Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-277

Airborne Warning and Control System Block 40/45 Upgrade (AWACS Blk 40/45 Upgrade)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President’s Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Airborne Warning and Control System Block 40/45 Upgrade (AWACS Blk 40/45 Upgrade)

DoD Component

Air Force

Responsible Office

Responsible Office

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References

SAR Baseline (Production Estimate)

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 1, 2013

Approved APB

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 1, 2013

Mission and Description

The Airborne Warning and Control System (AWACS) provides a highly mobile, flexible, survivable theater Battle Management, Wide Area Surveillance, and Command and Control (C2) capability. It is capable of detecting, identifying, and tracking airborne and maritime targets at extended ranges as well as identifying air/ground emitters. AWACS can relay “big picture” information to C2 agencies and friendly aircraft. AWACS provides worldwide response to situations requiring immediate on-scene C2/BM using embedded real-time surveillance for employment of US and allied combat air forces. AWACS is critical to gaining and maintaining battle-space air superiority. AWACS coordinates with both tactical and C2 assets in theater to execute the air mission.

The AWACS Block 40/45 Upgrade Program is the largest modification in US AWACS history and represents the critical foundation and baseline system required for all future AWACS enterprise modifications including net-centric operations. The AWACS Block 40/45 Upgrade provides a single target/single track capability with an improved human-machine interface for time-critical targeting designed to increase combat effectiveness and reduce fratricide. The AWACS Block 40/45 Upgrade Program includes an upgrade to Electronic Support Measures sensor data processing; Multi-Source Integration; a Data Link Infrastructure with prioritized data link bandwidth management for Link 16/Link 11; new battle management tools; capability to parse, allow user access to, and integrate Air Control Order/Air Tasking Order data; and enhanced mission and console recording capabilities.

Executive Summary

The AWACS Block 40/45 Upgrade Program continues to meet all Key Performance Parameters. During Calendar Year (CY) 2013, E-3 Block 40/45 LRIP installation and deliveries to the 552 Air Control Wing continue to be on schedule. Two E-3 aircraft completed modification this past year and were re-designated from an E-3B/C to an E-3G. There have been eleven kits procured to date with five modified aircraft delivered through January 31, 2014.

With delivery of the fifth 40/45 modified aircraft to the 552 Air Control Wing, in accordance with AWACS Block 40/45 Upgrade APB dated May 1, 2013, the PM, on January 7, 2014, declared IOC Required Assets Available (RAA) had been met.

Significant accomplishments in CY 2013 include:

- Completed Avionics Integration Support Facility partial E-3G software maintenance capability upgrade on February 8, 2013.
- Completed the fourth and fifth E-3G modification on May 13, 2013 and December 23, 2013.
- Delivered two deployable Ground Systems to the 552 Air Control Wing on August 1, 2013.
- Upgraded Ground Support System to the E-3G 2.0 configuration on October 29, 2013.
- Delivered the Mission Computing Maintenance Trainer to the user on October 21, 2013.
- Awarded the Full Rate Production options contract to Boeing on December 27, 2013.

FY 2014 and 2015 funding reductions significantly impact the program’s APB scheduled Full Operational Capability RAA date. Additionally, the FY 2015 PB decision divests 7 E-3B Aircraft (23% of the current AWACS fleet) and results in a "Significant Breach" of both the AWACS Block 40/45 Upgrade Program PAUC and APUC for the current APB baseline despite decreases in overall program acquisition cost and procurement costs from the Current and Original Baseline estimates.

