



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-239



National Polar-orbiting Operational Environmental Satellite System (NPOESS)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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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)

Program Information

Program Name

National Polar-orbiting Operational Environmental Satellite System (NPOESS) (NPOESS)

DoD Component

AirForce

Responsible Office

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References

SAR Baseline (Production Estimate)

Under Secretary of the Air Force (USecAF) Approved Acquisition Program Baseline (APB) dated August 22, 2002

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 11, 2008

Mission and Description

The National Polar-Orbiting Operational Environmental Satellite System (NPOESS) program is required to provide, for a period of at least 10 years, a remote sensing capability to acquire, receive at ground terminals, and disseminate to processing centers, global and regional environmental imagery and specialized meteorological information. This includes climatic, terrestrial, oceanographic, solar-geophysical and other data supporting Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA) mission requirements, and Department of Defense (DoD) peacetime and wartime missions.

Executive Summary

On February 1, 2010, the Executive Office of the President (EOP) restructured the National Polar-orbiting Observational Satellite System (NPOESS) Program. The Department of Defense (DoD), the Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS. The EOP assigned responsibility for each of the three planned orbits to the agency holding the majority of interest in that orbit. The DOC, through the National Oceanic and Atmospheric Administration (NOAA), will populate the afternoon orbit via the Joint Polar Satellite System (JPSS). The DoD, through the Air Force, will populate the early morning orbit. The DoD will pursue a follow-on spacecraft program to the Defense Meteorological Space Program on a schedule that ensures continuity in the early am orbit. The U.S. Government will continue to rely on capabilities from the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) partners for the mid-morning orbit. The NPOESS Program plans to transition all efforts needed by the two follow-on programs and close down the current program by September 30, 2010.

The System Program Director (SPD) briefed the NPOESS Executive Committee (EXCOM) on March 4, 2009, that the NPOESS program would deviate from a schedule threshold in the December 11, 2008 Acquisition Program Baseline (APB). The SPD submitted an APB Deviation Report to the Milestone Decision Authority on April 3, 2009.

NPOESS Preparatory Project (NPP):

NPP is the risk reduction mission for NPOESS and a bridge mission for the continuation of the NASA Earth Observing System mission. Managed by NASA, NPP is a single satellite that will host the first set of Visible/Infrared Imager/Radiometer Suite (VIIRS), Cross-track Infrared Sounder (CrIS) and Ozone Mapping Profiler Suite (OMPS) sensors. Lessons learned were to be incorporated into NPOESS to optimize performance. The Integrated VIIRS sensor was delivered in late January 2010 and has been integrated on the spacecraft. Delivery of the CrIS sensor is projected for Third Quarter FY2010. The Integrated OMPS sensor was installed on the spacecraft in the First Quarter FY2009.

NPOESS:

The System Critical Design Review (CDR) was held in April 2009 and a subsequent delta CDR was held in August 2009. The reviews covered the spacecraft, payloads, Command, Control and Communications Segment (C3S) and data processing systems of the NPOESS prime contract. All but two issues identified during the CDRs have been closed. First, the Reaction Wheel Assembly (RWA) engineering model test failed. Redesign efforts began in June 2009, with a Preliminary Design Review scheduled for April 2010. Second, the CDR review identified the planned use of Maxwell Single Board Computers (SBCs) as a concern due to faulty SBCs delivered to a NASA program by the same subcontractor. The Integrated Program Office initiated a joint investigation of this subcontractor's manufacturing processes, arranged for samples to be manufactured for subsequent testing and identified a potential second source to manufacture the SBCs. Testing and evaluation are expected to complete by end of March 2010.

