RCS: DD-A&T(Q&A)823-202

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

As of FY 2021 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs

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

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

Program Information

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

DoD Component
Army

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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 16, 2010

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated November 26, 2012

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 ammunition, 2.75-inch rockets, laser and radio frequency Hellfire missiles. 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 real-time 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

Program Highlights Since Last Report

The AH-64E program meets all Key Performance Parameters and remains on cost, schedule, and performance. On November 19, 2019, the Secretary of the Army / Chief of Staff of the Army (SA/CSA) made a decision not to certify the AH-64E programs until the Strap Pack Product Improvement (SPPI) effort is complete, defined as when the Original Equipment Manufacturer (OEM) completes design and qualification and the Army issues a fielding Air Worthiness Release (AWR). SPPI is a PEO implemented long term solution for the AH-64E fleet that replaces the legacy strap pack with Fail Safe Collar on the fleet today. SPPI is on schedule; environmental testing is on-going. AWR expected 3rd quarter FY 2020.

September 11, 2019: The Follow-On Operational Test and Evaluation 2 (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.

June 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 21, 2019: Failsafe collar fielding is complete.

Note: It is important to understand that 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**
June 2006	Completed the Apache Block III (AB3) Milestone B DAE review
July 2006	The DAE ADM approved Milestone B, authored the AB3 program to enter System Design & Development (SDD) and designated AB3 as ACAT ID.
July 2006	Apache PM awarded an SDD contract to the Boeing Company to begin the development effort for AB3.
March 2007	A follow-on ADM authorized an LRIP quantity of 59 aircraft and granted the Army authority to procure long-lead items beginning in FY 2009. The APB schedule milestones were established for both Preliminary Design Review and the Critical Design Review.
December 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 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 APUC as reflected in the December 2009 SAR. The DAE supported a rapid Nunn-McCurdy certification in response.
June 2010	Completed Nunn-McCurdy reporting resulting in an ADM certifying the program's progress to Milestone C and formally separating AB3 intotwo MDAPs for cost and reporting purposes: the Apache Block IIIA (AB3A) and Apache Block IIIB (AB3B) programs.
September 2010	Completed a successful Milestone C DAB authorizing LRIP and advance procurement actions for FRP.
October 2010	Awarded an LRIP contract procuring a total of 51 AH-64E Remanufacture aircraft.
October 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.
April 2012	Completed the Initial Operational Test and Evaluation for the AH-64E Remanufacture production aircraft.
June 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.
August 2012	A 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.
June 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.
August 2014	AH-64E Remanufacture Capability Version 4 Follow-on Operational Test & Evaluation successfully concluded on time on at Eglin Air Force Base, Florida. The Version 4 capability is scheduled to be delivered in 2016.

November 2014	The First Unit Equipped, 1-229 Attack Reconnaissance Battalion (ARB), successfully completed the first operational combat deployment of the AH-64E Remanufacture.
December 2014	The Army Acquisition Executive (AAE) approved the Justification and Authorization to enter a Multi-Year (MY) procurement to support production from FY 2017 to FY 2021.
December 2014	The Apache PM delivered 83 AH-64E Remanufacture Attack Helicopters of the 690 Army Acquisition Objective.
August 2015	The Secretary of the Army approved the AH-64E MY procurement, which is on schedule to meet a 2nd Quarter FY 2017 award. Completed Manned/Unmanned Teaming Expanded Capabilities Competition and awarded the contract. Fire Control Radar Maritime Mode Testing occurred from August through September 2015 at Joint Base Little Creek, Virginia.
September 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 Apaches. 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.
September 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. OSD CAPE visited Boeing Mesa to support MY Independent Government Estimate analysis.
February 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.
March 2016	The AAE approved Boeing's MY commitment of 10% savings. Awarded Advance Procurement contract for AH-64E Production Lot 7.
April 2016	Definitized FRP Contract for Lot 5 and Lot 6 for 117 Apache AH-64E Remanufactured aircraft.
April 2016	Definitized the AH-64E System Development and Demonstration Version 6 contract.
November 2016	Apache PM completed fielding to the 5th Unit Equipped (7-17 CAV) at Fort Hood, Texas.
January 2017	Apache PM completed fielding six AH-64E aircraft to Fort Rucker, Alabama.
March 2017	Awarded AH-64E Apache Multi-Year 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.
May 2017	Completed fielding to the 1-227th ARB, Fort Hood, Texas.
May 2017	The Army Acquisition Objective is increased by 77 aircraft from 690 to 767. Authorized Procurement Objective remains at 634 Remanufacture aircraft and 56 New Build aircraft.
June 2017	Apache PM fielded nine AH-64E aircraft to Fort Rucker, Alabama
December 2017	Completed fielding of 24 AH-64E Apache aircraft to 4-4 ARB, Fort Carson, Colorado.
January 2018	Begin fielding to 1-6 Cavalry Regiment, Fort Riley, Kansas.
March 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.
May 2018	Army adjusted the Army Acquisition Objective from 767 to 812 and the Army Procurement Objective to 791 for the AH-64E Apache Helicopter.
June 2018	Began fielding the redesigned strap pack to 1-149 Texas National Guard (NG) in Houston, Texas.