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

Threshold Breaches

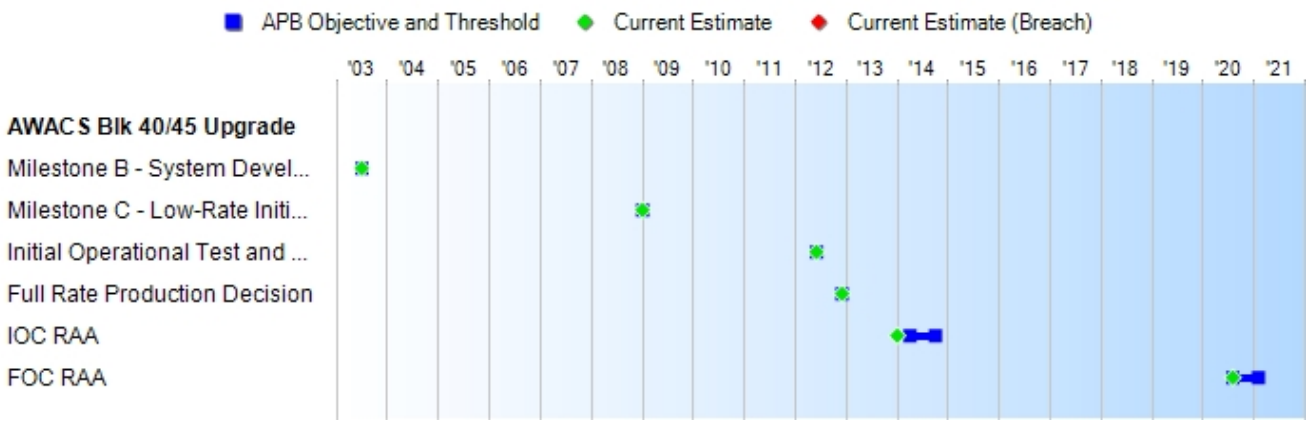
APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☑
	APUC	☑

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

Explanation of Breach

The System Program Office has been aggressive in controlling AWACS Block 40/45 Upgrade Program costs. The FY 2015 PB decision divests 7 E-3B Aircraft (23% of the current AWACS fleet) and results in a "Significant Breach" of both the AWACS Block 40/45 Upgrade Program PAUC and APUC for the current APB baseline despite decreases in overall program acquisition cost and procurement costs from the Current and Original Baseline estimates.

Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	
Milestone B - System Development and Demonstration	JUL 2003	JUL 2003	JUL 2003	JUL 2003	
Milestone C - Low-Rate Initial Production	JAN 2009	JAN 2009	JAN 2009	JAN 2009	
Initial Operational Test and Evaluation Complete (IOT&E)	JUN 2012	JUN 2012	JUN 2012	JUN 2012	
Full Rate Production Decision	DEC 2012	DEC 2012	DEC 2012	DEC 2012	
IOC RAA	APR 2014	APR 2014	OCT 2014	JAN 2014	(Ch-1)
FOC RAA	AUG 2020	AUG 2020	FEB 2021	AUG 2020	

Change Explanations

(Ch-1) IOC RAA current estimate was changed from April 2014 to January 2014 to reflect actual completion date.

Memo

On June 17, 2013, the SAR Baseline Prod Est, Current Production APB Objective and Threshold, and Current Estimate for IOT&E milestone have been corrected from June 2011 to June 2012, to reflect the actual date of accomplishment.

IOC RAA is the date five Block 40/45 E-3G Sentry AWACS aircraft are delivered to ACC. On January 7, 2014 IOC RAA was declared after the fifth delivery to ACC.

FOC RAA is the date all Block 40/45 E-3G Sentry AWACS aircraft and associated ground systems are delivered to ACC.

Acronyms and Abbreviations

ACC - Air Combat Command
FOC - Full Operational Capability
RAA - Required Assets Available

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Multi-Source Integration	(Objective = Threshold) All target data shall be correlated, fused, and integrated into a single track	(Objective = Threshold) All target data shall be correlated, fused, and integrated into a single track	All target data shall be correlated, fused, and integrated into a single track	TBD	Same as Threshold. All target data shall be correlated, fused, and integrated into a single track.
Net Ready	System must fully support execution of all activities identified in joint and system integrated architectures. 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) Net-Centric Operations and Warfare Reference Model Enterprise Services. 4) IA requirements and issuance of an ATO by	System must fully support execution of all activities identified in joint and system integrated architectures. 1) DISR mandated GIG IT standards and profiles identified in the TV-1. 2) DISR mandated GIG KIPs identified in the KIP declaration table. 3) Net-Centric Operations and Warfare Reference Model Enterprise Services. 4) IA requirements and issuance of an ATO by	System must fully support execution of joint critical activities identified in joint and system integrated architectures. System must satisfy the technical requirements for future transition to Net-Centric operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1; 2) DISR mandated GIG KIPs identified in the KIP declaration table; 3) Net-Centric Operations	TBD	Same as Threshold. System must fully support execution of joint critical activities identified in joint and system integrated architectures. System must satisfy the technical requirements for future transition to Net-Centric operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1; 2) DISR mandated GIG KIPs identified in the KIP declaration table; 3) Net-