Ground Systems:

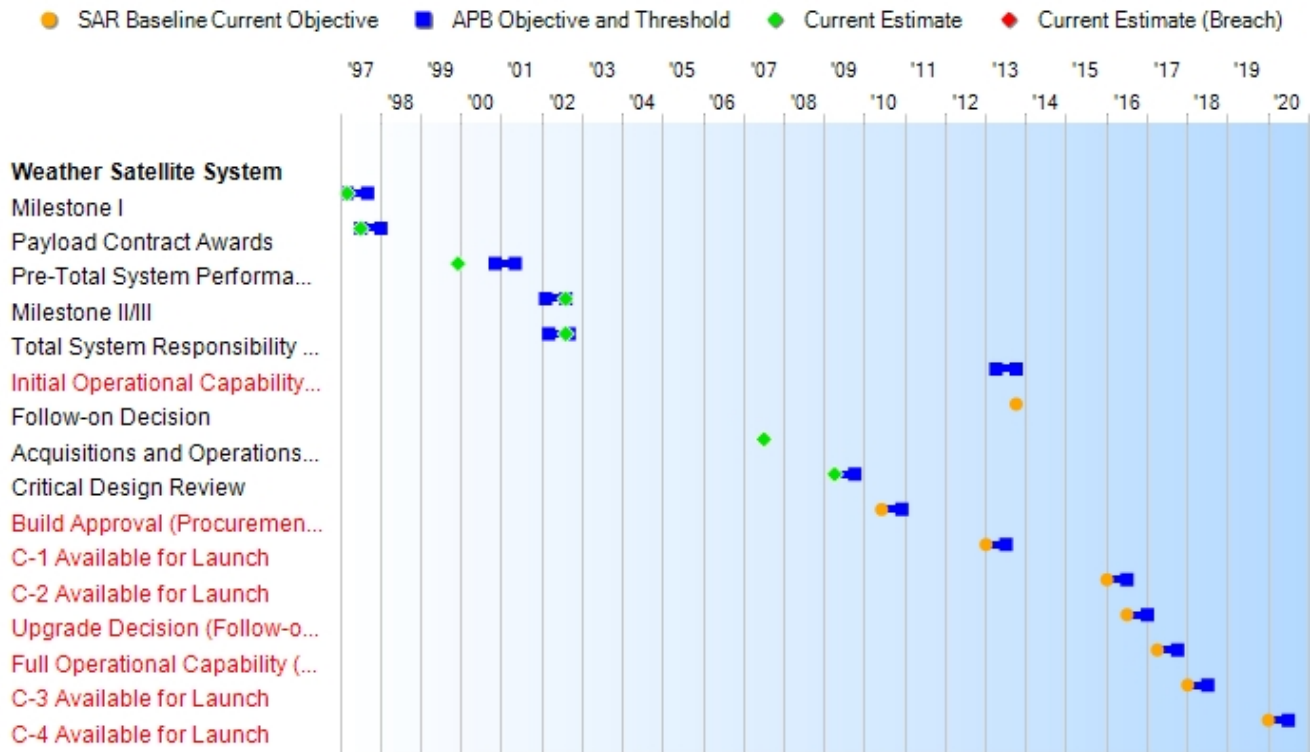
The Interface Data Processing Segment was delivered to NPP in Fourth Quarter FY2009.

There are no significant software development issues on this program.

