



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-224



### **B-2 Extremely High Frequency SATCOM and Computer Increment 1 (B-2 EHF Inc 1)**

As of FY 2016 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**

B-2 Extremely High Frequency SATCOM and Computer Increment 1 (B-2 EHF Inc 1)

**DoD Component**

Air Force

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**Date**

**Assigned:** May 6, 2013

## References

**SAR Baseline (Production Estimate)**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated September 20, 2012

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated September 20, 2012

## Mission and Description

The aging Ultra High Frequency (UHF) Military Satellite Communications (MILSATCOM) system is being phased out and replaced by the Advanced Extremely High Frequency (AEHF) Satellite Communications (SATCOM) system.

B-2 Extremely High Frequency SATCOM and Computer Increment 1 program (B-2 EHF Inc 1) supports the replacement of the present B-2 UHF Terminal Set with an EHF SATCOM system that will be compatible with the legacy EHF Satellite (MILSTAR I/II) constellation and the future AEHF satellite constellation. The B-2 EHF Inc 1 system is one element of a system-of-systems that includes the AEHF satellites, multiple platforms, and the Family of Advanced Beyond-Line-of-Site Terminals. The B-2 EHF upgrade is a three-increment program. Increment 1 will provide upgraded flight management computer processors, increased data storage, a re-hosted Flight Management Operational Flight Program, and a high bandwidth data bus in order to prevent degradation of existing capabilities resulting from EHF SATCOM installation. Additionally, the Increment 1 Integrated Processing Unit and Disk Drive Unit architectures establish a high speed fiber optic structure network as well as maintain connectivity to legacy interfaces. Increment 1 provides a processing growth path to future B-2 upgrades. B-2 EHF Inc 2 would ensure continuing secure, survivable communication capability; and B-2 EHF Inc 3 would enable the B-2 to interface with the Global Information Grid and provide Net Ready capability. This SAR addresses B-2 EHF Inc 1 only.

## Executive Summary

B-2 EHF Inc 1 consists of upgraded flight management processors, increased data storage and a high-bandwidth data bus which provide a processing growth path for future B-2 upgrades. On April 26, 2013, Air Force Global Strike Command authorized fielding and full-up (conventional and nuclear) use of EHF modified aircraft.

The program realized several significant accomplishments during this period. Five production installations occurred at Whiteman Air Force Base, MO completing the final Acquisition Program Baseline event of Required Assets Available (RAA) on December 10, 2014. The RAA objective requirement is eight possessed aircraft modified by March 2015. In addition, two aircraft are currently in modification during programmed depot maintenance in Palmdale, CA and one aircraft is in modification at Whiteman Air Force Base, MO. The remaining eight B-2 aircraft are scheduled to begin modification in 2015.

The EMD contract is complete and is progressing through financial closeout.

The Air Force Acquisition Executive (AFAE) certified that the B-2 EHF Inc 1 Program was in compliance with the requirements of Section 2366a of Title 10, United States Code on May 30, 2007; the certification waived the requirement for an analysis of alternatives.

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

## Threshold Breaches

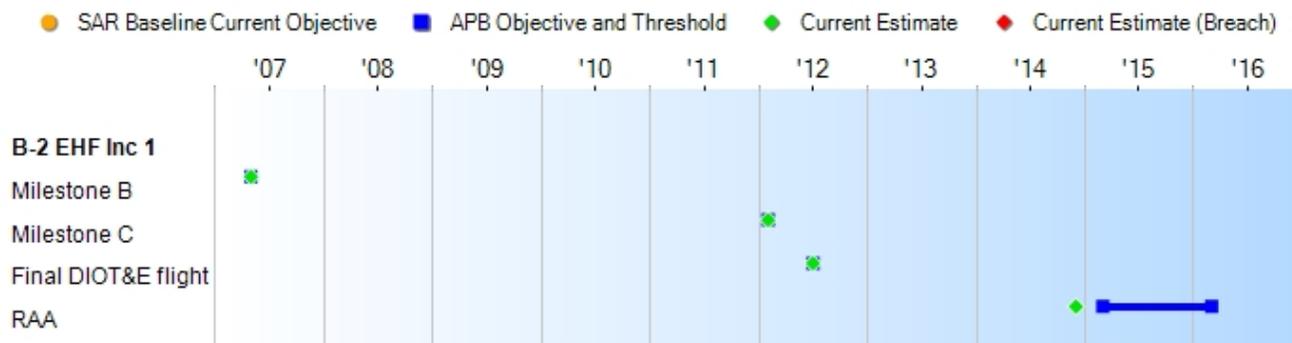
### APB Breaches

- Schedule
- Performance
- Cost
  - RDT&E
  - Procurement
  - MILCON
  - Acq O&M
- O&S Cost
- Unit Cost
  - PAUC
  - APUC