	the DAA. 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.	the DAA. 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.	and Warfare Reference Model Enterprise Services; 4) IA requirements and issuance of an IATO by the DAA; 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.		Centric Operations and Warfare Reference Model Enterprise Services; 4) IA requirements and issuance of an IATO by the DAA; 5) Operationally-effective information exchanges and mission critical performance specified in the applicable joint and system integrated architecture views.

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

Requirements Source

Operational Requirements Document (ORD) (Combat Air Forces (CAF) 010-02-I/II) dated June 16, 2009 (in lieu of Capability Production Document) (CPD))

Change Explanations

None

Acronyms and Abbreviations

ATO - Approval to Operate
DAA - Designated Accrediting Authority
DISR - Department of Defense Information Technology Standards and Profile Registry
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IT - Information Technology
KIP - Key Interface Profile
TV-1 - Technical View 1

Track to Budget

RDT&E

Appn		BA	PE	
Air Force	3600	07	0207417F	
	Project		**Name**	
	67411L		AWACS	(Shared)

Procurement

Appn		BA	PE	
Air Force	3010	06	0207417F	
	Line Item		**Name**	
	000999		Initial Spares	(Shared)
Air Force	3010	05	0207417F	
	Line Item		**Name**	
	E00300		AWACS	(Shared)
	Notes:		The Procurement funding for the AWACS Block 40/45 Upgrade program is located in Modification number 50001T.	
	E34045		AWACS 40/45	
	Notes:		In accordance with the Major Programs Transparency Act Block 40/45 funding was moved to a new budget line starting in FY 2015	

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2012 $M			BY2012 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	1319.0	1319.0	1450.9	1287.1	1192.2	1192.2	1162.5
Procurement	1503.4	1503.4	1653.7	1388.5	1615.4	1615.4	1509.6
Flyaway	--	--	--	1354.2	--	--	1472.4
Recurring	--	--	--	950.1	--	--	1026.4
Non Recurring	--	--	--	404.1	--	--	446.0
Support	--	--	--	34.3	--	--	37.2
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	34.3	--	--	37.2
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	2822.4	2822.4	N/A	2675.6	2807.6	2807.6	2672.1

Confidence Level for Current APB Cost 54% -

The Life-Cycle Cost Estimate (LCCE) confidence level of 54% reflects the expected value, or mean, of the cost estimate distribution. It takes into consideration relevant risks, including ordinary levels of external and unforeseen events, aiming to provide sufficient resources to execute the program under normal conditions encountering average levels of technical, schedule, and programmatic risk and external influence.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	31	31	24
Total	31	31	24

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	1135.8	11.8	0.0	0.0	0.0	0.0	14.9	0.0	1162.5
Procurement	561.4	116.7	163.3	185.5	206.4	142.9	46.2	87.2	1509.6
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	1697.2	128.5	163.3	185.5	206.4	142.9	61.1	87.2	2672.1
PB 2014 Total	1758.4	204.4	188.7	206.9	206.3	142.1	44.5	1.8	2753.1
Delta	-61.2	-75.9	-25.4	-21.4	0.1	0.8	16.6	85.4	-81.0

Current FY 2015 PB includes FY 2014 3010 Congressional reduction of $54.472M and FY 2014 3600 Congressional reduction of $16.030M

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	11	2	3	2	3	3	0	0	24
PB 2015 Total	0	11	2	3	2	3	3	0	0	24
PB 2014 Total	0	13	4	5	3	5	1	0	0	31
Delta	0	-2	-2	-2	-1	-2	2	0	0	-7