Threshold Breaches

APB Breaches			Explanation of Breach
Schedule		<input checked="" type="checkbox"/>	<p>The current SAR reflects a schedule breach to the current program baseline. The schedule delay was caused by slips in the development of the Visible/Infrared Imager/Radiometer Suite (VIIRS) sensor which moved the launch availability date for the first NPOESS satellite as well as the Initial Operational Capability date.</p> <p>On March 4, 2009, the NPOESS System Program Director notified the NPOESS Tri-agency Executive Committee (EXCOM) that the NPOESS program first satellite launch availability and Initial Operational Capability (IOC) dates deviated from the schedule threshold in the approved Acquisition Program Baseline (APB) dated 11 Dec 2008.</p> <p>On April 3, 2009, the Milestone Decision Authority (MDA) was notified and the program office developed an executable program schedule with adequate resources and presented to the three EXCOM members on November 20, 2009.</p> <p>Since then, the Executive Office of the President (EOP) restructured the National Polar-orbiting Observational Satellite System (NPOESS) Program. The Department of Defense (DoD), the Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS program. All future scheduled milestones are no longer valid and a revised Acquisition Program Baseline will not be completed.</p>
Performance		<input type="checkbox"/>	
Cost	RDT&E	<input type="checkbox"/>	
	Procurement	<input type="checkbox"/>	
	MILCON	<input type="checkbox"/>	
	Acq O&M	<input type="checkbox"/>	
O&S Cost		<input type="checkbox"/>	
Unit Cost	PAUC	<input type="checkbox"/>	
	APUC	<input type="checkbox"/>	
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 I	Mar 1997	Mar 1997	Sep 1997	Mar 1997
Payload Contract Awards	Jul 1997	Jul 1997	Jan 1998	Jul 1997
Pre-Total System Performance Responsibility (pre-TSPR) Contract Award	Nov 2000	Nov 2000	May 2001	Dec 1999
Milestone II/III	Feb 2002	Feb 2002	Aug 2002	Aug 2002
Total System Responsibility (TSPR) Contract Award	Mar 2002	Mar 2002	Sep 2002	Aug 2002
Initial Operational Capability (IOC)	Jul 2011	Apr 2013	Oct 2013	N/A ¹ (Ch-1)
Follow-on Decision	Oct 2013	N/A	N/A	N/A (Ch-1)
Acquisitions and Operations System Contract	N/A	Jul 2007	Jul 2007	Jul 2007
Critical Design Review	N/A	Apr 2009	Oct 2009	Apr 2009
Build Approval (Procurement Option Decision)	N/A	Jun 2010	Dec 2010	N/A ¹ (Ch-1)
C-1 Available for Launch	N/A	Jan 2013	Jul 2013	N/A ¹ (Ch-1)
C-2 Available for Launch	N/A	Jan 2016	Jul 2016	N/A ¹ (Ch-1)
Upgrade Decision (Follow-on Decision)	N/A	Jul 2016	Jan 2017	N/A ¹ (Ch-1)
Full Operational Capability (FOC)	N/A	Apr 2017	Oct 2017	N/A ¹ (Ch-1)
C-3 Available for Launch	N/A	Jan 2018	Jul 2018	N/A ¹ (Ch-1)
C-4 Available for Launch	N/A	Jan 2020	Jul 2020	N/A ¹ (Ch-1)

¹ APB Breach

Change Explanations

(Ch-1) The 2009 SAR includes nine milestones added since the 2007 SAR. These milestones were added as a result of the Acquisition Program Baseline signed in December 2008. These milestones are: 1) Acquisitions and Operations System Contract; 2) Critical Design Review; 3) Build Approval (Procurement Option Decision); 4) C-1 Available for Launch; 5) C-2 Available for Launch; 6) Upgrade Decision (Follow-on Decision); 7) Full Operational Capability (FOC); 8) C-3 Available for Launch; and 9) C-4 Available for Launch. Subsequently, due to slips in the development of the Visible/Infrared Imager/Radiometer Suite (VIIRS) sensor, NPOESS reported a milestone schedule breach against 1) Initial Operational Capability and 2) C-1 Available for Launch. On February 1, 2010, the Executive Office of the President restructured the NPOESS program. This restructure resulted in the Department of Defense (DoD), Department of Commerce (DOC), and National Aeronautics and Space Administration (NASA) no longer jointly acquiring the NPOESS program. Therefore the current estimates for future NPOESS Schedule milestones no longer apply.

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Key EDR Parameters				
Atmospheric Vertical Moisture Profile				
Measurement Uncertainty (Clear: Surface - 600mb)				
+/- 10%	+/- 10%	Contract/Threshold Value: Greater of 20% or 0.2 g kg-1	TBD	9.1% OR 0.2 g kg-1
Measurement Uncertainty (Cloudy: Surface - 600 mb)				
+/- 10%	+/- 10%	Contract Value: Greater of 20% or 0.2g kg-1; Threshold Value: Greater of 25% or 0.25 g /kg	TBD	13.3% or 0.2 g kg-1
Atmospheric Vertical Temperature Profile				
Measurement Uncertainty (Clear: Surface - 300mb)				
+/- 0.5K	+/- 0.5K	Contract Value: +/- 1.6K per 1 km layer; Threshold Value: +/- 2.5 to +/- 1.5K per 2km layer	TBD	0.8K per 1 km layer
Measurement Uncertainty (Cloudy: Surface - 700mb)				
+/- 0.5K	+/- 0.5K	Contract Value: +/- 2.5K per 1 km layer; Threshold Value: +/- 3.0 to +/- 1.5K per 2.5 km layer	TBD	1.3K per 1 km layer
Imagery				
Horizontal Resolution				
Horizontal Cell Size at Nadir, clear				
0.1 km	0.1 km	Contract Value: 0.4 km; Threshold Value: Regional .65 km (fine), Global 2.5 km (smooth)	TBD	0.4 km
Refresh Visible and IR bands				
Average Revisit Time				
1 hr	1 hr	Contract Value: At any location, the avg revisit time will be 4 hrs or less.; Threshold Value: Less than 4 hrs	TBD	At any location, the avg revisit time will be 4 hrs or less
Maximum Revisit Time				
1 hr	1 hr	Contract Value: At any location, the max revisit time will be 6 hrs or less.; Threshold Value: 365 min (~6.1 hrs)	TBD	At any location, the max revisit time will be 6 hrs or less
Percent Compliance				

