Selected Acquisition Report (SAR)

AH-64E Apache Remanufacture (AH-64E Remanufacture)

FY 2024 President's Budget

Defense Acquisition Visibility Environment (DAVE)

Table of Contents

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

AH-64E Apache Remanufacture

DoD Component

Army

Responsible Office

Program Manager

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Mission and Description

The AH-64E Apache Remanufacture (AH-64E Reman), hereinafter referred to as AH-64E, is the heavy attack and reconnaissance helicopter of the U.S Army. It is a twin engine, four-blade, tandem seat, attack helicopter with 30-millimeter gun and ammunition, 2.75-inch rockets, laser and radio frequency Hellfire missiles and Joint Air-to-Ground Missile (JAGM). The AH-64E is the Army's network-centric, multirole weapon supporting the Multi-Domain Battlefield. It provides the capability to simultaneously conduct (or quickly transition between) movement to contact, security, and or attack missions to provide reach, lethality, protection, and mission command as part of the Joint/Combined Arms Team. The AH-64E enables the Joint Air/Ground Maneuver Team to dominate the battle space by providing air-to-ground synergy through realtime Intelligence, Surveillance and Reconnaissance (ISR) information and responsive precision fires. The AH-64E is an Apache Attack Helicopter modified as required to effectively and efficiently integrate the Longbow Apache well into the 21st century by providing improvements to make it relevant in Multi-Domain operations. It provides a significantly enhanced warfighting capability over the AH-64A and AH-64D. It is capable of day or night employment in adverse weather and obscurants and can effectively engage and destroy advanced threat weapon systems on the multi-domain battlefield.

Tactically, the AH-64E provides significant warfighting advantages over the original AH-64D and multiplies the combat effectiveness of the entire fleet. It is fully capable of employing the Longbow Fire Control Radar mission kit, the Modernized Target Acquisition Designation System/Modernized Pilot Night Vision System, the Longbow Hellfire missiles and future improved munitions in addition to the normal complement of AH-64D munitions. Additionally, the AH-64E includes upgraded engines, debuts evolutionary transmission technology and incorporates significant improvements to its main rotor system, which increases power and provides substantial performance gains.

The AH-64E is fully network-centric capable with current digitized forces and enables Multi-Domain operations. This enables interoperability with current and future Tactical Operations Center and Army Battle Command System forces. In addition, this reduces the logistics footprint, enhances deployability, reduces O&S costs, improves AH-64D flight performance and provides a means to effectively utilize already funded technology insertions. The AH-64E has a fully compatible and rapidly re-configurable open system architecture mission processor design, enabling rapid integration of future communication systems and minimizing obsolescence. The Multi-Domain concept drives the demand for network-centric interdependence and Joint integration across the force to new levels. The AH-64E meets these challenges by providing and integrating Command and Control, ISR, and communications connectivity for attack/reconnaissance aviation within Brigade Combat Teams, Divisions, and Corps.

Executive Summary

AH-64E Remanufacture

Program Highlights Since Last Report

Requirements are steady, and funding is currently adequate to meet schedule and performance objectives. Over the last year, the Apache has experienced an increase in the instance of electrical power generator failures resulting in potentially hazardous flight conditions and precautionary landings. As a result, the PM has instituted a multi-faceted approach to reduce both the instance and severity of generator failures. The Army continues to closely monitor Boeing quality via a Mission Assurance IPT following implementation of corrective action on prior Critical Safety Item material escapements. There have been no additional escapements over this reporting period. The award of Multi-Year 2 contract (MY2) will constitute the formal legal agreement between Boeing and USG on the entirety of the Army's CSI program requirement. A verbal settlement was agreed upon between the USG and The Boeing Company for the Multi-Year 2 contract (MY2) in December 2022. Both the USG and Boeing are working towards Contract Definitization NLT 2QFY23.The Remanufacture and New Build aircraft are procured using the same contracts, built on the same production line, and delivered in the same configuration with the same capabilities. 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
Aug - 2022	Started fielding Fifth Unit Equipped AH-64E Version 6 (2-17th Ft. Campbell, KY).
Jul - 2022	Fielded Fourth Unit Equipped AH-64E Version 6 (1-151st AB, South Carolina National Guard).
May - 2022	First Strap Pack Product Improvement (SPPI) on production line.
Feb - 2022	Fielded Third Unit Equipped AH-64E Version 6 (4-2nd AB, Korea).
Jan - 2022	First SPPI produced.
Dec - 2021	Awarded Improved Turbine Engine (ITE) Phase II contract to begin ITE integration efforts through developmental testing.
Dec - 2021	Awarded V6.5 task order to begin development program for next operational flight program update and technology insertions for common architecture for entire AH-64E fleet.
Nov - 2021	Third Unit Equipped delivery began to 4-2 AB in Korea.
Aug - 2021	Second Unit Equipped is completed at 3-17th Hunter Army Airfield, GA with 24 AH-64E aircraft.
Jun - 2021	Full Fielding Decision Brief Completed on the SPPI Program. Production line cut-in scheduled January 2022. (Completed)
Mar - 2021	V6 First Unit Equipped (FUE) is completed at 1-229th Joint Based Lewis McChord, WA with 24 AH-64E aircraft.
Feb - 2021	The first V6 Longbow Crew Trainer (LCT) retrofit was completed in the field at Hunter Army Airfield, GA.
Dec - 2020	After Boeing met the conditions-based criteria, the USG resumed accepting aircraft in December 2020. The conditions-based criteria ensure production processes meet standards for safety and quality and the potential for future quality escapes.
Oct - 2020	The US Government stopped accepting aircraft from Boeing due to quality issues identified in October 2020.
Sep - 2020	The first V6 AH-64E aircraft was DD250'd in Mesa, AZ at the Boeing facility.

