O&S costs were collected from the Naval Visibility & Management of Operating and Support Costs database. Antecedent costs are not normalized to the AGM-88G AARGM-ER parameters.