N/A	1 hr	Contract Value: At any location, at least 75% of the revisit times will be 4 hrs or less; Threshold Value: 56.0% of points with a refresh of 4 hrs or less	TBD	At any location, at least 75% of the revisit times will be 4 hrs or less
Sea Surface Temperature				
Horizontal Resolution				
Horizontal Cell Size at Nadir, clear				
0.25 km	0.25 km	Contract Value: 1.0 km; Threshold Value: 1.1 km (Regiona I) 8.0 km (Global)	TBD	0.75 km
Measurement Uncertainty, clear				
+/- 0.1 deg C	+/- 0.1 deg C	Contract Value: +/- 0.5 deg C. Threshold Value: +/- 1.0 C (Coastal) +/- 0.5 C (Global-Nighttime) +/- 0.6 C (Global-Daytime).	TBD	0.4K
Global Sea Surface Winds				
Measurement Accuracy (Speed)				
Greater of +/- 1 m/s or +/- 10%	Greater of +/- 1 m/s or +/- 10%	Contract Value: Greater of +/- 2 m/s or +/-10%; Threshold Value: 2 m/s for WS < 5 m/s; 1 m/s for 5 m/s < WS < 20 m/s; No capability for WS > 20 m/s	TBD	Greater of +/- 2 m/s or +/- 10%
Soil Moisture (Surface) Sensing Depth				
Surface to -80 cm	Surface to -80 cm	Contract Value: Surface (skin layer: - 0.1cm).; Threshold Value: Wet or Dry determination of bare soil surface	TBD	Surface (skin layer: -0.1cm)
Key System Parameters				
Data Access				
Selective denial of all U.S. data (ARGOS and SARSAT excepted)	Selective denial of all U.S. environmental sensor data (ARGOS and SARSAT excepted)	Contract Value: Selective denial of all U.S. environmental sensor data (ARGOS and SARSAT excepted); Threshold Value: Capability to deny exists but it is not "Selectable"	TBD	Select denial of all U.S. data (ARGOS and SARSAT excepted)
Interoperability				
100% of top-level IERs	100% of top-level IERs	Contract Value: 100% of critical top-level IERs; Threshold Value: Yes - Spacecraft to Field Terminals, Spacecraft to Centrals	TBD	100% of critical top-level IERs

Requirements Reference

Initial Operational Requirements Document (IORD II) dated December 10, 2001. Joint Requirements Oversight Council Memorandum (JROCM) 101-06 , dated June 2, 2006 .

Change Explanations

None

Notes

Performance Characteristics are per the NPOESS Integrated Operational Requirements Document (IORD II) dated December 10, 2001.

Acronyms and Abbreviations

ARGOS - French Data Collection and Location System

avg - average

C - Celsius

cm - centimeter

EDR - Environmental Data Record

g kg-1 - grams per kilogram

hr/hrs - hour/hours

IER - Information Exchange Requirements

IR - Infrared

K - Kelvin

km - kilometer

m/s - meters per second

max - maximum

mb - millibars

SARSAT - Search and Rescue Satellite Aided Tracking

WS - Wind Speed

Track to Budget

General Notes

NPOESS was a Presidentially directed Tri-agency program composed of Department of Defense (DoD), Department of Commerce (DOC) and National Aeronautics and Space Administration (NASA) personnel. The Tri-agency Memorandum of Agreement (MOA) states that funding is provided jointly by DoD, through the Air Force, and DOC, through the National Oceanic and Atmospheric Administration (NOAA).