Sep - 2019	The Follow-on Operational Test & Evaluation (FOT&E) 2 report was received from Army Test and Evaluation Command (ATEC). The report determined that the version 6 AH-64E is more effective, more suitable, and is incrementally more survivable than the version 4 AH-64E. The report from ATEC supports a conditional materiel release and recommends version 6 AH-64E capabilities be cut-in the AH-64E production line.
Jun - 2019	FOT&E 2 was completed on June 14, 2019. The event included operations at Ft. Hood, TX and Eglin Air Force Base (AFB) and concluded with an adversarial assessment at Redstone Arsenal. The final test report for the event was received on September 11, 2019.
May - 2019	Failsafe collar fielding is complete.
Dec - 2018	AH-64E Remanufacture Capability Version 6 FOT&E 2 was completed in May 2019.
Nov - 2018	The Army stopped fielding of the redesigned strap pack and began legacy strap pack collar retrofit starting with severe coastal units. All severe coastal units had fail safe collars installed April 2019 and the fail safe collar install was completed to the entire Army fleet on June 28, 2019.
Sep - 2018	7-17 Cavalry Regiment accepted and signed for the first two AH-64E aircraft September 26 and departed Fort Riley, Kansas to Fort Hood, Texas on September 27. The next three induction aircraft will arrive at the Central Modification Facility on October 4 for Version 4 Post Production Modifications, the estimated delivery to 7-17 Cavalry Regiment is October 30.
Sep - 2018	PM Apache and ACC-Redstone executed options for 48 AH-64E Lot 8 Remanufacture aircraft ($392M) and AP for AH-64E Lot 9 ($170M).
Sep - 2018	Teams completed retrofit of the redesigned strap pack to all Category 1 Severe Coastal units (Texas NG, Missouri NG, Hawaii NG, Joint Base Lewis-McCord, Korea, and Hunter Army Airfield, Georgia). Retrofit shifted to Category 2 Deployed/Deploying units.
Aug - 2018	Since Boeing has met the conditions to restart, PM Apache resumed inductions acceptance of all U.S. AH-64E Apache Remanufacture and New Build aircraft. Two AH-64Ds were inducted and two AH-64Es were accepted with planned delivery to 7-17 Cavalry Regiment by the end of September 2018.
Jun - 2018	Began fielding the redesigned strap pack to 1-149 Texas National Guard (NG) in Houston, Texas.
May - 2018	Army adjusted the Army Acquisition Objective (AAO) from 767 to 812 and the APO to 791 for the AH-64E Apache Helicopter.
Mar - 2018	Army Contracting Command (ACC) sent a letter to Boeing rejecting the acceptance of all U.S. AH-64E aircraft until the redesigned Strap Pack is fielded and additional criteria are met.
Jan - 2018	Began fielding to 1-6 Cavalry Regiment, Fort Riley, Kansas.
Dec - 2017	Completed fielding of 24 AH-64E Apache aircraft to 4-4 Armored Reconnaissance Battalion (ARB), Fort Carson, Colorado.
Jun - 2017	Apache PM fielded nine AH-64E aircraft to Fort Rucker, Alabama.
May - 2017	Completed fielding to the 1-227th ARB, Fort Hood, Texas.
May - 2017	The AAO is increased by 77 aircraft from 690 to 767. Authorized Procurement Objective (APO) remains at 634 Remanufacture aircraft and 56 New Build aircraft.
Mar - 2017	Awarded AH-64E Apache MY Contract for Lot 7 though Lot 11 for a total of 244 Remanufactured aircraft, providing options to procure additional Remanufacture and New Build aircraft each year.
Jan - 2017	Apache PM completed fielding six AH-64E aircraft to Fort Rucker, Alabama.
Nov - 2016	Apache PM completed fielding to the 5th Unit Equipped (7-17 CAV) at Fort Hood, Texas.
Apr - 2016	Definitized FRP Contract for Lot 5 and Lot 6 for 117 Apache AH-64E Remanufactured aircraft.