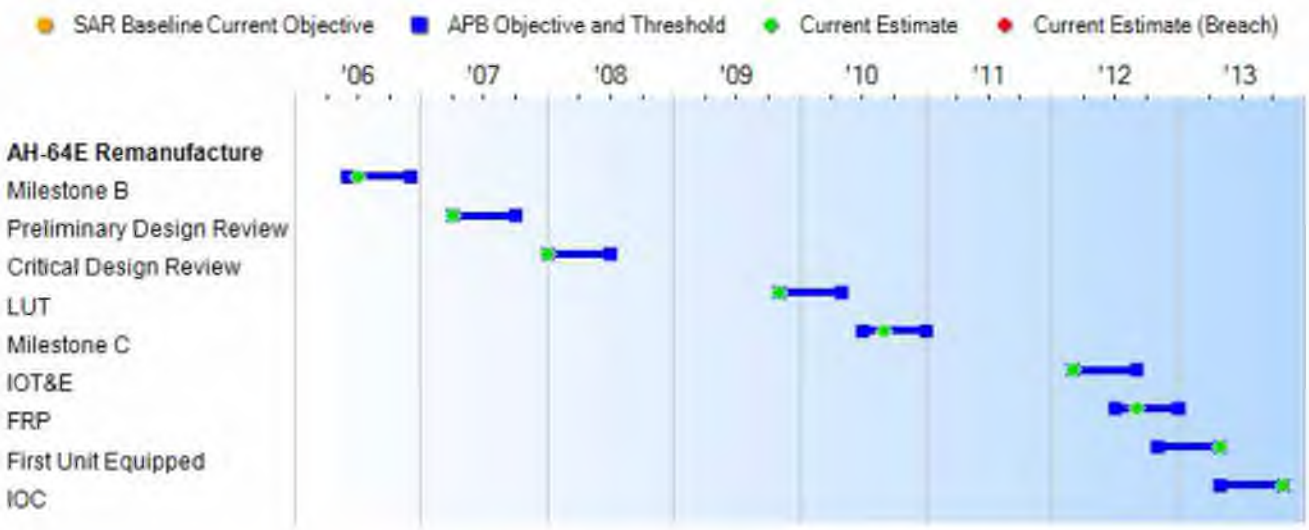
August 2018	Since Boeing has met the conditions to restart, PM Apache resumed inductions acceptance of all U.S. AH-64E Apache Remanufacture and New Build aircraft. Two AH-64Ds were inducted and two AH-64Es were accepted with planned delivery to 7-17 Cavalry Regiment by the end of September 2018.
September 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.
September 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.
September 2018	PM Apache and ACC-Redstone executed options for 48 AH-64E Lot 8 Remanufacture aircraft ($392M) and Advance Procurement for AH-64E Lot 9 ($170M).
November 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 will have fail safe collars installed by April 2019 and the entire Army fleet by July 2019.
December 2018	AH-64E Remanufacture Capability Version 6 Follow-on Operational Test & Evaluation II planned for April 2019.

Threshold Breaches

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

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

Schedule



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

Change Explanations

None

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 and continues through FY 2025.

Acronyms and Abbreviations

IOT&E - Initial Operational Test and Evaluation
LUT - Limited User Test

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Net Ready				
Fully support execution of all operational activities.	Fully support execution of all operational activities.	Fully support execution of joint critical operational activities.	Met Threshold	Support execution of all critical operational activities
Performance				
6000' PA, 95 F OGE Hover (lbs/payload)				
4,100	4,100	3,400	Met Threshold	3400
Mission Reliability				
MTBF(M) hrs.				
Lot 1				
22	22	15.3	Met Objective	24.5
Lot 4				
22	22	17	Met Objective	24.5
MR for 3.5 hr. flight (%)				
85	85	80	Met Objective	86.7
Survivability				
Safe operation (minutes)				
30	30	30	Met Objective	30
Survive Band IV MANPADS IR Missile Engagement				
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	IAW JROCM 086-10
Force Protection				
Crewstation armor survivability (mm)				
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	IAW JROCM 086-10
Crewstation armor barrier survivability (mm)				
IAW JROCM 086-10	IAW JROCM 086-10	IAW JROCM 086-10	Met Objective	IAW JROCM 086-10

Requirements Reference

CPD dated June 1, 2010

Change Explanations

None

Notes

Net Ready KPP compliance is achieved by meeting the information exchange capabilities required by the Integrated Architectures Operational View-1 and is demonstrated by completing Joint Interoperability Certification, Army Interoperability Certification and DoD Information Assurance and Accreditation Process.

Mission Reliability based on Reliability, Availability, and Maintainability data derived from performance of fielded aircraft and scored aircraft data from testing.

Materiel Availability = Operational Availability (Fully Mission Capable Time plus Partially Mission Capable Time)

The cumulative Operational Availability rate of fielded AH-64E aircraft as of the December reporting period for aircraft engaged in combat operations is 80%.

Acronyms and Abbreviations

% - Percent
' - feet
F - Fahrenheit
hr - hour
hrs - hours
IAW - In Accordance With
IR - Infrared
JROCM - Joint Requirements Oversight Council Memorandum
lbs - Pounds
MANPADS - Man Portable Air Defense System
mm - Millimeters
MR - Mission Reliability
MTBF (M) - Mean Time Between Failure (Mission)
OGE - Out of Ground Effect
PA - Pressure Altitude

Track to Budget

RDT&E

Appn	BA	PE
Army	2040 07	0203744A

Project	Name	
D17	Aircraft Modifications/Product Improvement Programs	(Sunk)

Appn	BA	PE
Army	2040 07	0607135A

Project	Name	
ES2	Apache Product Improvement Program	(Sunk)

Procurement

Appn	BA	PE
Army	2031 01	0210100A

Line Item	Name	
A05111	AH-64 Apache Block IIIA Reman	

Appn	BA	PE
Army	2031 02	0210102A

Line Item	Name	
AA6606	AH-64 Mods	(Sunk)

Notes: Prior to FY 2009 and creation of the AH-64E program, this line was shared to reflect AH-64E advance procurement.