### Nunn-McCurdy Breaches

- Current UCR Baseline
  - PAUC 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         | May 2007                         | May 2007                                   | May 2007 | May 2007         |
| Milestone C         | Feb 2012                         | Feb 2012                                   | Feb 2012 | Feb 2012         |
| Final DIOT&E flight | Jul 2012                         | Jul 2012                                   | Jul 2012 | Jul 2012         |
| RAA                 | Mar 2015                         | Mar 2015                                   | Mar 2016 | Dec 2014         |

(Ch-1)

### Change Explanations

(Ch-1) The current estimate for RAA was updated to reflect the actual date.

### Notes

RAA is defined as eight assigned aircraft modified, sufficient aircrews and maintenance personnel trained, sufficient aircrew and maintenance trainers upgraded, formal aircrew and maintenance technical orders delivered and adequate spares available to support 509th Bombardment Wing operational tasking. IOC is declared by the Commander, Air Force Global Strike Command when the B-2 operational squadrons have completed each incremental upgrade.

### Acronyms and Abbreviations

DIOT&E - Dedicated Initial Operational Test and Evaluation  
 RAA - Required Assets Available

## Performance

| Performance Characteristics  |  |  |  |  |
|--|--|--|--|--|
| SAR Baseline Production Estimate   | Current APB Production Objective/Threshold   | Demonstrated Performance   | Current Estimate   |  |
| <b>Information Assurance (IA)</b>  |  |  |  |  |
| Protection consistent w/the classification of data being stored, processed, or transferred in compliance with Senior Jersey Security Classification Guide and JAFAN 6/3 Manual, Protection Special Access Program Information Within Information Systems | Protection consistent w/the classification of data being stored, processed, or transferred in compliance with Senior Jersey Security Classification Guide and JAFAN 6/3 Manual, Protection Special Access Program Information Within Information Systems | Protection consistent w/the classification of data being stored, processed, or transferred in compliance with Senior Jersey Security Classification Guide and JAFAN 6/3 Manual, Protection Special Access Program Information Within Information Systems | Protection consistent w/the classification of data being stored, processed, or transferred in compliance with Senior Jersey Security Classification Guide and JAFAN 6/3 Manual, Protection Special Access Program Information Within Information Systems | Protection consistent w/the classification of data being stored, processed, or transferred in compliance with Senior Jersey Security Classification Guide and JAFAN 6/3 Manual, Protection Special Access Program Information Within Information Systems |
| <b>Flight Management Functionality</b>   |  |  |  |  |
| IFC-P5 functionality shall be maintained   | IFC-P5 functionality shall be maintained   | IFC-P5 functionality shall be maintained   | IFC-P5 functionality maintained  | IFC-P5 functionality shall be maintained   |

### Requirements Reference

Capability Production Document (CPD) dated July 19, 2011

### Change Explanations

None

### Notes

IFC-P5 is the fifth major block software release for the B-2 Weapon System and is specifically tied to the Radar Modernization Program.

### Acronyms and Abbreviations

IFC - Integrated Functional Capability  
 JAFAN - Joint Air Force, Army, Navy

## Track to Budget

### General Notes

This SAR includes funding only for Increment 1 of the B-2 EHF Program.

### RDT&E

| Appn      | BA   | PE |          |   |
|-----------|------|----|----------|---|
| Air Force | 3600 | 07 | 0101127F |   |
|           |      |    | Project  | Name  |
|           |      |    | 675345   | B-2 EHF Inc 1 SATCOM and Computer Upgrade (Shared) (Sunk)<br><b>Notes:</b> Complete FY 2011 |
|           |      |    | 676022   | B-2 EHF Inc 1 SATCOM and Computer Upgrade (Shared) (Sunk)                                   |
| Air Force | 3600 | 05 | 0604240F |   |
|           |      |    | Project  | Name  |
|           |      |    | 653843   | B-2 EHF Inc 1 SATCOM and Computer Upgrade (Shared) (Sunk)<br><b>Notes:</b> Complete FY 2009 |

### Notes

Prior to FY 2013, PE 0101127F project 6022 also funded B-2 EHF Increment 2.