Apr - 2016	Definitized the AH-64E SDD Version 6 contract.
Mar - 2016	The Army Acquisition Executive (AAE) approved Boeing's MY commitment of 10% savings. Awarded AP contract for AH-64E Production Lot 7.
Feb - 2016	The first Production Lot 5 AH-64E rolled off the Apache line at the Boeing facility in Mesa, Arizona. This aircraft marked the first production AH-64E with Version 4 capability.
Sep - 2015	Apache PM completed fielding to the 2-17 Cavalry (3-101 Attack Reconnaissance Battalion (ARB)), the Army's 4th Unit Equipped with the AH-64E Apache. Apache PM assisted and managed transfer of 20 AH-64D aircraft from Germany and Forces Command to a new AH-64 unit, the 1-25 ARB in Fort Wainwright, Alaska. Apache PM identified and provided a materiel solution to support Apache AH-64D and AH-64E helicopters for first time stationing in an arctic environment.
Sep - 2015	The Joint Staff and USD(AT&L) concurred on the MY procurement request for approval. In October 2015, Apache PM received FY 2015 funding in an Omnibus Reprogramming Action to support procurement of 13 additional AH-64E Remanufacture aircraft. Office of the Secretary of Defense (OSD) Cost Assessment Program Evaluation (CAPE) visited Boeing Mesa to support MY Independent Government Estimate analysis.
Aug - 2015	The Secretary of the Army approved the AH-64E Multi-Year (MY) procurement, which was definitized on March 17, 2017. Completed Manned/Unmanned Teaming (MUM-T) Expanded Capabilities Competition and awarded the contract. Fire Control Radar (FCR) Maritime Mode Testing occurred from August through September 2015 at Joint Base Little Creek, Virginia.
Dec - 2014	The AAE approved the Justification and Authorization to enter a Multi-Year (MY) procurement to support production from FY 2017 to FY 2021.
Dec - 2014	The Apache PM delivered 83 AH-64E Remanufacture Attack Helicopters of the 690 Army Acquisition Objective (AAO).
Nov - 2014	The FUE, 1-229 Attack Reconnaissance Battalion (ARB), successfully completed the first operational combat deployment of the AH-64E Remanufacture.
Aug - 2014	AH-64E Capability Version 4 FOT&E successfully concluded on time at Eglin Air Force Base, Florida. This capability was included in production Lot 5 with the first aircraft being DD250'd in February 2016.
Jun - 2014	The Government and Boeing definitized and awarded the FRP contract for Lot 3 and Lot 4. This contract supports the remanufacture of 72 AH-64E Apache Helicopters. This production activity supported completion of fielding the 2nd and 3rd Units Equipped, as well as augmentation of the training fleet.
Aug - 2012	A Defense Acquisition Board (DAB) approved FRP for the AH-64E Apache Remanufacture program and authorized up to 12 LRIP aircraft for the AH-64E Apache New Build program in FY 2013. The DAE ADM approved the designation of the Apache AH-64E Remanufacture and Apache AH-64E New Build programs as ACAT IC after approval of the AH-64E Remanufacture APB.
Jun - 2012	The Apache PM requested and received approval for the Mission Design Series change for AB3 and was formally designated AH-64E Remanufacture. The AB3A and AB3B programs were subsequently renamed the AH-64E Apache Remanufacture and the AH-64E Apache New Build programs, respectively.
Mar - 2012	Completed the Initial Operational Test and Evaluation (IOTE) for the AH-64E Remanufacture production aircraft.
Oct - 2011	The first Apache AH-64E Remanufacture production delivery occurred on October 24, 2011 with a formal roll-out ceremony held on November 2, 2011.
Oct - 2010	Awarded an LRIP contract procuring a total of 51 AH-64E Remanufacture aircraft.
Sep - 2010	Completed a successful Milestone C DAB authorizing LRIP and advance procurement actions for Full Rate Production (FRP).