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1999	--	--	--	--	--	--	0.9
2000	--	--	--	--	--	--	14.2
2001	--	--	--	--	--	--	10.1
2002	--	--	--	--	--	--	17.8
2003	--	--	--	--	--	--	116.0
2004	--	--	--	--	--	--	193.0
2005	--	--	--	--	--	--	243.7
2006	--	--	--	--	--	--	106.3
2007	--	--	--	--	--	--	127.9
2008	--	--	--	--	--	--	90.7
2009	--	--	--	--	--	--	69.9
2010	--	--	--	--	--	--	50.1
2011	--	--	--	--	--	--	85.1
2012	--	--	--	--	--	--	7.0
2013	--	--	--	--	--	--	3.1
2014	--	--	--	--	--	--	11.8
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	14.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1162.5**

Annual Funding BY$
3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2012 $M	Non End Item Recurring Flyaway BY 2012 $M	Non Recurring Flyaway BY 2012 $M	Total Flyaway BY 2012 $M	Total Support BY 2012 $M	Total Program BY 2012 $M
1999	--	--	--	--	--	--	1.1
2000	--	--	--	--	--	--	17.6
2001	--	--	--	--	--	--	12.4
2002	--	--	--	--	--	--	21.6
2003	--	--	--	--	--	--	138.6
2004	--	--	--	--	--	--	224.9
2005	--	--	--	--	--	--	276.9
2006	--	--	--	--	--	--	117.2
2007	--	--	--	--	--	--	137.4
2008	--	--	--	--	--	--	95.5
2009	--	--	--	--	--	--	72.7
2010	--	--	--	--	--	--	51.4
2011	--	--	--	--	--	--	85.7
2012	--	--	--	--	--	--	6.9
2013	--	--	--	--	--	--	3.0
2014	--	--	--	--	--	--	11.3
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	--
2018	--	--	--	--	--	--	--
2019	--	--	--	--	--	--	12.9
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**1287.1**

Annual Funding TY$
3010 | Procurement | Aircraft Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2008	--	--	0.2	2.4	2.6	--	2.6
2009	1	32.5	15.3	13.4	61.2	2.9	64.1
2010	2	45.7	6.5	12.1	64.3	0.5	64.8
2011	3	112.8	20.3	29.4	162.5	2.8	165.3
2012	5	105.9	8.5	3.8	118.2	3.6	121.8
2013	--	--	66.0	71.4	137.4	5.4	142.8
2014	2	65.4	8.6	40.4	114.4	2.3	116.7
2015	3	83.3	37.4	39.6	160.3	3.0	163.3
2016	2	102.0	31.7	46.2	179.9	5.6	185.5
2017	3	90.0	40.0	71.8	201.8	4.6	206.4
2018	3	97.2	6.2	36.3	139.7	3.2	142.9
2019	--	--	9.7	33.2	42.9	3.3	46.2
2020	--	--	41.2	46.0	87.2	--	87.2
Subtotal	**24**	**734.8**	**291.6**	**446.0**	**1472.4**	**37.2**	**1509.6**

Annual Funding BY$
3010 | Procurement | Aircraft Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2012 $M	Non End Item Recurring Flyaway BY 2012 $M	Non Recurring Flyaway BY 2012 $M	Total Flyaway BY 2012 $M	Total Support BY 2012 $M	Total Program BY 2012 $M
2008	--	--	0.2	2.5	2.7	--	2.7
2009	1	33.3	15.6	13.7	62.6	3.0	65.6
2010	2	45.9	6.5	12.2	64.6	0.5	65.1
2011	3	111.4	20.0	29.0	160.4	2.8	163.2
2012	5	102.8	8.3	3.7	114.8	3.5	118.3
2013	--	--	62.5	67.7	130.2	5.1	135.3
2014	2	60.8	8.0	37.6	106.4	2.1	108.5
2015	3	76.0	34.1	36.2	146.3	2.7	149.0
2016	2	91.2	28.4	41.3	160.9	5.0	165.9
2017	3	78.9	35.1	63.0	177.0	4.0	181.0
2018	3	83.6	5.3	31.2	120.1	2.8	122.9
2019	--	--	8.2	27.9	36.1	2.8	38.9
2020	--	--	34.0	38.1	72.1	--	72.1
Subtotal	**24**	**683.9**	**266.2**	**404.1**	**1354.2**	**34.3**	**1388.5**

Congressional reductions of $17.3M in FY 2013 and $54.5M in FY 2014

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	11/24/2008	11/24/2008
Approved Quantity	6	6
Reference	Milestone C ADM	Milestone C ADM
Start Year	2009	2009
End Year	2014	2014

The Current Total LRIP Quantity is more than 10% of the total production quantity due to operational requirements.