### Procurement

| Appn      | BA   | PE |           |   |
|-----------|------|----|-----------|---|
| Air Force | 3010 | 07 | 0101127F  |   |
|           |      |    | Line Item | Name  |
|           |      |    | 000075    | B-2 EHF Inc 1 SATCOM and Computer Upgrade Product Support / Depot Activation (Shared) |
| Air Force | 3010 | 06 | 0101127F  |   |
|           |      |    | Line Item | Name  |
|           |      |    | 000999    | B-2 EHF Inc 1 SATCOM and Computer Upgrade Initial Spares (Shared)                     |
| Air Force | 3010 | 07 | 0101127F  |   |
|           |      |    | Line Item | Name  |
|           |      |    | B00200    | B-2 EHF Inc 1 SATCOM and Computer Upgrade Interim Contractor Support (Shared) (Sunk)  |
| Air Force | 3010 | 05 | 0101127F  |   |
|           |      |    | Line Item | Name  |
|           |      |    | B00200    | B-2 EHF Inc 1 SATCOM and Computer Upgrade Modifications (Shared)                      |
| Air Force | 3010 | 07 | 0101127F  |   |

| Line Item | Name   |
|-----------|--|
| B002B0    | B-2 EHF Inc 1 SATCOM and Computer Upgrade (Shared)<br>Interim Contractor Support |

**Notes**

Aircraft Procurement, Air Force BA 05 line is shared for all B-2 Modifications (EHF SATCOM is modification number 110026 on the Exhibit P-40, Budget Item Justification). Funding for Initial Spares is in the shared BA 06 line; funding for Post Production Support is provided in BA 07 (Line Item 000075), and funding for Other Production is provided in BA 07 (Line Item B00200 and Line Item B002B0). The BA 07 line is shared for all B-2 Modifications.

## Cost and Funding

### Cost Summary

| Total Acquisition Cost |                                  |  |       |                  |                                  |                                  |                  |
|------------------------|----------------------------------|--|-------|------------------|----------------------------------|----------------------------------|------------------|
| Appropriation          | BY 2012 \$M                      |  |       | BY 2012 \$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                  | 450.2                            | 450.2                                      | 495.2 | 430.3            | 431.5                            | 431.5                            | 411.6            |
| Procurement            | 129.0                            | 129.0                                      | 141.9 | 124.2            | 135.2                            | 135.2                            | 129.9            |
| Flyaway                | --                               | --   | --    | 113.3            | --                               | --                               | 118.5            |
| Recurring              | --                               | --   | --    | 113.3            | --                               | --                               | 118.5            |
| Non Recurring          | --                               | --   | --    | 0.0              | --                               | --                               | 0.0              |
| Support                | --                               | --   | --    | 10.9             | --                               | --                               | 11.4             |
| Other Support          | --                               | --   | --    | 2.2              | --                               | --                               | 2.2              |
| Initial Spares         | --                               | --   | --    | 8.7              | --                               | --                               | 9.2              |
| 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                  | 579.2                            | 579.2                                      | N/A   | 554.5            | 566.7                            | 566.7                            | 541.5            |

#### Confidence Level

Confidence Level of cost estimate for current APB: 55%

This Acquisition Program Baseline (APB) reflects cost and funding data based on the B-2 EHF Increment I Service Cost Position (SCP). This cost estimate was quantified at the Mean (~55%) confidence level.

| Total Quantity |                                  |                        |                  |
|----------------|----------------------------------|------------------------|------------------|
| Quantity       | SAR Baseline Production Estimate | Current APB Production | Current Estimate |
| RDT&E          |                                  | 4                      | 4                |
| Procurement    |                                  | 16                     | 16               |
| Total          |                                  | 20                     | 20               |