Jun - 2010	Completed Nunn-McCurdy reporting resulting in an ADM certifying the program's progress to Milestone C and formally separating AB3 into two Milestone Decision Acquisition Programs (MDAPs) for cost and reporting purposes: the Apache Block IIIA (AB3A) and Apache Block IIIB (AB3B) programs.
Dec - 2009	Resource Management Decision (RMD) 802 and RMD 700 directed the PM to increase the total procurement quantity by 56 AB3 aircraft as New Build airframes and included those aircraft in the FY 2011 PB at a total of $2.6B. This change was implemented to support an increase in the training base capacity and to establish a new heavy Combat Aviation Brigade (CAB) in the active component. This change was significant due to the fact that the baseline program was fundamentally a Remanufacture production program by design. The additional aircraft procurements would be New Build aircraft at a unit cost significantly higher than the Remanufacture unit cost. The increased unit cost, compounded with minor fact-of-life changes throughout the program, caused a Nunn-McCurdy breach to the Average Procurement Unit Cost (APUC) as reflected in the December 2009 Selected Acquisition Report (SAR). The DAE supported a rapid Nunn-McCurdy certification in response.
Mar - 2007	A follow-on ADM authorized a Low Rate Initial Procurement (LRIP) quantity of 59 aircraft and granted the Army authority to procure long-lead items beginning in FY 2009. The Acquisition Program Baseline (APB) schedule milestones were established for both Preliminary Design Review (PDR) and the Critical Design Review (CDR).
Jul - 2006	Apache PM awarded an SDD contract to the Boeing Company to begin the development effort for AB3.
Jul - 2006	The DAE Acquisition Decision Memorandum (ADM) approved Milestone B, authorized the AB3 program to enter System Design & Development (SDD) and designated AB3 as ACAT ID.
Jun - 2006	Completed the Apache Block III (AB3) Milestone B Defense Acquisition Executive (DAE) review.

Schedule

AH-64E Remanufacture

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B Complete	Jun 2006	Jun 2006	Dec 2006	Jul 2006	
Preliminary Design Review Complete	Apr 2007	Apr 2007	Oct 2007	Apr 2007	
Critical Design Review Complete	Jan 2008	Jan 2008	Jul 2008	Jan 2008	
LUT Complete	Nov 2009	Nov 2009	May 2010	Nov 2009	
Milestone C Complete	Jul 2010	Jul 2010	Jan 2011	Sep 2010	
IOT&E Complete	Mar 2012	Mar 2012	Sep 2012	Mar 2012	
FRP Complete	Jul 2012	Jul 2012	Jan 2013	Sep 2012	
First Unit Equipped Complete	Nov 2012	Nov 2012	May 2013	May 2013	
IOC Complete	May 2013	May 2013	Nov 2013	Nov 2013	
Notes					

AH-64E Remanufacture (formerly known as Apache Block IIIA) schedule encompasses a continuous integration of technology to maintain overmatch which began with a risk reduction effort from May 2005 to July 2006. This effort was followed by the current development effort which began in July 2006 and continues through FY 2020. Production started in FY 2010 with funding through FY 2025, and deliveries through FY 2027.

Deviation Explanation

Performance

AH-64E Remanufacture

Performance Characteristics					
Milestone Baseline	**Current Baseline Objective/Threshold**		**Demonstrated Performance**	**Current Estimate/Actual**	**Deviation**
([attribute type not provided])Performance - 6000' PA, 95 F OGE Hover (lbs/payload)					
	4,100	3400	Met threshold	3400	
([attribute type not provided])Force Protection - Crewstation armor barrier survivability (mm)					
	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	IAW JROCM 086-10	
([attribute type not provided])Force Protection - Crewstation armor survivability (mm)					
	IAW JROCM 086-10	IAW JROCM 086-10	Met objective	IAW JROCM 086-10	
([attribute type not provided])Mission Reliability - Lot 1					
	22	15.3	The intent of the wording in this KPP was to identify the fleet reliability required of the Apache Block III/AH-64E fleet as it progressed from initial Lot 1 fielding thru all successive Lots. The threshold requirement (initially 15.3 and then 17 hrs MTBF(M)) is applicable across the whole AH-64E fleet (Lot 1 - n) and not limited to any particular Lot.	23.8	
([attribute type not provided])Mission Reliability - Lot 4					
	22	17	AH-64E Fleet Meets Objective	23.8	
([attribute type not provided])Mission Reliability - MR for 3.5 hr. flight (%)					
	85	80	Met objective	86.3	
([attribute type not provided]) - Net Ready					

	Fully support execution of all operational activities.	Fully support execution of joint critical operational activities.	Met threshold	Fully support execution of joint critical operational activities.	
([attribute type not provided])Survivability - Safe operation (minutes)					
	30	30	Met Objective	30	
([attribute type not provided])Survivability - Survive Band IV MANPADS IR Missile Engagement					
	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	IAW JROCM 086-10	

Requirement Reference

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Validated:
CPD dated June 1, 2010

Deviation Explanation

No deviations for this program/subprogram

Notes

The PM received clarification from the ACM-RA on the Mission Reliability MTBF(M) KPP for Lot 1. The intent of the wording in this KPP was to identify the fleet reliability required of the Apache Block III/AH-64E fleet as it progressed from initial Lot 1 fielding thru all successive Lots. Lot 1 fielding was anticipated to only reflect a reliability of 15.3 hrs MTBF(M) and would progressively increase as total fleet quantity and maintainer experience grew over time, reaching 17 hrs MTBF(M) by the fielding of Lot 4 aircraft. The threshold requirement (initially 15.3 and then 17 hrs MTBF(M)) is applicable across the whole AH-64E fleet (Lot 1 - n) and not limited to any particular Lot.