Acq O&M

Appn	BA	PE
Army	2020 04	0702806A

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

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2010 $M			BY 2010 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	1611.8	1504.2	1654.6	1490.0	1664.7	1557.8	1538.2
Procurement	8856.9	10088.1	11096.9	10880.1	10231.9	12041.7	12798.5
Flyaway	--	--	--	9934.5	--	--	11641.9
Recurring	--	--	--	9885.8	--	--	11584.1
Non Recurring	--	--	--	48.7	--	--	57.8
Support	--	--	--	945.6	--	--	1156.6
Other Support	--	--	--	810.8	--	--	994.3
Initial Spares	--	--	--	134.8	--	--	162.3
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	106.8	0.0	0.0	135.1
Total	10468.7	11592.3	N/A	12476.9	11896.6	13599.5	14471.8

Cost Notes

No revised cost estimate for the program was completed in the previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	5	5	5
Procurement	634	634	626
Total	639	639	631

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	1538.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1538.2
Procurement	8066.0	1010.1	961.5	705.5	678.8	805.5	571.1	0.0	12798.5
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	14.6	16.8	15.2	17.1	17.6	18.0	17.9	17.9	135.1
PB 2021 Total	9618.8	1026.9	976.7	722.6	696.4	823.5	589.0	17.9	14471.8
PB 2020 Total	9623.8	1015.5	980.5	724.6	818.2	825.6	616.7	20.0	14624.9
Delta	-5.0	11.4	-3.8	-2.0	-121.8	-2.1	-27.7	-2.1	-153.1

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	5	0	0	0	0	0	0	0	0	5
Production	0	388	49	50	31	34	42	32	0	626
PB 2021 Total	5	388	49	50	31	34	42	32	0	631
PB 2020 Total	5	388	48	50	31	42	39	36	0	639
Delta	0	0	1	0	0	-8	3	-4	0	-8

Cost and Funding

Annual Funding By Appropriation

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
		TY $M					
Fiscal Year	Quantity	End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	--	--	--	57.0
2006	--	--	--	--	--	--	107.1
2007	--	--	--	--	--	--	119.9
2008	--	--	--	--	--	--	184.8
2009	--	--	--	--	--	--	218.2
2010	--	--	--	--	--	--	149.0
2011	--	--	--	--	--	--	90.7
2012	--	--	--	--	--	--	89.8
2013	--	--	--	--	--	--	120.7
2014	--	--	--	--	--	--	112.4
2015	--	--	--	--	--	--	86.1
2016	--	--	--	--	--	--	63.0
2017	--	--	--	--	--	--	61.0
2018	--	--	--	--	--	--	55.6
2019	--	--	--	--	--	--	22.9
Subtotal	5	--	--	--	--	--	1538.2

Annual Funding 2040 | RDT&E | Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2010 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	--	--	--	61.7
2006	--	--	--	--	--	--	112.8
2007	--	--	--	--	--	--	123.4
2008	--	--	--	--	--	--	186.6
2009	--	--	--	--	--	--	217.5
2010	--	--	--	--	--	--	146.3
2011	--	--	--	--	--	--	87.4
2012	--	--	--	--	--	--	85.2
2013	--	--	--	--	--	--	112.5
2014	--	--	--	--	--	--	102.8
2015	--	--	--	--	--	--	77.4
2016	--	--	--	--	--	--	56.1
2017	--	--	--	--	--	--	53.2
2018	--	--	--	--	--	--	47.7
2019	--	--	--	--	--	--	19.4
Subtotal	5	--	--	--	--	--	1490.0

Annual Funding 2031 | Procurement | Aircraft Procurement, Army							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	28.4	--	--	28.4	--	28.4
2010	8	230.0	--	--	230.0	--	230.0
2011	16	508.4	--	--	508.4	--	508.4
2012	27	609.3	--	--	609.3	--	609.3
2013	37	593.6	--	--	593.6	--	593.6
2014	35	671.6	--	18.0	689.6	62.9	752.5
2015	53	1034.9	--	2.6	1037.5	85.9	1123.4
2016	64	1256.9	--	2.7	1259.6	93.8	1353.4
2017	52	933.7	--	3.7	937.4	96.6	1034.0
2018	48	824.3	--	3.4	827.7	77.5	905.2
2019	48	845.3	--	3.6	848.9	78.9	927.8
2020	49	886.3	--	3.7	890.0	120.1	1010.1
2021	50	856.0	--	3.9	859.9	101.6	961.5
2022	31	596.0	--	3.9	599.9	105.6	705.5
2023	34	566.9	--	4.0	570.9	107.9	678.8
2024	42	690.9	--	4.1	695.0	110.5	805.5
2025	32	451.6	--	4.2	455.8	115.3	571.1
Subtotal	626	11584.1	--	57.8	11641.9	1156.6	12798.5

Annual Funding 2031 | Procurement | Aircraft Procurement, Army							
Fiscal Year	Quantity	BY 2010 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	28.1	--	--	28.1	--	28.1
2010	8	224.0	--	--	224.0	--	224.0
2011	16	486.3	--	--	486.3	--	486.3
2012	27	573.1	--	--	573.1	--	573.1
2013	37	548.5	--	--	548.5	--	548.5
2014	35	611.1	--	16.4	627.5	57.2	684.7
2015	53	927.2	--	2.3	929.5	77.0	1006.5
2016	64	1111.3	--	2.4	1113.7	82.9	1196.6
2017	52	809.2	--	3.2	812.4	83.7	896.1
2018	48	700.1	--	2.9	703.0	65.8	768.8
2019	48	702.5	--	3.0	705.5	65.6	771.1
2020	49	722.3	--	3.0	725.3	97.9	823.2
2021	50	684.6	--	3.1	687.7	81.3	769.0
2022	31	467.3	--	3.1	470.4	82.8	553.2
2023	34	435.8	--	3.1	438.9	82.9	521.8
2024	42	520.7	--	3.1	523.8	83.3	607.1
2025	32	333.7	--	3.1	336.8	85.2	422.0
Subtotal	626	9885.8	--	48.7	9934.5	945.6	10880.1