## Cost and Funding

### Funding Summary

| Appropriation Summary                                   |       |         |         |         |         |         |         |             |       |
|---|-------|---------|---------|---------|---------|---------|---------|-------------|-------|
| FY 2016 President's Budget / December 2014 SAR (TY\$ M) |       |         |         |         |         |         |         |             |       |
| Appropriation   | Prior | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | FY 2020 | To Complete | Total |
| RDT&E   | 411.6 | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0         | 411.6 |
| Procurement   | 119.2 | 9.1     | 1.4     | 0.2     | 0.0     | 0.0     | 0.0     | 0.0         | 129.9 |
| 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 2016 Total   | 530.8 | 9.1     | 1.4     | 0.2     | 0.0     | 0.0     | 0.0     | 0.0         | 541.5 |
| PB 2015 Total   | 529.2 | 8.8     | 0.8     | 0.2     | 0.0     | 0.0     | 0.0     | 0.0         | 539.0 |
| Delta   | 1.6   | 0.3     | 0.6     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0         | 2.5   |

| Quantity Summary  |               |       |         |         |         |         |         |         |             |       |
|---|---------------|-------|---------|---------|---------|---------|---------|---------|-------------|-------|
| FY 2016 President's Budget / December 2014 SAR (TY\$ M) |               |       |         |         |         |         |         |         |             |       |
| Quantity  | Undistributed | Prior | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | FY 2020 | To Complete | Total |
| Development   | 4             | 0     | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 4     |
| Production  | 0             | 16    | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 16    |
| PB 2016 Total   | 4             | 16    | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 20    |
| PB 2015 Total   | 4             | 16    | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 20    |
| Delta   | 0             | 0     | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 0     |

## 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 |
| 2005  | --       | --                         | --                             | --                    | --            | --            | 4.4           |
| 2006  | --       | --                         | --                             | --                    | --            | --            | 38.3          |
| 2007  | --       | --                         | --                             | --                    | --            | --            | 75.7          |
| 2008  | --       | --                         | --                             | --                    | --            | --            | 71.6          |
| 2009  | --       | --                         | --                             | --                    | --            | --            | 85.0          |
| 2010  | --       | --                         | --                             | --                    | --            | --            | 49.5          |
| 2011  | --       | --                         | --                             | --                    | --            | --            | 48.5          |
| 2012  | --       | --                         | --                             | --                    | --            | --            | 38.2          |
| 2013  | --       | --                         | --                             | --                    | --            | --            | 0.4           |
| Subtotal  | 4        | --                         | --                             | --                    | --            | --            | 411.6         |

| Annual Funding<br>3600   RDT&E   Research, Development, Test, and Evaluation, Air Force |          |                            |                                |                       |               |               |               |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| Fiscal Year   | Quantity | BY 2012 \$M                |                                |                       |               |               |               |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2005  | --       | --                         | --                             | --                    | --            | --            | 5.0           |
| 2006  | --       | --                         | --                             | --                    | --            | --            | 42.2          |
| 2007  | --       | --                         | --                             | --                    | --            | --            | 81.4          |
| 2008  | --       | --                         | --                             | --                    | --            | --            | 75.4          |
| 2009  | --       | --                         | --                             | --                    | --            | --            | 88.4          |
| 2010  | --       | --                         | --                             | --                    | --            | --            | 50.8          |
| 2011  | --       | --                         | --                             | --                    | --            | --            | 48.9          |
| 2012  | --       | --                         | --                             | --                    | --            | --            | 37.8          |
| 2013  | --       | --                         | --                             | --                    | --            | --            | 0.4           |
| Subtotal  | 4        | --                         | --                             | --                    | --            | --            | 430.3         |

| Annual Funding<br>3010   Procurement   Aircraft 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 |
| 2012   | 5        | 47.8                       | 3.5                            | --                    | 51.3          | 0.2           | 51.5          |
| 2013   | 11       | 45.1                       | 6.3                            | --                    | 51.4          | 5.4           | 56.8          |
| 2014   | --       | --                         | 9.6                            | --                    | 9.6           | 1.3           | 10.9          |
| 2015   | --       | --                         | 6.2                            | --                    | 6.2           | 2.9           | 9.1           |
| 2016   | --       | --                         | --                             | --                    | --            | 1.4           | 1.4           |
| 2017   | --       | --                         | --                             | --                    | --            | 0.2           | 0.2           |
| Subtotal   | 16       | 92.9                       | 25.6                           | --                    | 118.5         | 11.4          | 129.9         |

| Annual Funding<br>3010   Procurement   Aircraft Procurement, Air Force |          |                            |                                |                       |               |               |               |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| Fiscal Year  | Quantity | BY 2012 \$M                |                                |                       |               |               |               |
|  |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2012   | 5        | 46.5                       | 3.4                            | --                    | 49.9          | 0.2           | 50.1          |
| 2013   | 11       | 42.9                       | 5.9                            | --                    | 48.8          | 5.2           | 54.0          |
| 2014   | --       | --                         | 8.9                            | --                    | 8.9           | 1.3           | 10.2          |
| 2015   | --       | --                         | 5.7                            | --                    | 5.7           | 2.7           | 8.4           |
| 2016   | --       | --                         | --                             | --                    | --            | 1.3           | 1.3           |
| 2017   | --       | --                         | --                             | --                    | --            | 0.2           | 0.2           |
| Subtotal   | 16       | 89.4                       | 23.9                           | --                    | 113.3         | 10.9          | 124.2         |