Acquisition Budget Estimate
AH-64E Remanufacture

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	2010	1,611.8	1,504.2	1,654.6	1,490.5	1,538.2	
Procurement	2010	8,856.9	10,088.1	11,096.9	10,765.9	12,748.4	
MILCON	2010	0	0	0			
Acq. O&M	2010	0	0		36	42.5	
Total		10,468.7	11,592.3		12,292.4	14,329.1	
PAUC	2010	16.383	18.141	19.955	19.763	23.037	
APUC	2010	13.970	15.912	17.503	17.449	20.662	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	5	5
Procurement	634	617
O&M-Acquired		

Quantity Notes

Inflation impacts to Multi-Year 2 aircraft unit costs drove a reduction of 9 AH-64E Remanufacture aircraft from President's Budget 2023 to President's Budget 2024.

Unit Cost
AH-64E Remanufacture

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2010	**Current UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	11,592.3	12,292.4	
Quantity	639	622	
Unit Cost	18.141	19.763	8.94%
Average Procurement Unit Cost			
Cost	10,088.1	10,765.9	
Quantity	634	617	
Unit Cost	15.912	17.449	9.66%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2010	**Original UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	10,468.7	12,292.4	
Quantity	639	622	
Unit Cost	16.383	19.763	20.63%
Average Procurement Unit Cost			
Cost	8,857.0	10,765.9	
Quantity	634	617	
Unit Cost	13.970	17.449	24.90%

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

AH-64E Remanufacture

Risk and Sensitivity Analysis
Current Procurement Cost(December - 2022)
The current Apache program office estimate is based off forward estimations for Lots 12-15 that will occur in Multi-Year II (FY23-25). This contract action is still undergoing negotiations and actuals will not be known until post SAR submittal. It is expected that unit costs will be higher in MYII, however to what extent beyond the current POE is currently unknown.
Revised Original Estimate (December - 2010)
A successful Milestone C was completed on September 27, 2010, authorizing LRIP and advance procurement actions for FRP. Milestone C separated the Apache program into the Remanufacture and New Build programs with separate APBs. The Apache OSD CAPE ICE was used to establish the APB. The most significant cost drivers in the Apache estimate are material, labor, and prime contractor labor and overhead rates and factors.
Current Baseline Estimate (November - 2012)
Apache completed a FRP decision in August 2012 and the OSD CAPE ICE was prepared. This was the first time OSD CAPE had actuals to incorporate into their estimate from the AB3 production line. Material, labor, prime contractor rates and factors increased significantly from the Revised Original Baseline completed in June 2010. The OSD CAPE ICE unit cost at FRP increased by 13% from the Revised Original OSD CAPE ICE.

Schedule Risk		
Current	2022-12-28	Requirements are steady, and funding is currently adequate to meet schedule and performance objectives. 1.Critical Safety Item Program Non-Compliance: The program is currently under waiver from the US Army Combat Capabilities Development Command (CCDC) Aviation and Missile Center (AvMC) Systems Readiness Directorate (SRD) and expects to remain under waiver as long as progress toward full compliance is maintained. 2.Supply chain and labor market volatility: Current trends indicate inability of prime contractor to hire skilled employees and suppliers continue to operate at reduced production rates due to COVID-19 Impacts. 3.Quality escapes on Critical Safety Items: The Army continues to closely monitor Boeing quality via a Mission Assurance IPT following implementation of corrective action on prior Critical Safety Item material escapements. There have been no additional escapements over this reporting period. The award of Multi-Year 2 contract (MY2) will constitute the formal legal agreement between Boeing and USG on the entirety of the Army's CSI program requirement. Award is estimated 2QFY23. 4.Electrical power generator: Over the last year, the Apache has experienced an increase in the instance of electrical power generator failures resulting in potentially hazardous flight conditions and precautionary landings. As a result, the PM has instituted a multi-faceted approach to reduce both the instance and severity of generator failures.