Air Combat Command identified a requirement for five AWACS Block 40/45 Upgrade aircraft for declaration of IOC. The program office requested an LRIP quantity of six, utilizing the first modified aircraft as a risk reduction effort to streamline the process of combining a major upgrade with Programmed Depot Maintenance.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

Unit Cost Report

Unit Cost	BY2012 $M Current UCR Baseline (MAY 2013 APB)	BY2012 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2822.4	2675.6	
Quantity	31	24	
Unit Cost	91.045	111.483	**+22.45** [1]
Average Procurement Unit Cost (APUC)			
Cost	1503.4	1388.5	
Quantity	31	24	
Unit Cost	48.497	57.854	**+19.29** [1]

Unit Cost	BY2012 $M Original UCR Baseline (MAY 2013 APB)	BY2012 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2822.4	2675.6	
Quantity	31	24	
Unit Cost	91.045	111.483	+22.45
Average Procurement Unit Cost (APUC)			
Cost	1503.4	1388.5	
Quantity	31	24	
Unit Cost	48.497	57.854	+19.29

Unit Cost	TY $M Current UCR Baseline (MAY 2013 APB)	TY $M Current Estimate (DEC 2013 SAR)	TY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	2807.6	2672.1	
Unit Cost	90.568	111.338	+22.93
Average Procurement Unit Cost (APUC)			
Cost	1615.4	1509.6	
Unit Cost	52.110	62.900	+20.71

	TY $M		
Unit Cost	**Original UCR Baseline (MAY 2013 APB)**	**Current Estimate (DEC 2013 SAR)**	**TY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	2807.6	2672.1	
Unit Cost	90.568	111.338	+22.93
Average Procurement Unit Cost (APUC)			
Cost	1615.4	1509.6	
Unit Cost	52.110	62.900	+20.71

[1] **Nunn-McCurdy Breach**

The System Program Office has been aggressive in controlling AWACS Block 40/45 Upgrade Program costs. The FY 2015 PB decision divests 7 E-3B Aircraft (23% of the current AWACS fleet) and results in a "Significant Breach" of both the AWACS Block 40/45 Upgrade Program PAUC and APUC for the current APB baseline despite decreases in overall program acquisition cost and procurement costs from the Current and Original Baseline estimates.

Unit Cost Breach Data

Changes from Previous SAR	**$M/Qty.**	**Percent**
PAUC (BY $M)	22.648	+25.49
APUC (BY $M)	11.141	+23.85
PAUC Quantity	-7	0.00
PAUC (TY $M)	22.528	+25.37
APUC (TY $M)	12.129	+23.89

Initial SAR Information	**BY $M**	**TY $M**
Program Acquisition Cost	2822.4	2807.6

Unit Cost PAUC Changes

An increase in the AWACS Block 40/45 Upgrade PAUC from -2.43% as of the SAR submission in December 2012 to the current PUAC percent change of 22.45% is the result of the FY 2015 PB decision to divest 7 E-3B AWACS aircraft (23% of the current AWACS fleet) and Congressional reductions in FY 2013 and FY 2014. The sunk costs of development as well as the procurement costs of items such as software and Active Deminishing Manufacturing Sources (DMS) support are not influenced by the reduction in the fleet size. In addition the Congressional reductions in FY 2013 and FY 2014 resulted in loss of synergies and requires an additional year of Interim Contractor Support, Active DMS support, and the release of additional hardware and software DMS versions.