## Low Rate Initial Production

| Item                     | Initial LRIP Decision | Current Total LRIP                            |
|--------------------------|-----------------------|---|
| <b>Approval Date</b>     | 2/22/2007             | 1/14/2011                                     |
| <b>Approved Quantity</b> | 2                     | 5   |
| <b>Reference</b>         | Milestone B ADM       | Milestone C Acquisition Strategy Panel<br>ADM |
| <b>Start Year</b>        | 2012                  | 2012  |
| <b>End Year</b>          | 2012                  | 2012  |

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the need to achieve cost efficiencies within the small B-2 fleet and to deliver this capability in a timely manner.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

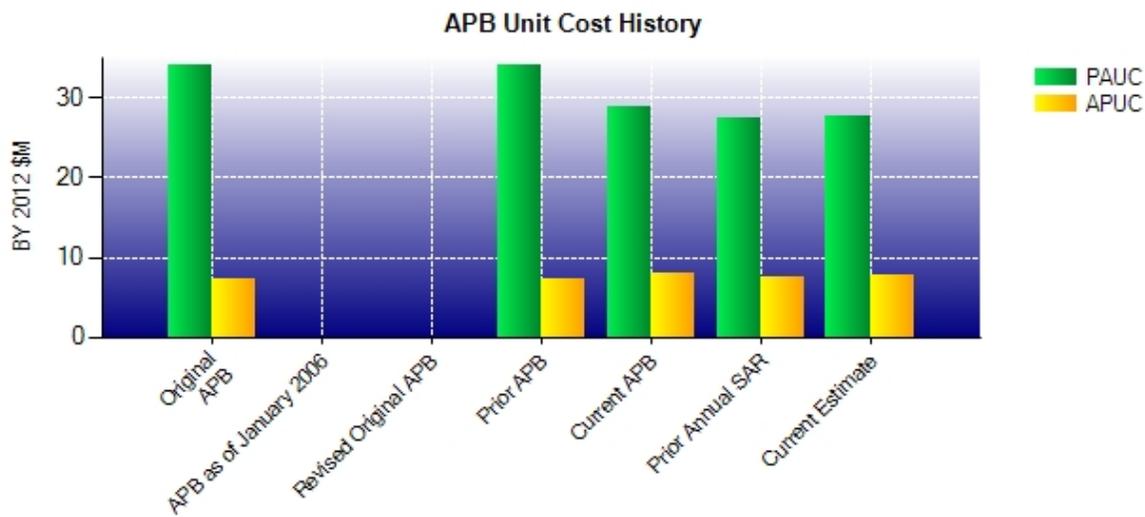
## Unit Cost

### Unit Cost Report

| Item                                 | BY 2012 \$M                               | BY 2012 \$M                        | % Change |
|--------------------------------------|---|------------------------------------|----------|
|                                      | Current UCR<br>Baseline<br>(Sep 2012 APB) | Current Estimate<br>(Dec 2014 SAR) |          |
| <b>Program Acquisition Unit Cost</b> |   |                                    |          |
| Cost                                 | 579.2                                     | 554.5                              |          |
| Quantity                             | 20  | 20                                 |          |
| Item                                 | 28.960                                    | 27.725                             | -4.26    |
| <b>Average Procurement Unit Cost</b> |   |                                    |          |
| Cost                                 | 129.0                                     | 124.2                              |          |
| Quantity                             | 16  | 16                                 |          |
| Unit Cost                            | 8.062                                     | 7.762                              | -3.72    |

| Item                                 | BY 2012 \$M                                | BY 2012 \$M                        | % Change |
|--------------------------------------|--|------------------------------------|----------|
|                                      | Original UCR<br>Baseline<br>(May 2007 APB) | Current Estimate<br>(Dec 2014 SAR) |          |
| <b>Program Acquisition Unit Cost</b> |  |                                    |          |
| Cost                                 | 718.4                                      | 554.5                              |          |
| Quantity                             | 21   | 20                                 |          |
| Unit Cost                            | 34.210                                     | 27.725                             | -18.96   |
| <b>Average Procurement Unit Cost</b> |  |                                    |          |
| Cost                                 | 125.0                                      | 124.2                              |          |
| Quantity                             | 17   | 16                                 |          |
| Unit Cost                            | 7.353                                      | 7.762                              | +5.56    |