FRP	2012-08-30	1. Architecture Shortfalls - Refined hardware and software requirements coupled with Commercial-Off-The- Shelf (COTS) obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. Main Transmission - Financial issues at Northstar Aerostar (Apache Block III (AB3) main transmission supplier) created a temporary trough in transmission supply, resulting in up to seven aircraft without transmissions. The AB3 prime contractor took measures to sustain AB3 production and revitalize Northstar's supply base. The PM closely monitored this plan and full recovery established in December 2012 with no critical fielding impacts expected. The PM will continue to closely monitor this plan. 3. Net Ready - The AB3 Link 16 solution changed from a Joint Tactical Radio System (JTRS) Joint Program Office (JPO) Government Furnished Equipment radio to a Non-Developmental Item (NDI) radio. The AB3 PM is solely managing Link 16 for Lots 4 - Lot 5. A planned NDI competition for a Lot 6 Link 16 solution will be managed by the JTRS JPO. If the competitive procurement does not meet the Lot 6 timeline there will be a Link 16 capability fielding gap.
MS B	2006-07-30	1. Insufficient fidelity of Lot 6 functionality requirements 2. Reliability Key Performance Parameter (KPP) 3. Performance KPP 4. Net Ready KPP

MS C	2010-09-30	1. Architecture Shortfalls - Refined hardware and software requirements coupled with COTS obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. LRIP Production - Boeing has not manufactured an AB3 aircraft and is using a subcontractor for premodification for the first time. Unforeseen production variables (new subcontractors and components) could cause schedule and delivery delays. 3. Net Ready - AB3 PM is dependent on performance of the JTRS program to achieve Net Ready KPP. JTRS is thepreferred solution to meet the Link 16 requirement at Lot 4 and Wideband Networking Waveform / Soldier Radio Waveform at Lot 6. Further delays to the JTRS program could prohibit AB3 from meeting the Net Ready KPP. 4. Reliability - Limited flight test hours on AB3 aircraft at Limited User Test and Initial Operational Test and Evaluation does not allow for a traditional reliability demonstration in which the test unit is in the final configuration and tested for a statistically significant number of flight hours. This could result in an inability to demonstrate acceptable mission reliability to support the FRP Decision.

Technical Risks

Current	December 29, 2022	Requirements are steady, and funding is currently adequate to meet schedule and performance objectives. 1.Critical Safety Item Program Non-Compliance: The program is currently under waiver from the US Army Combat Capabilities Development Command (CCDC) Aviation and Missile Center (AvMC) Systems Readiness Directorate (SRD) and expects to remain under waiver as long as progress toward full compliance is maintained. 2.Supply chain and labor market volatility: Current trends indicate inability of prime contractor to hire skilled employees and suppliers continue to operate at reduced production rates due to COVID-19 Impacts. 3.Quality escapes on Critical Safety Items: The Army continues to closely monitor Boeing quality via a Mission Assurance IPT following implementation of corrective action on prior Critical Safety Item material escapements. There have been no additional escapements over this reporting period. The award of Multi-Year 2 contract (MY2) will constitute the formal legal agreement between Boeing and USG on the entirety of the Army's CSI program requirement. Award is estimated 2QFY23. 4. Electrical power generator: Over the last year, the Apache has experienced an increase in the instance of electrical power generator failures resulting in potentially hazardous flight conditions and precautionary landings. As a result, the PM has instituted a multi-faceted approach to reduce both the instance and severity of generator failures.

FRP	August 28, 2012	1. Architecture Shortfalls - Refined hardware and software requirements coupled with Commercial-Off-The-Shelf (COTS) obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. Main Transmission - Financial issues at Northstar Aerostar (Apache Block III (AB3) main transmission supplier) created a temporary trough in transmission supply, resulting in up to seven aircraft without transmissions. The AB3 prime contractor took measures to sustain AB3 production and revitalize Northstar's supply base. The PM closely monitored this plan and full recovery established in December 2012 with no critical fielding impacts expected. The PM will continue to closely monitor this plan.3. Net Ready - The AB3 Link 16 solution changed from a Joint Tactical Radio System (JTRS) Joint Program Office (JPO) Government Furnished Equipment radio to a Non-Developmental Item (NDI) radio. The AB3 PM is solely managing Link 16 for Lots 4 - Lot 5. A planned NDI competition for a Lot 6 Link 16 solution will be managed by the JTRS JPO. If the competitive procurement does not meet the Lot 6 timeline there will be a Link 16 capability fielding gap.
MS B	July 28, 2006	1.Insufficient fidelity of Lot 6 functionality requirements 2.Reliability KPP 3.Performance KPP 4.Net Ready KPP

MS C	September 28, 2010	1. Architecture Shortfalls - Refined hardware and software requirements coupled with COTS obsolescence necessitate computer / electronic tech refresh to meet Lot 4 - Lot 6 functionality. 2. LRIP Production -Boeing has not manufactured an AB3 aircraft and is using a subcontractor for premodification for the first time. Unforeseen production variables (new subcontractors and components) could cause schedule and delivery delays. 3. Net Ready - AB3 PM is dependent on performance of the JTRS program to achieve Net Ready KPP. JTRS is the preferred solution to meet the Link 16 requirement at Lot 4 and Wideband Networking Waveform / Soldier Radio Waveform at Lot 6. Further delays to the JTRS program could prohibit AB3 from meeting the Net Ready KPP. 4. Reliability - Limited flight test hours on AB3 aircraft at Limited User Test and Initial Operational Test and Evaluation does not allow for a traditional reliability demonstration in which the test unit is in the final configuration and tested for a statistically significant number of flight hours. This could result in an inability to demonstrate acceptable mission reliability to support the FRP Decision.