On February 1, 2010, the Executive Office of the President (EOP) restructured the National Polar-orbiting Observational Satellite System (NPOESS) Program. The Department of Defense (DoD), the Department of Commerce (DOC), and the National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS program.

DoD funds NPOESS through FY 2004 with RDT&E via PE 0603434F and in FY05 and beyond via PE 0301578F. DOC funds with NOAA Procurement, Acquisition, and Construction (PAC) 40-10. Procurement will be funded via PE 0305178F and NOAA PAC 40-10. Launch Services are funded entirely with Missile Procurement, Air Force (MPAF) via Evolved Expendable Launch Vehicle (EELV) PE 0305393F. These costs are reported as part of the EELV program.

RDT&E

Appn	BA	PE	
Air Force	3600	05	0305178F
	Project	Name	
	4056	National Polar-orbiting Operational Environmental Sat. Sys./National Polar-orbiting Operational Environmental Sat. Syst.	
Air Force	3600	04	0603434F
	Project	Name	
	4056	National Polar-orbiting Operational Environmental Sat. Sys./National Polar-orbiting Operational Environmental Sat. Syst. (Sunk)	

Procurement

Appn	BA	PE	
Air Force	3020	05	0305178F
	Line Item	Name	
	NPS000	National Polar-orbiting Operational Environmental Satellite System.	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2002 \$M			BY 2002 \$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	4401.7	7346.8	8113.7	5299.8	4765.5	8412.1	5801.8
Procurement	1136.3	2446.9	2691.6	6.5	1352.1	3332.0	7.8
Flyaway	--	--	--	6.5	--	--	7.8
Recurring	--	--	--	6.5	--	--	7.8
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
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	5538.0	9793.7	N/A	5306.3	6117.6	11744.1	5809.6

Cost Notes

The total NPOESS program costs include both Department of Commerce (DOC) and Department of Defense (DoD) funding budgeted on a 50/50-share basis by year. The numbers listed in the Production Estimate represent the total NPOESS satellites, ground activities, launch support, Government Program Office support, Integrated Program Office (IPO) share of National Aeronautics and Space Administration (NASA)/IPO NPOESS Preparatory Program, and related risk reduction efforts.

Since the previous SAR submission, the Executive Office of the President announced as part of the FY 2011 R&D budget release, that the Department of Defense (DoD), Department of Commerce (DOC), and National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	2	2	0
Procurement	4	2	0
Total	6	4	0

Quantity Notes

The quantities shown reflect the number of satellites to be acquired.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	5036.9	764.9	0.0	0.0	0.0	0.0	0.0	0.0	5801.8
Procurement	0.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	7.8
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 2011 Total	5036.9	772.7	0.0	0.0	0.0	0.0	0.0	0.0	5809.6
PB 2009 Total	5015.1	765.6	767.2	832.6	872.7	809.4	726.9	1350.7	11140.2
Delta	21.8	7.1	-767.2	-832.6	-872.7	-809.4	-726.9	-1350.7	-5330.6

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0	0
PB 2011 Total	0	0	0	0	0	0	0	0	0	0
PB 2009 Total	2	0	0	0	1	0	1	0	0	4
Delta	-2	0	0	0	-1	0	-1	0	0	-4

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	23.4
1996	--	--	--	--	--	--	27.9
1997	--	--	--	--	--	--	56.3
1998	--	--	--	--	--	--	65.2
1999	--	--	--	--	--	--	112.4
2000	--	--	--	--	--	--	116.6
2001	--	--	--	--	--	--	144.2
2002	--	--	--	--	--	--	308.4
2003	--	--	--	--	--	--	455.0
2004	--	--	--	--	--	--	539.3
2005	--	--	--	--	--	--	606.6
2006	--	--	--	--	--	--	638.0
2007	--	--	--	--	--	--	680.8
2008	--	--	--	--	--	--	661.9
2009	--	--	--	--	--	--	600.9
2010	--	--	--	--	--	--	764.9
Subtotal	--	--	--	--	--	--	5801.8