**Unit Cost History**



| Item                   | Date     | BY 2012 \$M |       | TY \$M |       |
|------------------------|----------|-------------|-------|--------|-------|
|                        |          | PAUC        | APUC  | PAUC   | APUC  |
| Original APB           | May 2007 | 34.210      | 7.353 | 33.624 | 7.747 |
| 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              | May 2007 | 34.210      | 7.353 | 33.624 | 7.747 |
| Current APB            | Sep 2012 | 28.960      | 8.062 | 28.335 | 8.450 |
| Prior Annual SAR       | Dec 2013 | 27.580      | 7.575 | 26.950 | 7.956 |
| Current Estimate       | Dec 2014 | 27.725      | 7.762 | 27.075 | 8.119 |

**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  |                          |
| 33.624  | -0.350  | 1.381 | 0.375 | 0.000 | -6.075 | 0.000 | -0.620 | -5.289 | 28.335                   |

| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |       |        |       |       |        |                       |
|---|---------|-------|-------|-------|--------|-------|-------|--------|-----------------------|
| PAUC Production Estimate                          | Changes |       |       |       |        |       |       |        | PAUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng   | Est    | Oth   | Spt   | Total  |                       |
| 28.335  | 0.020   | 0.000 | 0.000 | 0.000 | -1.385 | 0.000 | 0.105 | -1.260 | 27.075                |

| 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 |                          |
| 7.747   | -0.150  | 0.109 | 0.469 | 0.000 | 1.050 | 0.000 | -0.775 | 0.703 | 8.450                    |

| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |       |        |       |       |        |                       |
|---|---------|-------|-------|-------|--------|-------|-------|--------|-----------------------|
| APUC Production Estimate                          | Changes |       |       |       |        |       |       |        | APUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng   | Est    | Oth   | Spt   | Total  |                       |
| 8.450   | 0.006   | 0.000 | 0.000 | 0.000 | -0.469 | 0.000 | 0.131 | -0.332 | 8.119                 |

| SAR Baseline History |                       |                          |                         |                  |
|----------------------|-----------------------|--------------------------|-------------------------|------------------|
| Item                 | SAR Planning Estimate | SAR Development Estimate | SAR Production Estimate | Current Estimate |
| Milestone I          | N/A                   | N/A                      | N/A                     | N/A              |
| Milestone B          | N/A                   | Feb 2007                 | May 2007                | May 2007         |
| Milestone C          | N/A                   | Jul 2011                 | Feb 2012                | Feb 2012         |
| IOC                  | N/A                   | Mar 2014                 | Mar 2015                | Dec 2014         |
| Total Cost (TY \$M)  | N/A                   | 706.1                    | 566.7                   | 541.5            |
| Total Quantity       | N/A                   | 21                       | 20                      | 20               |
| PAUC                 | N/A                   | 33.624                   | 28.335                  | 27.075           |

Required Assets Available is used in place of IOC.

## Cost Variance

| Summary TY \$M                     |       |             |        |       |
|------------------------------------|-------|-------------|--------|-------|
| Item                               | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Production Estimate) | 431.5 | 135.2       | --     | 566.7 |
| Previous Changes                   |       |             |        |       |
| Economic                           | +0.3  | +0.5        | --     | +0.8  |
| Quantity                           | --    | --          | --     | --    |
| Schedule                           | --    | --          | --     | --    |
| Engineering                        | --    | --          | --     | --    |
| Estimating                         | -20.1 | -9.2        | --     | -29.3 |
| Other                              | --    | --          | --     | --    |
| Support                            | --    | +0.8        | --     | +0.8  |
| Subtotal                           | -19.8 | -7.9        | --     | -27.7 |
| Current Changes                    |       |             |        |       |
| Economic                           | --    | -0.4        | --     | -0.4  |
| Quantity                           | --    | --          | --     | --    |
| Schedule                           | --    | --          | --     | --    |
| Engineering                        | --    | --          | --     | --    |
| Estimating                         | -0.1  | +1.7        | --     | +1.6  |
| Other                              | --    | --          | --     | --    |
| Support                            | --    | +1.3        | --     | +1.3  |
| Subtotal                           | -0.1  | +2.6        | --     | +2.5  |
| Adjustments                        | --    | --          | --     | --    |
| Total Changes                      | -19.9 | -5.3        | --     | -25.2 |
| CE - Cost Variance                 | 411.6 | 129.9       | --     | 541.5 |
| CE - Cost & Funding                | 411.6 | 129.9       | --     | 541.5 |