Cost Quantity Information 2031 | Procurement | Aircraft Procurement, Army		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2010 $M**
2009	--	--
2010	8	184.2
2011	16	382.6
2012	27	531.6
2013	37	641.4
2014	35	556.3
2015	53	707.1
2016	64	1078.3
2017	52	794.2
2018	48	777.0
2019	48	850.5
2020	49	772.5
2021	50	718.4
2022	31	491.1
2023	34	495.0
2024	42	549.9
2025	32	355.7
Subtotal	626	9885.8

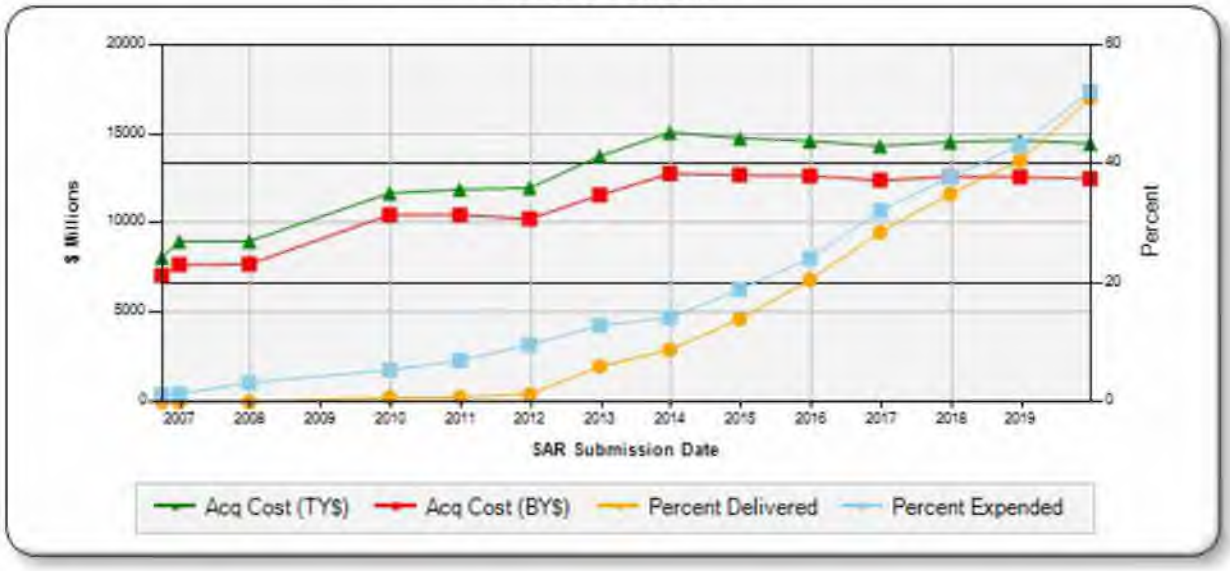
Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	TY $M
	Total Program
2019	14.6
2020	16.8
2021	15.2
2022	17.1
2023	17.6
2024	18.0
2025	17.9
2026	17.9
Subtotal	135.1

Annual Funding 2020 | Acq O&M | Operation and Maintenance, Army	
Fiscal Year	BY 2010 $M
	Total Program
2019	12.4
2020	14.0
2021	12.4
2022	13.7
2023	13.8
2024	13.8
2025	13.5
2026	13.2
Subtotal	106.8