Unit Cost APUC Changes

An increase in the AWACS Block 40/45 Upgrade APUC from -3.68% as of the SAR submission in December 2012 to the current APUC percent change of 19.29% is the result of the FY 2015 PB decision to divest 7 E-3B AWACS aircraft (23% of the current AWACS fleet) and Congressional reductions in FY 2013 and FY 2014. The procurement costs of items such as software and Active DMS support are not influenced by the reduction in the

fleet size. In addition the Congressional reductions in FY 2013 and FY 2014 resulted in loss of synergies and requires an additional year of ICS, Active DMS support, and the release of additional hardware and software DMS versions.

Impact of Performance or Schedule Changes

Performance and schedule have not been impacted.

Program Management or Control

We will be re-baselining the program. A proposed Acquisition Program Baseline (APB) will be coordinated to reflect theprogram restructure.

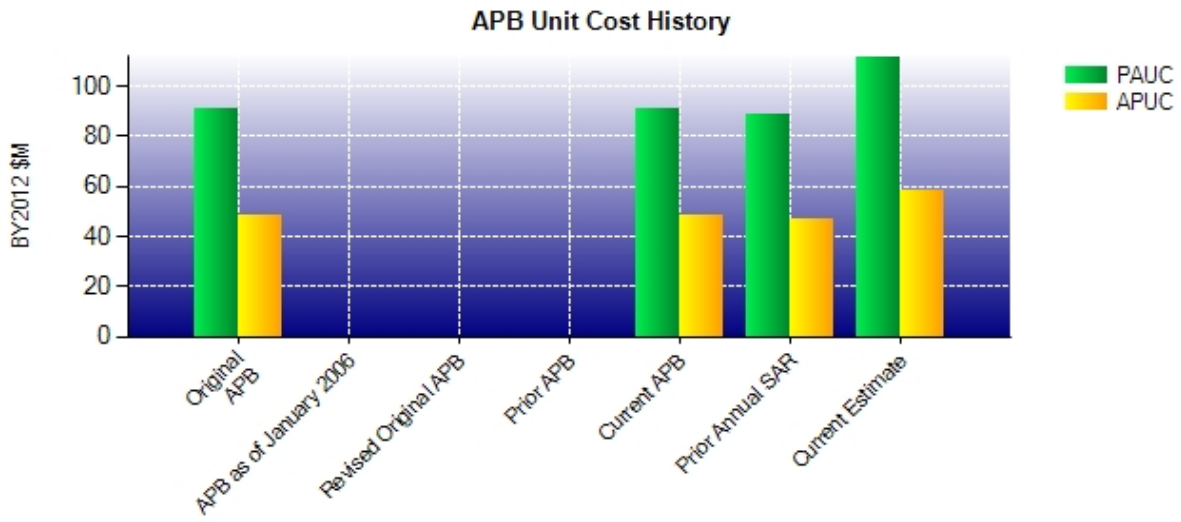
Cost Control Actions

The unit cost breach is due solely to a reduction in quantity of aircraft.

Nunn-McCurdy Comments

The System Program Office has been aggressive in controlling AWACS Block 40/45 Upgrade Program costs. The FY 2015 PB decision divests 7 E-3B Aircraft (23% of the current AWACS fleet) and results in a "Significant Breach" of both the AWACS Block 40/45 Upgrade Program PAUC and APUC for the current APB despite decreases in overall program acquisition cost and procurement costs from the Current and Original Baseline estimates.

Unit Cost History



		BY2012 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	MAY 2013	91.045	48.497	90.568	52.110
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	MAY 2013	91.045	48.497	90.568	52.110
Prior Annual SAR	DEC 2012	88.835	46.713	88.810	50.771
Current Estimate	DEC 2013	111.483	57.854	111.338	62.900

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
90.568	0.521	15.624	-0.425	0.000	5.346	0.000	-0.296	20.770	111.338

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
52.110	0.471	4.406	0.271	0.000	5.938	0.000	-0.296	10.790	62.900

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	JUL 2003	JUL 2003
Milestone C	N/A	N/A	JAN 2009	JAN 2009
IOC	N/A	N/A	APR 2014	JAN 2014
Total Cost (TY $M)	N/A	N/A	2807.6	2672.1
Total Quantity	N/A	N/A	31	24
Prog. Acq. Unit Cost (PAUC)	N/A	N/A	90.568	111.338