| Summary BY 2012 \$M                |       |             |        |       |
|------------------------------------|-------|-------------|--------|-------|
| Item                               | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Production Estimate) | 450.2 | 129.0       | --     | 579.2 |
| Previous Changes                   |       |             |        |       |
| Economic                           | --    | --          | --     | --    |
| Quantity                           | --    | --          | --     | --    |
| Schedule                           | --    | --          | --     | --    |
| Engineering                        | --    | --          | --     | --    |
| Estimating                         | -19.8 | -8.6        | --     | -28.4 |
| Other                              | --    | --          | --     | --    |
| Support                            | --    | +0.8        | --     | +0.8  |
| Subtotal                           | -19.8 | -7.8        | --     | -27.6 |
| Current Changes                    |       |             |        |       |
| Economic                           | --    | --          | --     | --    |
| Quantity                           | --    | --          | --     | --    |
| Schedule                           | --    | --          | --     | --    |
| Engineering                        | --    | --          | --     | --    |
| Estimating                         | -0.1  | +1.7        | --     | +1.6  |
| Other                              | --    | --          | --     | --    |
| Support                            | --    | +1.3        | --     | +1.3  |
| Subtotal                           | -0.1  | +3.0        | --     | +2.9  |
| Adjustments                        | --    | --          | --     | --    |
| Total Changes                      | -19.9 | -4.8        | --     | -24.7 |
| CE - Cost Variance                 | 430.3 | 124.2       | --     | 554.5 |
| CE - Cost & Funding                | 430.3 | 124.2       | --     | 554.5 |

Previous Estimate: December 2013

| RDT&E  | \$M       |           |
|--|-----------|-----------|
| Current Change Explanations  | Base Year | Then Year |
| Revised estimate to reflect realignment of FY 2013 funding to other B-2 programs. (Estimating) | -0.1      | -0.1      |
| RDT&E Subtotal   | -0.1      | -0.1      |

| Procurement  | \$M       |           |
|--|-----------|-----------|
| Current Change Explanations  | Base Year | Then Year |
| Revised escalation indices. (Economic)   | N/A       | -0.4      |
| Revised estimate to reflect increase in FY 2012 and FY 2014 due to approved additional requirement. (Estimating) | +3.8      | +4.0      |
| Adjustment for current and prior escalation. (Estimating)  | +0.4      | +0.4      |
| Revised estimate to reflect realignment of FY 2013 and FY 2015 funding to other B-2 programs. (Estimating)       | -2.5      | -2.7      |
| Increase in Other Support due to approved depot activation requirement. (Support)                                | +1.0      | +1.0      |
| Increase in Initial Spares due to approved program funding. (Support)  | +0.3      | +0.3      |
| Procurement Subtotal   | +3.0      | +2.6      |

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** EHF Inc 1 SatCom Production  
**Contractor:** Northrop Grumman Corp.  
**Contractor Location:** Palmdale, CA 93550  
**Contract Number:** F33657-99-D-0028/62  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 27, 2012  
**Definitization Date:** September 27, 2012

### Contract Price

| Initial Contract Price (\$M) |         |     | Current Contract Price (\$M) |         |     | Estimated Price At Completion (\$M) |                 |
|------------------------------|---------|-----|------------------------------|---------|-----|-------------------------------------|-----------------|
| Target                       | Ceiling | Qty | Target                       | Ceiling | Qty | Contractor                          | Program Manager |
| 108.1                        | N/A     | 16  | 108.1                        | N/A     | 16  | 108.1                               | 108.1           |

### Cost and Schedule Variance Explanations

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

### Notes

Contract awarded September 27, 2012, for LRIP, with three options, one for FRP, and two for installs.