Annual Funding 3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2002 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	25.4
1996	--	--	--	--	--	--	29.7
1997	--	--	--	--	--	--	59.1
1998	--	--	--	--	--	--	68.0
1999	--	--	--	--	--	--	116.1
2000	--	--	--	--	--	--	118.6
2001	--	--	--	--	--	--	144.6
2002	--	--	--	--	--	--	306.1
2003	--	--	--	--	--	--	445.5
2004	--	--	--	--	--	--	515.2
2005	--	--	--	--	--	--	565.0
2006	--	--	--	--	--	--	576.9
2007	--	--	--	--	--	--	599.8
2008	--	--	--	--	--	--	571.8
2009	--	--	--	--	--	--	512.4
2010	--	--	--	--	--	--	645.6
Subtotal	--	--	--	--	--	--	5299.8

Since the previous SAR submission, the Executive Office of the President announced as part of the FY 2011 R&D budget release, that the Department of Defense (DoD), Department of Commerce (DOC), and National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS.

Annual Funding 3020 Procurement Missile Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	7.8	--	7.8	--	7.8
Subtotal	--	--	7.8	--	7.8	--	7.8

Annual Funding 3020 Procurement Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2002 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2010	--	--	6.5	--	6.5	--	6.5
Subtotal	--	--	6.5	--	6.5	--	6.5

Since the previous SAR submission, the Executive Office of the President announced as part of the FY 2011 R&D budget release, that the Department of Defense (DoD), Department of Commerce (DOC), and National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS.

The NPOESS program will not acquire any production satellites therefore the quantity is zero. The production dollars identified were to support the cost of the Microwave Imager/Sounder sensor.

Low Rate Initial Production

There is no Low Rate Initial Production (LRIP) for NPOESS.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

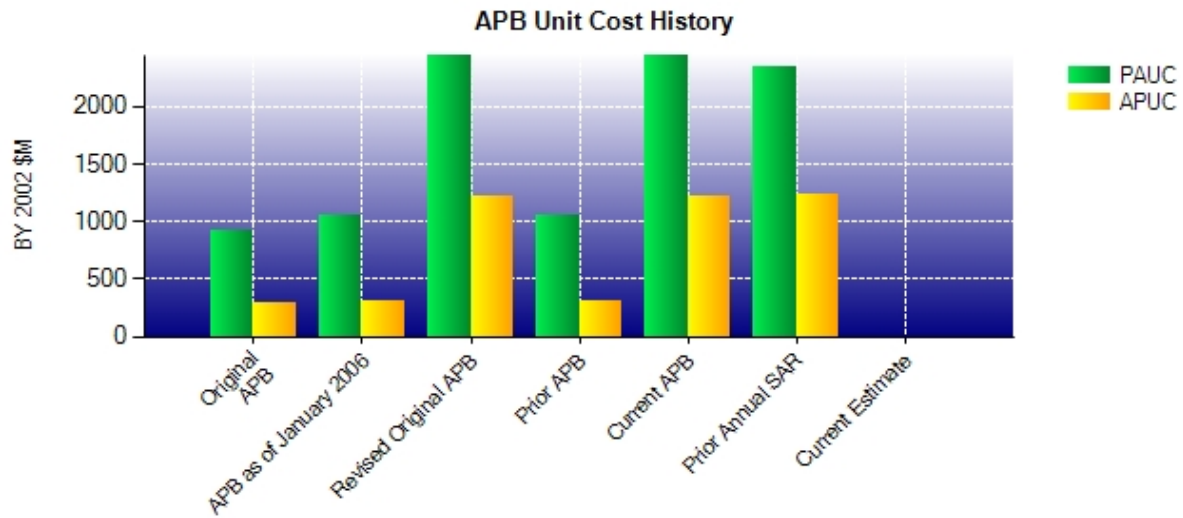
Unit Cost Report

Item	BY 2002 \$M	BY 2002 \$M	% Change
	Current UCR Baseline (Dec 2008 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	9793.7	5306.3	
Quantity	4	0	
Unit Cost	2448.425	--	--
Average Procurement Unit Cost			
Cost	2446.9	6.5	
Quantity	2	0	
Unit Cost	1223.450	--	--

Item	BY 2002 \$M	BY 2002 \$M	% Change
	Revised Original UCR Baseline (Dec 2008 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	9793.7	5306.3	
Quantity	4	0	
Unit Cost	2448.425	--	--
Average Procurement Unit Cost			
Cost	2446.9	6.5	
Quantity	2	0	
Unit Cost	1223.450	--	--

The Executive Office of the President announced as part of the FY 2011 R&D budget release, that the Department of Defense (DoD), Department of Commerce (DOC), and National Aeronautics and Space Administration (NASA) will no longer jointly acquire NPOESS. The NPOESS program will continue the FY 2010 planned activities until transition of the program occurs (target date: September 30, 2010).