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1192.2	1615.4	--	2807.6
Previous Changes				
Economic	+0.4	+21.4	--	+21.8
Quantity	--	--	--	--
Schedule	--	-8.6	--	-8.6
Engineering	--	--	--	--
Estimating	-13.4	-63.8	--	-77.2
Other	--	--	--	--
Support	--	+9.5	--	+9.5
Subtotal	-13.0	-41.5	--	-54.5
Current Changes				
Economic	+0.8	-10.1	--	-9.3
Quantity	--	-259.0	--	-259.0
Schedule	-16.7	+15.1	--	-1.6
Engineering	--	--	--	--
Estimating	-0.8	+206.3	--	+205.5
Other	--	--	--	--
Support	--	-16.6	--	-16.6
Subtotal	-16.7	-64.3	--	-81.0
Total Changes	-29.7	-105.8	--	-135.5
CE - Cost Variance	1162.5	1509.6	--	2672.1
CE - Cost & Funding	1162.5	1509.6	--	2672.1

Summary Base Year 2012 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Prod Est)	1319.0	1503.4	--	2822.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-13.2	-63.6	--	-76.8
Other	--	--	--	--
Support	--	+8.3	--	+8.3
Subtotal	-13.2	-55.3	--	-68.5
Current Changes				
Economic	--	--	--	--
Quantity	--	-227.1	--	-227.1
Schedule	-17.9	--	--	-17.9
Engineering	--	--	--	--
Estimating	-0.8	+183.1	--	+182.3
Other	--	--	--	--
Support	--	-15.6	--	-15.6
Subtotal	-18.7	-59.6	--	-78.3
Total Changes	-31.9	-114.9	--	-146.8
CE - Cost Variance	1287.1	1388.5	--	2675.6
CE - Cost & Funding	1287.1	1388.5	--	2675.6

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+0.8
Adjustment for current and prior escalation. (Estimating)	-0.8	-0.8
Congressional reductions in FY 2012 and FY 2014 resulted in schedule shift. (Schedule)	-17.9	-16.7
RDT&E Subtotal	-18.7	-16.7

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-10.1
Adjustment for current and prior escalation. (Estimating)	+4.2	+4.3
Decrease due to quantity variance resulting from a 7 A/C reduction of the AWACS aircraft fleet from 31 to 24. (Quantity)	-227.1	-259.0
Stretch-out of procurement buy profile caused by Congressional reductions in FY 2013 and FY 2014 which resulted in loss of synergies and require an additional year of ICS, Active DMS support, Additional Software and Hardware DMS version releases. (Estimating)	+178.9	+202.0
Stretch-out of procurement buy profile caused by Congressional reductions in FY 2013 and FY 2014. (Schedule)	0.0	+15.1
Adjustment for current and prior escalation. (Support)	+0.1	+0.2
Decrease in Initial Spares caused by reduction in need based on AWACS Fleet reduction to 24. (Support)	-15.7	-16.8
Procurement Subtotal	-59.6	-64.3

Contracts

Appropriation: Procurement	
Contract Name	**AWACS 40/45 Upgrade Full Rate Production**
Contractor	The Boeing Company
Contractor Location	P.O. Box 3707 Seattle, WA 98124-2207
Contract Number, Type	F19628-01-D-0016/26, FPIF
Award Date	December 27, 2012
Definitization Date	December 27, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
137.3	142.5	N/A	137.3	142.5	N/A	137.3	125.0

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/22/2014)	+4.1	-0.8
Previous Cumulative Variances	0.0	0.0
Net Change	+4.1	-0.8
Percent Variance	+11.36%	-2.17%
Percent Complete	+29.30%	

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to lower than expected labor hours and costs in the Program Management, Mission Avionics Hardware, and Systems Engineering.

The unfavorable cumulative schedule variance is due to late material receipts.

General Contract Variance Explanation

At the time of the release of the December 2013 SAR Earned Value Management data had not yet been received for this contract. This is the first submission with reported Contract Performance data.

Contract Comments

Previous SAR (December 31, 2012) reported Risk Reduction contract award date rather than the Full Rate Production contract which was awarded on December 27, 2012.