Low Rate Initial Production

AH-64E Remanufacture

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/07/2010	10/07/2010
Approved Quantity	51	51
Reference	Milestone C ADM	Milestone C ADM
Start Year	2010	2010
End Year	2013	2013

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

Notes

Contracts & Efforts

Contract Data	
Contract Number	W52P1J-17-D-0070
Effort Number	
Modification Number	
Award Date	08/31/2017
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	L3 Communications Systems - West
Contract Title	MUMT Production & Services IDIQ
Contract Address	Salt Lake City, UT
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	September 01, 2017
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$66.6	$145.8	
Initial Ceiling Price	Current Ceiling Price	
$226.6	$368.2	
Contractor EAC	PM EAC	
$368.2	$368.2	
Initial Quantity	Current Quantity	Delivered Quantity
233	544	544
BAC	BCWP	ACWP

BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Type(s): FFR/CPFF

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W52P1J-16-D-0055
Effort Number	
Modification Number	
Award Date	08/18/2016
Definitization Date	06/30/2017
Order Number	
CAGE Code/CAGE Legal Name	Longbow Limited Liability (LBL)
Contract Title	REU/MMA Production & Services IDIQ
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Multiple Types
Modification Date	August 18, 2016
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$23.4	$68.9	
Initial Ceiling Price	Current Ceiling Price	
$931.2	$931.2	
Contractor EAC	PM EAC	
$931.2	$931.2	
Initial Quantity	Current Quantity	Delivered Quantity
23	101	89
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Type(s): FFP/CPFF

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W52P1J-18-D-0061
Effort Number	
Modification Number	
Award Date	09/01/2018
Definitization Date	07/29/2019
Order Number	
CAGE Code/CAGE Legal Name	Lockheed Martin Rotary and Mission Systems
Contract Title	MRFI Production and Services IDIQ
Contract Address	Owego, NY
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	September 01, 2018
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$11.8	$24.3	
Initial Ceiling Price	Current Ceiling Price	
$249.5	$249.5	
Contractor EAC	PM EAC	
$249.5	$249.5	
Initial Quantity	Current Quantity	Delivered Quantity
15	88	49
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Type(s): FFP/FPIF/CPFF

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W52P1J-17-D-0043
Effort Number	
Modification Number	
Award Date	04/28/2017
Definitization Date	04/28/2017
Order Number	
CAGE Code/CAGE Legal Name	Lockheed Martin
Contract Title	MTADS/PNVS Production/Services IDIQ
Contract Address	Orlando, FL
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	April 28, 2017
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$0.5	$80.8	
Initial Ceiling Price	Current Ceiling Price	
$4,655	$4,655	
Contractor EAC	PM EAC	
$4,655	$4,655	
Initial Quantity	Current Quantity	Delivered Quantity
	9	6
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Contract Type(s): Quantities are reflective of complete MTADS/PNVS systems, but multiple Line Replacement Units(LRU) / Line Replaceable Modules (LRM) that are contained within a MTADS/PNVS system.

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W58RGZ-16-C-0023
Effort Number	
Modification Number	P00098
Award Date	03/21/2016
Definitization Date	03/15/2017
Order Number	
CAGE Code/CAGE Legal Name	Boeing
Contract Title	AH-64E Apache Multi-year contract
Contract Address	Mesa, AZ
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	March 21, 2016
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$3,030.5	$4,300.4	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
$4,300.4	$4,300.4	
Initial Quantity	Current Quantity	Delivered Quantity
244	247	196
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Notes:

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W58RGZ-22-C-0016
Effort Number	
Modification Number	
Award Date	
Definitization Date	12/31/2021
Order Number	
CAGE Code/CAGE Legal Name	Boeing
Contract Title	Improved Turbine Engine (ITE) Phase 2
Contract Address	Mesa, AZ
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	
Work Start Date	January 01, 2022
Technical Data Rights	None
Work Completed	9.18%

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$178.5	$178.5	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
$178.5	$178.5	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
$154	$14.1	$12.6
BCWS	Cost Variance	Schedule Variance

$15.3	$1.5	-$1.2

Contract Notes:

Factors Contributing to Cost Variance and Projected Effects on Program Costs

Factors Contributing to Schedule Variance and Projected Effects on Program Schedule