Unit Cost History



Item	Date	BY 2002 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Aug 2002	923.000	284.075	1019.600	338.025
APB as of January 2006	Jan 2005	1046.083	312.250	1132.583	367.050
Revised Original APB	Dec 2008	2448.425	1223.450	2936.025	1666.000
Prior APB	Jan 2005	1046.083	312.250	1132.583	367.050
Current APB	Dec 2008	2448.425	1223.450	2936.025	1666.000
Prior Annual SAR	Dec 2007	2340.750	1235.450	2785.050	1654.600
Current Estimate	Dec 2009	N/A	N/A	N/A	N/A

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1019.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
338.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Mar 1997	N/A	Mar 1997	Mar 1997
Milestone II	Sep 2000	N/A	Feb 2002	Aug 2002
Milestone III	Dec 2011	N/A	Oct 2013	N/A
IOC	Dec 2010	N/A	Jul 2011	N/A
Total Cost (TY \$M)	5329.0	N/A	6117.6	5809.6
Total Quantity	5	N/A	6	0
PAUC	1065.800	N/A	1019.600	N/A

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	4765.5	1352.1	--	6117.6
Previous Changes				
Economic	+133.9	+50.9	--	+184.8
Quantity	--	-594.5	--	-594.5
Schedule	+897.6	+82.6	--	+980.2
Engineering	-567.6	-292.1	--	-859.7
Estimating	+2601.6	+2710.2	--	+5311.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+3065.5	+1957.1	--	+5022.6
Current Changes				
Economic	-67.9	-114.0	--	-181.9
Quantity	-2549.3	-3188.3	--	-5737.6
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+588.0	+0.9	--	+588.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-2029.2	-3301.4	--	-5330.6
Total Changes	+1036.3	-1344.3	--	-308.0
Current Estimate	5801.8	7.8	--	5809.6

Summary BY 2002 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	4401.7	1136.3	--	5538.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	-432.2	--	-432.2
Schedule	+682.2	--	--	+682.2
Engineering	-437.9	-239.2	--	-677.1
Estimating	+2246.1	+2006.0	--	+4252.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+2490.4	+1334.6	--	+3825.0
Current Changes				
Economic	--	--	--	--
Quantity	-2065.7	-2465.2	--	-4530.9
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+473.4	+0.8	--	+474.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-1592.3	-2464.4	--	-4056.7
Total Changes	+898.1	-1129.8	--	-231.7
Current Estimate	5299.8	6.5	--	5306.3

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-67.9
Quantity decrease of 2 satellites from 2 satellites to none reflecting the restructuring of the NPOESS program. The DoD, Department of Commerce (DoC), and NASA will no longer jointly acquire the NPOESS program. (Quantity)	-2065.7	-2549.3
Adjustment for current and prior escalation. (Estimating)	+10.6	+12.7
Revised estimate due to Congressional and general reductions (Estimating)	-12.3	-14.5
Program increase due to American Recovery and Reinvestment Act of 2009 funding which supported critical path risk reduction efforts through restoration of Space Segment activities, acceleration of Cross-track Infrared Sounder (CrIS) and Ozone Mapping Profiler Suite (OMPS) sensors design and testing. (Estimating)	+6.7	+7.7
Updated estimate which incorporated the cost changes of the NPOESS program restructure approved on December 2008. (Estimating)	+468.4	+582.1
RDT&E Subtotal	-1592.3	-2029.2

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-114.0
Quantity decrease of 2 satellites from 2 satellites to none reflecting the restructuring of the NPOESS program. The DoD, Department of Commerce (DoC), and NASA will no longer jointly acquire the NPOESS program. (Quantity)	-2465.2	-3188.3
Adjustment for current and prior escalation. (Estimating)	+0.8	+0.9
Procurement Subtotal	-2464.4	-3301.4