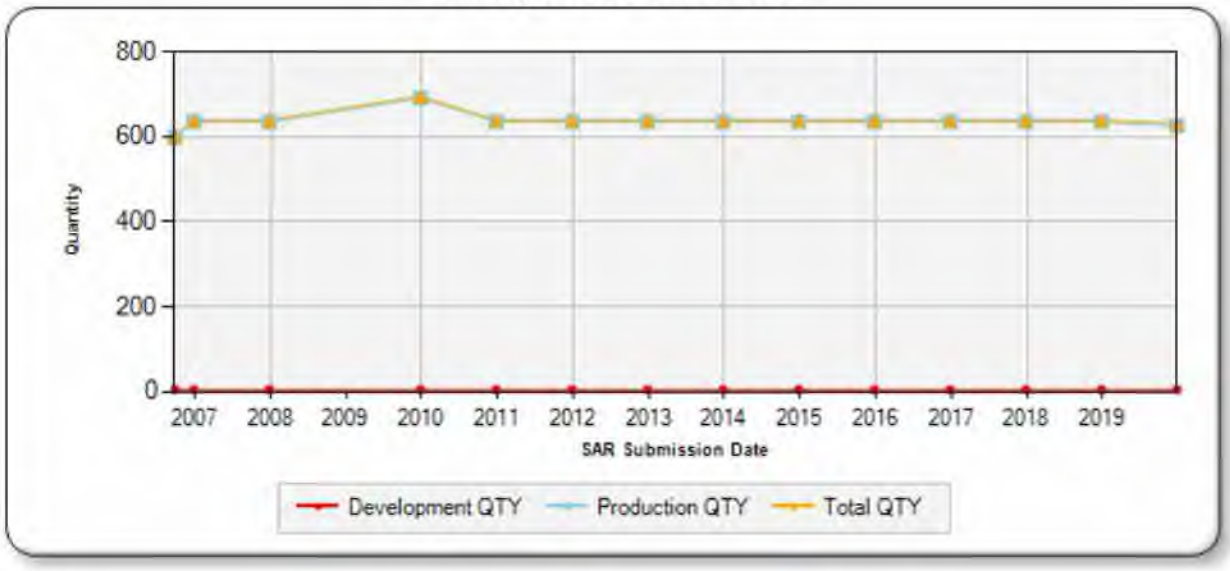
Charts

AH-64E Remanufacture first began SAR reporting in September 2006

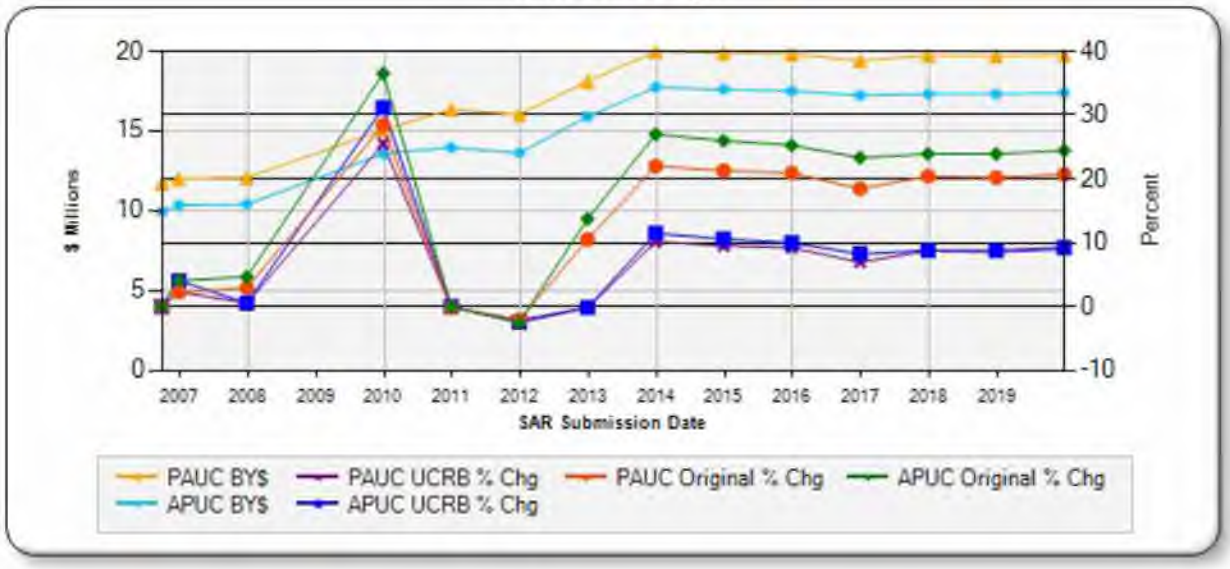
Program Acquisition Cost - AH-64E Remanufacture
Base Year 2010 $M



Quantity - AH-64E Remanufacture



Unit Cost - AH-64E Remanufacture
Base Year 2010 $M



Risks

Significant Schedule and Technical Risks

Significant Schedule and Technical Risks	
Full Rate Production (August 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.
Milestone B (July 2006)	
1.	Insufficient fidelity of Lot 6 functionality requirements
2.	Reliability KPP
3.	Performance KPP
4.	Net Ready KPP
Milestone C (September 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 pre-modification 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.
Current Estimate (December 2019)	
1.	The AH-64E program meets all Key Performance Parameters and remains on schedule and affordable. The program currently remains on schedule to deliver IAW the HQDA fielding plan. The AH-64E Apache program will not be re-certified until the Strap Pack Product Improvement (SPPI) is complete, which is when Boeing completes design, qualification, and the Army issues a fielding Air Worthiness Release for the Strap Pack Product Improvement (SPPI) effort, 2QTRFY20. The Apache Project Office continues to implement the

Quality Campaign Plan which is the program's strategy to improve existing deficiencies including a path forward for Critical Safety Item program compliance, improved supply chain quality management, increased Government audits and oversight, and multiple efforts to increase product reliability / reduce Soldier burden.

Risks

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (November 2012)	
1.	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.
Original Baseline Estimate (August 2006)	
1.	The Apache Original Baseline was set by the DAE in a July 10, 2006 ADM, approving Milestone B. The SCP estimated the procurement cost using actuals from the Apache Extended Block II (EB II) Production program. The prime contractor lacked an AB3 production line and there were several years where EBII and AB3 production overlapped. The most significant cost drivers in the Apache estimate are manufacturing costs of material, labor costs, prime contractors labor and overhead rates and factors. 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 was included in the FY 2011 PB at a total of $2.6B. These additional aircraft procurements would be New Build aircraft at a unit cost significantly higher than the Remanufacture unit cost and were not included in the original baseline ACP. This increased unit cost, compounded with minor fact-of-life changes throughout the program, caused a Nunn-McCurdy APUC breach, reflected in the December 2009 SAR. The DAE supported a rapid Nunn-McCurdy certification in response.
Revised Original Estimate (December 2010)	
1.	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 Procurement Cost (December 2019)	
1.	The Apache current estimate is based on the 2012 OSD CAPE ICE and adjusted for fact of life changes and updated actuals of the current Remanufacture production line. The Apache Current Estimate cost model reflects a 50% Confidence Level estimate through its use of actual costs. The most significant cost drivers in the Apache estimate remain the material and labor. Significant increases over the past few years to the prime contractor labor rates and overhead factors contribute to the Apache cost growth. Additionally, the Apache program experienced growth as the Army moved aircraft and sensor Recapitalization Funds into the Aircraft Procurement, Army AH-64E Remanufacture Budget Line Item Number (BLIN) which was historically captured in the AH-64E Apache Modifications BLIN. This was not included in the FRP OSD CAPE ICE (the Current Baseline) and added ~$542M to the total program cost. The Apache program assumed risk procuring radios, which were to be provided by JPO JTRS. The Link-16 hardware added ~$178M to the total program cost. The Apache program experienced funding challenges with a Congressional rescission in FY2013 and impacts of the Budget Control Act, all of which impacted the quantity of aircraft procured, therefore increasing unit costs and driving cost growth. Given the current and anticipated fiscal environment, there may be continued budgetary pressures on the program leading to a reduction in Apache annual procurement quantities. The Apache cost model projects increases to contract unit costs with quantity reductions. The Apache program signed a five year Multi-Year Contract from FY