Earned Value Management Data is received only for specific Contract Line Item Numbers (CLINs) listed below representing $137.3M, 79.3% of the total contract value.

CLIN 3300 Engineering Support to DMS Upgrade
CLIN 3606 FRP #1 Shipsets for aircraft P7 - P11
CLIN 3608 Life of Type Buy

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	5	5	24	20.83%
Total Program Quantity Delivered	5	5	24	20.83%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	2672.1	Years Appropriated	16
Expended to Date	1294.4	Percent Years Appropriated	72.73%
Percent Expended	48.44%	Appropriated to Date	1825.7
Total Funding Years	22	Percent Appropriated	68.32%

The above data is current as of 2/20/2014.

Operating and Support Cost

AWACS Blk 40/45 Upgrade

Assumptions and Ground Rules

Cost Estimate Reference:
O&S estimate is based on AWACS Block 40/45 Upgrade Program recommended Service Cost Position as of November 6, 2012.

Sustainment Strategy:
- AWACS E-3G life cycle is 2011 through 2035, and a total quantity of 24 aircraft.
- Production will leave the AWACS fleet with two Commercial Off The Shelf (COTS) Diminishing Manufacturing Sources (DMS) versions (DMS 3.0 and DMS 4.0) going into the O&S phase
- DMS tech refresh every 5 years starting in FY 2019 through life of program
- O&S COTS procured with 3400 funding
- O&S COTS installed by Air Logistics Complex (ALC) during Programmed Depot Maintenance or a dedicated modification installation line
- Software maintained organically with contractor support/partnership
- COTS, active DMS and DMS refreshes done with contractor partnership
- No modifications or capability upgrades included other than planned DMS tech refresh

Antecedent Information:
The AWACS Block 30/35 O&S cost based on historical Block 30/35 O&S cost projected through 2035. Used for comparison to Block 40/45 O&S cost. Assumes the Block 30/35 can be maintained through 2035 and assumes no major DMS issues (Status Quo). Block 30/35 cost was obtained from the Air Force Total Ownership Cost database for a period of 2007-2011. The data was normalized to Base Year 2012 and projected out through 2035.

Unitized O&S Costs BY2012 $M		
Cost Element	**AWACS Blk 40/45 Upgrade Yearly Average per Aircraft**	**AWACS Blk 30/35 (Antecedent) Yearly Average per Aircraft**
Unit-Level Manpower	0.000	11.733
Unit Operations	0.000	6.162
Maintenance	0.965	8.318
Sustaining Support	0.555	1.203
Continuing System Improvements	0.181	0.737
Indirect Support	0.000	3.583
Other	0.000	0.000
Total	1.701	31.736

Unitized Cost Comments:

AWACS Block 40/45 Upgrade Yearly Average per Aircraft costs represent the additional funding required per aircraft when compared to the antecedent AWACS Block 30/35 yearly average per Aircraft O&S costs. Thus, these costs are due solely to the AWACS Block 40/45 Upgrade.

Average annual cost per AWACS aircraft (24) (entire fleet). Calculated by taking the total AWACS system cost and dividing by the life of the platform (2011-2035, 25 years) and then dividing by the total quantity of aircraft (24).

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		**Current Estimate**	
	AWACS Blk 40/45 Upgrade		**AWACS Blk 40/45 Upgrade**	**AWACS Blk 30/35 (Antecedent)**
Base Year	1064.8	1171.2	1020.8	19041.1
Then Year	1377.8	N/A	1378.0	23379.7

Total O&S Costs Comments:

The AWACS Block 40/45 Upgrade Current Estimate is the delta cost from the AWACS Block 30/35 (Antecedent) Current Estimate, reflecting the total O&S cost of the AWACS Enterprise.

O&S Cost Variance		
Category	**Base Year 2012 $M**	**Change Explanation**
Prior SAR Total O&S Estimate DEC 2012	1,064.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Programmatic/Planning Factors	-43.2	Change caused by FY 2015 PB decision to divest 7 E-3B Aircraft (23% of current AWACS fleet).
Other	0.0	
Total Changes	-43.2	

Current Estimate	1,020.8	

Disposal Costs:

No disposal cost included.