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: NPOESS A&O
Contractor: Northrop Grumman Space Technology
Contractor Location: Redondo Beach, CA 90278
Contract Number: F04701-02-C-0502
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: August 23, 2002
Definitization Date: August 23, 2002

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2942.7	N/A	2	5919.0	N/A	2	5951.9	5934.3

Target Price Change Explanation

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

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2009)	-141.5	-16.0
Previous Cumulative Variances	-8.9	-7.0
Net Change	-132.6	-9.0

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The net unfavorable cost variance of -\$132.6M was driven by the increased cost of building and testing the first flight units of the Visible/Infrared Imager/Radiometer Suite (VIIRS) and Cross-track Infrared Sounder (CrIS) sensors and technical issues during the design/development of the NPOESS spacecraft bus.

The VIIRS sensor's cost variance increased by \$75.0M over the reporting period. The primary driver for the over-run was significant greater resources dedicated to building testing and delivering the first flight unit. Specific technical issues that contributed to the cost growth included 3 iterations of cryoradiator design, build and test, and 5 months to complete a electro-magnetic interference testing that was scheduled to last 3 weeks. The VIIRS subcontractor's propensity to require far more labor to complete essentially every major task also drove the cost growth.

The CrIS unfavorable cost variance grew by \$19.0M over the reporting driven primarily by significant repair & retest long after the unit was scheduled to be delivered. Specifically after completion of all scheduled testing, the team discovered a non-compliant internal calibration target that required almost a year to repair and retest. After the completion of that cycle, several issues with electrical circuit cards further extended work on the CrIS instrument increasing the cost overrun.

The final cost variance driver over this period has been the NPOESS spacecraft development effort that contributed \$21.7M to the growth of the negative cost variance. Technical issues with the command and data handling system, the attitude control system, and the solar array were the main drivers for this cost growth.

The net unfavorable schedule variance of -\$9.0M on the NPOESS program was the result of recent delays building and testing the 2nd flight units for the VIIRS and CrIS sensors. These delays are the result of various technical challenges and material delivery delays. These delays have not impacted the critical path to the launch of the first NPOESS satellite.

Delays completing the Conical-scanning Microwave Imager/Sounder (CMIS) sensor subcontract also contributed \$2.0M to the growth of the unfavorable schedule variance this period. This delay was the result of longer than planned subcontract negotiations and disposition of government material and data. This effort has no bearing on the overall program schedule.

Notes

The current contract price reflects all adjustments agreed to as part of the NPOESS program restructure.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantity Delivered	0	0	0	--

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	5809.6	Years Appropriated	16
Expended to Date	5109.8	Percent Years Appropriated	100.00%
Percent Expended	87.95%	Appropriated to Date	5809.6
Total Funding Years	16	Percent Appropriated	100.00%

Total expenditures includes \$2,590.6M of the Department of Commerce (DOC) obligations. No deliveries now planned for NPOESS.

Operating and Support Cost

Assumptions and Ground Rules

Operating and Support(O&S) costs are based on contract option prices for contractor post Initial Operational Capability (IOC) Operating and Support, consistent with the Life Cycle Cost Estimate dated December 18, 2003.

Antecedent Systems: The NPOESS replaces the following civil and DoD polar-orbiting environmental satellite systems: Defense Meteorological Satellite Program, National Oceanic and Atmospheric Administration Polar Operational Environmental Satellite, and the National Aeronautics and Space Administration Earth Observing System. However, data is not available to compare.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2002 \$M		
Cost Element	Weather Satellite System Average Annual System Cost	Antecedent Systems (Antecedent)
Mission Pay & Allowance	--	--
Unit Level Consumption	--	--
Intermediate Maintenance	--	--
Depot Maintenance	--	--
Contractor Support	68.900	--
Sustaining Support	--	--
Indirect	--	--
Other	--	--
Total	68.900	--

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	Weather Satellite System		Antecedent Systems (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	1287.3	1416.0	689.1	N/A
Then Year	1878.7	N/A	907.1	N/A

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2002 \$M):