## Deliveries and Expenditures

| Deliveries                       |                 |                |                |                   |
|----------------------------------|-----------------|----------------|----------------|-------------------|
| Delivered to Date                | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development                      | 4               | 4              | 4              | 100.00%           |
| Production                       | 3               | 5              | 16             | 31.25%            |
| Total Program Quantity Delivered | 7               | 9              | 20             | 45.00%            |

| Expended and Appropriated (TY \$M) |        |                            |        |
|------------------------------------|--------|----------------------------|--------|
| Total Acquisition Cost             | 541.5  | Years Appropriated         | 11     |
| Expended to Date                   | 476.0  | Percent Years Appropriated | 84.62% |
| Percent Expended                   | 87.90% | Appropriated to Date       | 539.9  |
| Total Funding Years                | 13     | Percent Appropriated       | 99.70% |

The above data is current as of January 31, 2015.

## Operating and Support Cost

### Cost Estimate Details

|                          |                   |
|--------------------------|-------------------|
| Date of Estimate:        | August 22, 2012   |
| Source of Estimate:      | SCP               |
| Quantity to Sustain:     | 20                |
| Unit of Measure:         | Aircraft          |
| Service Life per Unit:   | 35.00 Years       |
| Fiscal Years in Service: | FY 2013 - FY 2048 |

### Sustainment Strategy

The maintenance concept for the B-2 EHF Inc 1 is two level (organizational and depot). Organizational maintenance will consist of Air Force maintenance personnel removing and replacing failed items, performing preventative maintenance, and conducting fault isolation actions. All repairs of the Line Replaceable Units (LRUs) removed from the B-2 aircraft will be accomplished at the depot level. The source of repair for depot maintenance for Increment 1 was initially projected to be Warner Robins Air Logistics Complex (WR-ALC) for the two LRUs, the Integrated Processing Unit and the Disk Drive Unit. An Office Under Secretary Defense/Acquisition, Technology & Logistics action item out of July 2011 Defense Acquisition Executive Summary briefing directed reassessment of the organic depot strategy based on LRU reliability projections. In response, a Workload Shift package (from organic repair at WR-ALC to Contractor Depot Repair) was submitted and approved. The System Development and Demonstration (SDD) contract requires delivery of repair data and associated training. The planning for establishing this repair capability will be accomplished during the SDD contract. There are no increased O&S costs associated with B-2 EHF Inc 1, because improved reliability and maintainability provided by this modification are projected to reduce O&S costs incurred for B-2 legacy computers. The B-2 EHF Inc 1 modification is replacing two legacy LRUs with two high reliability LRUs, per Mean Time Between Failure estimates, in each of the 20 aircraft.

### Antecedent Information

No Antecedent

| Cost Element                   | Annual O&S Costs BY2012 \$K                       |                          |
|--------------------------------|---|--------------------------|
|                                | B-2 EHF Inc 1<br>Average Annual Cost Per Aircraft | None (Antecedent)<br>N/A |
| Unit-Level Manpower            | 22.851  | 0.000                    |
| Unit Operations                | 0.235   | 0.000                    |
| Maintenance                    | 46.634  | 0.000                    |
| Sustaining Support             | 55.031  | 0.000                    |
| Continuing System Improvements | 17.873  | 0.000                    |
| Indirect Support               | 7.983   | 0.000                    |
| Other                          | 0.000   | 0.000                    |
| Total                          | 150.607   | --                       |

| Item      | Total O&S Cost \$M                         |       |                  |                   |
|-----------|--|-------|------------------|-------------------|
|           | B-2 EHF Inc 1                              |       |                  | None (Antecedent) |
|           | Current Production APB Objective/Threshold |       | Current Estimate |                   |
| Base Year | 105.4                                      | 115.9 | 105.4            | N/A               |
| Then Year | 151.0                                      | N/A   | 151.0            | N/A               |

#### Equation to Translate Annual Cost to Total Cost

Total O&S Cost/number of aircraft/years of service = Unitized O&S Cost.  $\$105.4M/20/35=\$0.15M$

| O&S Cost Variance                            |             |                     |
|--|-------------|---------------------|
| Category                                     | BY 2012 \$M | Change Explanations |
| Prior SAR Total O&S Estimates - Dec 2013 SAR | 105.4       |                     |
| Programmatic/Planning Factors                | 0.0         |                     |
| Cost Estimating Methodology                  | 0.0         |                     |
| Cost Data Update                             | 0.0         |                     |
| Labor Rate                                   | 0.0         |                     |
| Energy Rate                                  | 0.0         |                     |
| Technical Input                              | 0.0         |                     |
| Other  | 0.0         |                     |
| Total Changes                                | 0.0         |                     |
| Current Estimate                             | 105.4       |                     |

#### Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2012 \$M):

Disposal costs for this modification are included in the B-2 platform.