2017 through FY 2021.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/7/2010	10/7/2010
Approved Quantity	51	51
Reference	Milestone C ADM	Milestone C ADM
Start Year	2010	2010
End Year	2013	2013

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Description
Netherlands	7/31/2018	28	576.0	Fully Implemented
United Arab Emirates	1/9/2018	26	606.8	Fully Implemented
United Kingdom	6/24/2016	50	1260.3	Fully Implemented

Notes

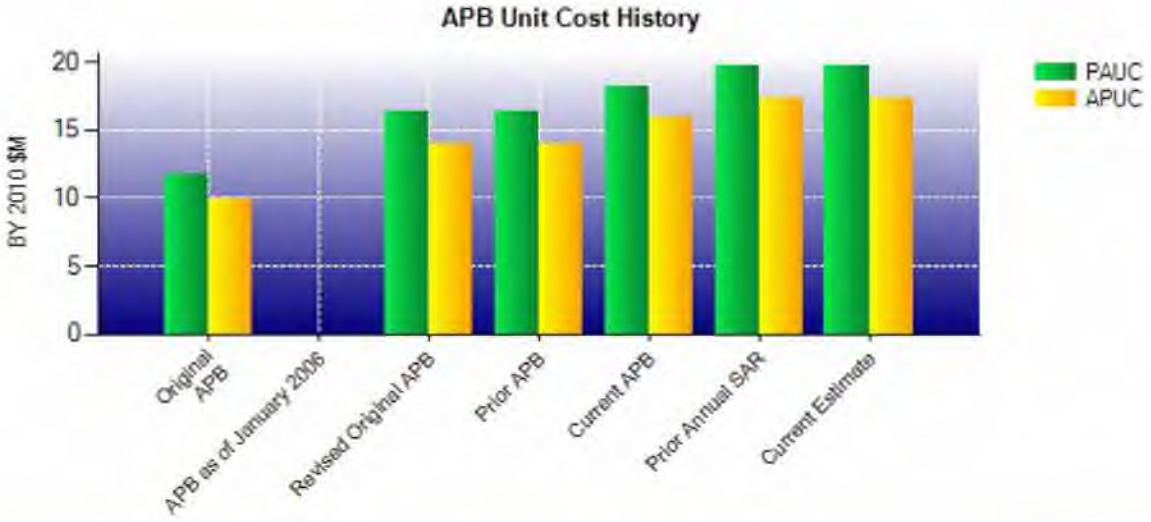
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 $M Current UCR Baseline (Nov 2012 APB)	BY 2010 $M Current Estimate (Dec 2019 SAR)	% Change
Program Acquisition Unit Cost			
Cost	11592.3	12476.9	
Quantity	639	631	
Unit Cost	18.141	19.773	+9.00
Average Procurement Unit Cost			
Cost	10088.1	10880.1	
Quantity	634	626	
Unit Cost	15.912	17.380	+9.23

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2010 $M Revised Original UCR Baseline (Dec 2010 APB)	BY 2010 $M Current Estimate (Dec 2019 SAR)	% Change
Program Acquisition Unit Cost			
Cost	10468.7	12476.9	
Quantity	639	631	
Unit Cost	16.383	19.773	+20.69
Average Procurement Unit Cost			
Cost	8856.9	10880.1	
Quantity	634	626	
Unit Cost	13.970	17.380	+24.41



APB Unit Cost History					
Item	Date	BY 2010 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Aug 2006	11.735	9.945	13.445	11.649
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	Dec 2010	16.383	13.970	18.618	16.139
Prior APB	Dec 2010	16.383	13.970	18.618	16.139
Current APB	Nov 2012	18.141	15.912	21.282	18.993
Prior Annual SAR	Dec 2018	19.694	17.310	22.887	20.403
Current Estimate	Dec 2019	19.773	17.380	22.935	20.445

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
13.445	-0.626	-0.159	0.231	0.000	3.961	0.000	1.766	5.173	18.618

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
18.618	0.159	0.054	0.009	0.000	4.973	0.000	-0.878	4.317	22.935

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
11.649	-0.614	-0.056	0.233	0.000	3.147	0.000	1.780	4.490	16.139

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
16.139	0.140	0.022	-0.040	0.000	5.069	0.000	-0.885	4.306	20.445

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Jun 2006	Jun 2006	Jul 2006
Milestone C	N/A	Apr 2010	Jul 2010	Sep 2010
IOC	N/A	Jan 2013	May 2013	Nov 2013
Total Cost (TY $M)	N/A	8093.9	11896.6	14471.8
Total Quantity	N/A	602	639	631
PAUC	N/A	13.445	18.618	22.935

Cost Variance

Summary TY $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1664.7	10231.9	--	--	11896.6
Previous Changes					
Economic	+11.8	+99.2	--	+1.0	+112.0
Quantity	--	--	--	--	--
Schedule	+30.8	-29.2	--	--	+1.6
Engineering	--	--	--	--	--
Estimating	-168.0	+3312.3	--	+149.3	+3293.6
Other	--	--	--	--	--
Support	--	-678.9	--	--	-678.9
Subtotal	-125.4	+2703.4	--	+150.3	+2728.3
Current Changes					
Economic	--	-11.5	--	-0.2	-11.7
Quantity	--	-115.0	--	--	-115.0
Schedule	--	+4.0	--	--	+4.0
Engineering	--	--	--	--	--
Estimating	-1.1	-139.3	--	-15.0	-155.4
Other	--	--	--	--	--
Support	--	+125.0	--	--	+125.0
Subtotal	-1.1	-136.8	--	-15.2	-153.1
Total Changes	-126.5	+2566.6	--	+135.1	+2575.2
Current Estimate	1538.2	12798.5	--	135.1	14471.8