Contract Data	
Contract Number	W58GRZ-21-D-0077
Effort Number	
Modification Number	
Award Date	12/28/2021
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	Boeing
Contract Title	V6.5 Upgrade/Airframe IDIQ
Contract Address	Mesa, AZ
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	
Work Start Date	January 04, 2022
Technical Data Rights	
Work Completed	23.39%

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
$217.9	$217.9	
Contractor EAC	PM EAC	
$217.9	$217.9	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
$185.2	$43.3	$44.8
BCWS	Cost Variance	Schedule Variance

$50.3	-$1.5	-$7

Contract Notes:

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

AH-64E Remanufacture

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Production	431	431	617	69.85%
Total Program Quantity Delivered	436	436	622	70.10%

Expended and Appropriated (TY $M)

Years Appropriated to date: 17

Total Years Appropriated Funding (Current Baseline): 22

Percent Years Appropriated: 77.27%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 85.52%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 81.02%

Total Acquisition Cost: 14,329.1

Deliveries & Expenditures Notes:

The five A/C that are associated with RDT&E funding are for Prototype Development (not D to E conversion). The above data is current as of December 31, 2022.

Operating and Support Costs

AH-64E Remanufacture

O&S Cost Breakdown:

Category (BY$ Million)	AH-64E Remanufacture
Unit-Level Manpower	12,266.1
Unit Operations	1,412.5
Maintenance	5,433.6
Sustaining Support	3,072.3
Continued System Improvements	618.8
Other	197.0
Total	23,000.3

Cost Estimate Source: POE dated December 31, 2022

O&S Cost Notes:

The O&S cost estimate is based upon the OSD CAPE ICE methodology. The estimate was last updated on December 31, 2022 for fact-of-life changes.

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	38,506	42,356.6	23,000.3	35,173.8	

Note:

The sustainment quantity of 617 aircraft differs from the acquisition quantity of 622 aircraft by five aircraft. Those five aircraft were procured as limited test articles only and do not become part of the operational inventory. The AH-64E Apache is maintained in a two-level maintenance system (field and sustainment) by a mix of Soldier and civilian maintainers. The strategy assumes the fielding of 617 Remanufactured aircraft, each flying 238.8 hours per year. Aircraft are logistically supported by a mix of organic supply and Contractor Performance Based Logistics activities. Other Costs: PM Apache utilizes this field to capture the OMA funded costs from AMCOS labeled "Average Cost of Morale, Welfare, and Recreation," "Average Recruiting Cost," and "Average Cost of Officer Acquisition."NOTE: The 4Q CY22 version of DAVE won't display the Current BY and TY total O&S cost estimate. The BY total O&S cost estimate for AH-64E Apache Reman is $23,000.3M and the TY total O&S cost estimate for AH-64E Apache Reman is $35,173.8M.

O&S Cost Deviation Explanation

Operating and Support Costs - Disposal and Unitized Costs

AH-64E Remanufacture

Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:

Sustainment Factors	System Name: AH-64E REMAN	Antecedent System Name: Longbow Apache
Quantity to Sustain	617	633
Unit of Measure	Aircraft	Aircraft
Unit Expected Service Life	20	20

Base Year:

Annual Unitized O&S Cost by Category Base Year $ Unit:($M)	System Name: AH-64E REMAN	Antecedent System Name: Longbow Apache
Unit-Level Manpower	1.0	1.5
Unit Operations	0.1	0.2
Maintenance	0.4	1.1
Sustaining Support	0.2	0.4
Continued System Improvements	0.1	0.1
Other	0.0	0.1
Total O&S	1.9	3.4

Disposal/Demilitarization Cost Estimate

(Base Year $Millions)	System Name: AH-64E REMAN	Antecedent System Name: Longbow Apache
Total Disposal	42.4	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	12/31/2022
Note:	
Disposal Cost Notes:	
Total Disposal Costs for both the AH-64E Remanufacture and AH-64E New Build aircraft is $47.84M (BY 2010 $M) in accordance with the OSD CAPE ICE methodology.	
Additional O&S Estimate Assumptions:	

Sustainment Strategy:
The AH-64E Apache is maintained in a two-level maintenance system (field and sustainment) by a mix of Soldier and civilian maintainers. The strategy assumes the fielding of 617 Remanufactured aircraft, each flying 238.8 hours per year. Aircraft are logistically supported by a mix of organic supply and Contractor Performance Based Logistics activities.
Antecedent Estimate Assumptions:
The antecedent to the AH-64E Apache is the AH-64D Longbow. The AH-64D Longbow will be in service until 2031. There are currently 355 AH-64D Longbow aircraft in operation. As of the Milestone C estimate updated January 15, 2013, the AH-64D Longbow was estimated to have a total of 14,847 Fleet Years of operational tempo. 14,847 Fleet Years x $3,420K per operation hour = $50,776.7M (BY 2010 $M); $58,146.7M (TY)