Summary BY 2010 $M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Production Estimate)	1611.8	8856.9	--	--	10468.7
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	+25.9	-8.9	--	--	+17.0
Engineering	--	--	--	--	--
Estimating	-146.8	+2750.3	--	+118.7	+2722.2
Other	--	--	--	--	--
Support	--	-623.5	--	--	-623.5
Subtotal	-120.9	+2117.9	--	+118.7	+2115.7
Current Changes					
Economic	--	--	--	--	--
Quantity	--	-85.0	--	--	-85.0
Schedule	--	+0.3	--	--	+0.3
Engineering	--	--	--	--	--
Estimating	-0.9	-105.4	--	-11.9	-118.2
Other	--	--	--	--	--
Support	--	+95.4	--	--	+95.4
Subtotal	-0.9	-94.7	--	-11.9	-107.5
Total Changes	-121.8	+2023.2	--	+106.8	+2008.2
Current Estimate	1490.0	10880.1	--	106.8	12476.9

Previous Estimate: December 2018

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised estimate to reflect FY 2019 actuals. (Estimating)	-0.9	-1.1
RDT&E Subtotal	-0.9	-1.1

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-11.5
Total Quantity variance resulting from a decrease of eight AH-64E Remanufacture aircraft from 634 to 626. (Subtotal)	-113.8	-154.0
Quantity variance resulting from a decrease of eight AH-64E Remanufacture from 634 to 626. (Quantity)	(-85.0)	(-115.0)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+0.3)	(+0.4)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-29.1)	(-39.4)
Adjustment of procurement buy profile between FY 2023 and FY 2025. (Schedule)	0.0	+3.6
Revised estimate to reflect FY 2019 actuals. (Estimating)	+5.7	+8.1
Revised estimate to reflect quantity adjustments from FY 2023 - FY 2025. (Estimating) (QR)	-84.8	-111.6
Adjustment for current and prior escalation. (Estimating)	+2.8	+3.6
Adjustment for current and prior escalation. (Support)	+0.5	+0.3
Increase in Other Support due to changes in estimating methodology. (Support)	+97.0	+127.7
Decrease in Initial Spares due to methodology updates to reflect latest costs. (Support)	-2.1	-3.0
Procurement Subtotal	-94.7	-136.8

(QR) Quantity Related

Acq O&M	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.2
Revised estimate to align with FY 2021 PB. (Estimating)	-12.0	-15.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
Acq O&M Subtotal	-11.9	-15.2

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: AH-64E Apache Multi-Year Contract
Contractor: The Boeing Company
Contractor Location: 5000 E McDowell Road
Mesa, AZ 85215-9707
Contract Number: W58RGZ-16-C-0023
Contract Type: Firm Fixed Price (FFP)
Award Date: March 15, 2017
Definitization Date: March 15, 2017

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
3030.5	N/A	244	3124.6	N/A	244	3124.6	3124.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to a directed change and exercise of options.

Cost and Schedule Variance Explanations

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

Notes

August 2018: Boeing met the conditions to restart, the U.S. Government resumed acceptance of all U.S. AH-64E Apache Remanufacture and New Build aircraft.

November 2018: The Army stopped fielding of the redesigned strap pack and began legacy strap pack collar retrofit starting with severe coastal units. Fail safe collar fielding was completed in May 2019.

Contract Identification

Appropriation: Procurement
Contract Name: MTADS/PNVS Production/Services IDIQ
Contractor: Lockheed Martin
Contractor Location: 5600 W Sand Lake Road
MP-263
Orlando, FL 32819-8907
Contract Number: W52P1J-17-D-0043
Contract Type: Firm Fixed Price (FFP)
Award Date: April 28, 2017
Definitization Date: April 28, 2017

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
0.5	N/A	0	80.8	N/A	9	4656.0	4656.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to only one Task Order/Delivery Order (TO/DO) that was awarded with the initial contract. The current contract price includes multiple TO/DO which were awarded.

Cost and Schedule Variance Explanations

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

Notes

Quantities are reflective of complete Modernized Target Acquisition Designation Sight (MTADS)/Pilot Night Vision Sensor (PNVS) systems, but multiple Line Replaceable Unit's / Line Replaceable Modules are contained within a MTADS/PNVS system.

Contract Identification

Appropriation: Procurement
Contract Name: REU/MMA Production & Services IDIQ
Contractor: Longbow Limited Liability (LBL)
Contractor Location: 5600 Sand Lake Road
Orlando, FL
Contract Number: W52P1J-16-D-0055
Contract Type: Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF)
Award Date: August 18, 2016
Definitization Date: June 30, 2017

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
23.4	N/A	22	59.1	N/A	70	931.2	931.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to only one Task Order/Delivery Order (TO/DO) that was awarded with the initial contract. The current contract price includes multiple TO/DO which were awarded.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/CPFF) contract.

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because the cost or incentive portion does not meet the threshold requirements for earned value management reporting.

Contract Identification

Appropriation: Procurement
Contract Name: MUMT Production & Services IDIQ
Contractor: L3 Communications Systems - West
Contractor Location: UT
Contract Number: W52P1J-17-D-0070
Contract Type: Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF)
Award Date: August 31, 2017
Definitization Date: August 31, 2017

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
66.6	N/A	233	145.8	N/A	496	226.6	226.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to only one Task Order/Delivery Order (TO/DO) that was awarded with the initial contract. The current contract price includes multiple TO/DO which were awarded.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP/CPFF) contract.

General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because the cost or incentive portion does not meet the threshold requirements for earned value management reporting.

Contract Identification

Appropriation: Procurement
Contract Name: MRFI Production & Services IDIQ
Contractor: Lockheed Martin Rotary and Mission Systems
Contractor Location: 1801 STATE RT 17 C
Owego, NY 13827-3900
Contract Number: W52P1J-18-D-0061
Contract Type: Firm Fixed Price (FFP)
Award Date: September 01, 2018
Definitization Date: July 29, 2019

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
11.8	N/A	15	31.0	N/A	108	249.5	249.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional quantities being placed on contract.

Cost and Schedule Variance Explanations

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

Contract Identification

Appropriation: Procurement
Contract Name: EI2 Camera Production
Contractor: Intevac Photonics
Contractor Location: 3560 Bassett St
Santa Clara, CA 95054-2704
Contract Number: W58RGZ-15-C-0052
Contract Type: Firm Fixed Price (FFP)
Award Date: June 12, 2015
Definitization Date: June 12, 2015

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
12.6	N/A	N/A	13.0	N/A	N/A	32.5	32.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to estimating.

Cost and Schedule Variance Explanations

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

Contract Identification

Appropriation: Procurement
Contract Name: M-RFI Lot 1 Production
Contractor: Lockheed Martin
Contractor Location: 1801 NY-17C
Owego, NY 13827
Contract Number: W52P1J-16-C-0007
Contract Type: Firm Fixed Price (FFP)
Award Date: May 31, 2016
Definitization Date: May 31, 2016

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
7.4	N/A	10	71.7	N/A	62	85.1	85.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the procurement of additional hardware.

Cost and Schedule Variance Explanations

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

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	5	5	5	100.00%
Production	317	317	626	50.64%
Total Program Quantity Delivered	322	322	631	51.03%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	14471.8	Years Appropriated	16
Expended to Date	7543.0	Percent Years Appropriated	72.73%
Percent Expended	52.12%	Appropriated to Date	10645.7
Total Funding Years	22	Percent Appropriated	73.56%

The above data is current as of February 10, 2020.

Operating and Support Cost

Cost Estimate Details

Date of Estimate: January 13, 2020
Source of Estimate: POE
Quantity to Sustain: 626
Unit of Measure: Aircraft
Service Life per Unit: 20.00 Years
Fiscal Years in Service: FY 2012 - FY 2047

The O&S cost estimate is based upon the OSD CAPE ICE dated August 15, 2012. The estimate was last updated on January 13, 2020 for fact-of-life changes.

The sustainment quantity of 626 aircraft differs from the acquisition quantity of 631 aircraft by five aircraft. Those five aircraft were procured as limited test articles only and do not become part of the operational inventory.

Sustainment Strategy

The AH-64E Apache is maintained in a two level maintenance system (field and depot) by a mix of Soldier and civilian maintainers. The strategy assumes the fielding of 626 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 Information

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)

Annual O&S Costs BY2010 $M		
Cost Element	**AH-64E Remanufacture Average Annual Cost Per Aircraft**	**Longbow Apache (Antecedent) Average Annual Cost Per Aircraft**
Unit-Level Manpower	0.967	1.538
Unit Operations	0.136	0.205
Maintenance	0.608	1.148
Sustaining Support	0.257	0.355
Continuing System Improvements	0.057	0.073
Indirect Support	0.031	0.101
Other	0.000	0.000
Total	2.056	3.420

Item	Total O&S Cost $M			
	AH-64E Remanufacture			Longbow Apache (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	38506.0	42356.6	25737.1	50776.7
Then Year	53639.0	N/A	38234.0	N/A

The AH-64E Remanufacture estimate is updated to reflect fact-of-life changes to the Apache AH-64E support program as of January 13, 2020.

Equation to Translate Annual Cost to Total Cost

626 Helicopters x 20 Years Operational Life x $2,056K Unitized Cost = $25,737.4M (BY 2010 $M)

The discrepancy between the reported cost and the equation is due to rounding.

O&S Cost Variance		
Category	**BY 2010 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2018 SAR	35149.4	
Programmatic/Planning Factors	-431.7	Decrease in Remanufacture Procurement quantity.
Cost Estimating Methodology	0.0	
Cost Data Update	-770.0	Updated spares, reparables, and POL with latest actuals.
Labor Rate	-8210.6	Army Military-Civilian Costing System Manpower Cost factors changed.
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	-9412.3	
Current Estimate	25737.1	

The large reduction in labor cost shown in the Apache Operating & Support costs is the result of the changes to the Army Military & Civilian Costing System (AMCOS) model implemented this spring. The decrease in training is the most drastic in some aviation specialties including AH-64E pilots. This difference is a result of several items: averaging of training across 3 years of data to stabilize training attendee spikes we see in the ATRRS data (data showing who attended which courses); the replacement of amortization with cross grade level averaging which reduces the variability that continuation rates (probability of someone continuing from one year to the next) had on the model's costs, most notably training elements; elimination of variable weighing (training for specific MOSes were given a greater weight in the model then courses attributable to an entire pay plan or group (CMF); and finally adjustments were made so that the total training expenditures calculated in AMCOS (attendee driven) lined up with the President's Budget submission (budget data). With the introduction of weapon system cost detail in the spring 2018 release AMCOS analysts started to notice increased variability because of the lower level the model is calculating cost at. The cost changes in this release are driven by the changes noted above to deliver a more consistent and accurate cost estimate in the model going forward.

Disposal Estimate Details

Date of Estimate:	August 15, 2012
Source of Estimate:	CAPE ICE
Disposal/Demilitarization Total Cost (BY 2010 $M):	46.0

Total Disposal Costs for both the AH-64E Remanufacture and AH-64E New Build aircraft is $46.03M (BY 2010 $M) in accordance with the OSD CAPE ICE dated August 15, 2012.