



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-199



## Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

As of FY 2020 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

This document contains information that may be exempt from mandatory disclosure under the FOIA.

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**~~(U//FOUO)~~ Sensitivity Originator**

**Organization:** AFLCMC/HNS  
**Organization Email:** AFLCMC.HNS.FAB.T.Workflow@us.af.mil  
**Organization Phone:** 781-271-4820

The Aggregate Report Sensitivity has been defined as ~~(U//FOUO)~~ with the following explanation: NC3 programs are FOUO

## Common Acronyms and Abbreviations for MDAP Programs

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

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

## Program Information

**Program Name**

Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

**DoD Component**

Air Force

**Joint Participants**

US Navy [E-6 Take Charge and Move Out (TACAMO) aircraft]; US Navy (Ground Terminals); US Army (Ground Terminals)

## Responsible Office

Col Jonathan Sorbet  
202 Burlington Road  
Bedford, MA 01730

[jonathan.sorbet@us.af.mil](mailto:jonathan.sorbet@us.af.mil)

**Phone:** 781-271-4820

**Fax:** 781-271-6114

**DSN Phone:**

**DSN Fax:**

**Date Assigned:** July 2, 2018

FAB-T transitioned from Air Force Program Executive Officer (AFPEO) for Space to AFPEO for Nuclear Command, Control, and Communications (NC3) effective December 1, 2018.

## References

### CPT

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**SAR Baseline (Production Estimate)**

Under Secretary of Defense (Acquisition, Technology & Logistics) Approved Acquisition Program Baseline (APB) dated March 3, 2016

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated July 10, 2018

### FET

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**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 3, 2016

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated July 10, 2018

## Mission and Description

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program will develop nuclear event-survivable terminals capable of communicating with the Milstar and Advanced Extremely High Frequency (AEHF) satellite constellations using both the Extremely High Frequency and AEHF jam-resistant, low probability of intercept and low probability of detection waveforms. These terminals will be an essential component of the strategic nuclear execution system.

The Command Post Terminal (CPT) subprogram provides a nuclear survivable terminal capable of communicating with the Milstar and AEHF satellites from airborne and ground fixed and mobile locations, provides an interface for the Presidential and National Voice Conferencing (PNVC) function; the Telemetry, Tracking & Control for the Milstar and AEHF constellations, for Nuclear Command, Control, & Communications (NC3) data transport services [Emergency Action Message (EAM) injection, dissemination and reportback], and for Integrated Tactical Warning and Attack Assessment survivable data relay. The CPT will replace existing Milstar-only terminals for ground fixed and mobile command locations, as well as in the airborne E-4B and E-6 aircraft.

The Force Element Terminal (FET) subprogram provides a nuclear survivable terminal capable of communicating with the Milstar and AEHF satellites, and provides for survivable NC3 data transport services (EAM dissemination and force reportback) for airborne platforms. The FET is for the B-52 and RC-135 aircraft and will not provide satellite control or PNVC functionality. The initial installation and integration is a significant effort with antenna configurations which may differ from one aircraft type to another.

## Executive Summary

### Program Highlights Since Last Report

This is the final SAR submission for the FAB-T Force Element Terminal (FET) subprogram. On February 7, 2019, the Service Acquisition Executive (SAE) designated FAB-T FET as a Middle Tier of Acquisitions, Section 804 Rapid Prototyping effort, which is not subject to SAR reporting. Instead, the program will submit a Tri-Annual Report to Congress as required for Section 804 programs. FAB-T Command Post Terminal (CPT) program will continue to submit SARs as required for ACAT I programs.

The FAB-T program made progress during CY 2018. However, the FAB-T CPT sub-program has a significant FY 2019 RDT&E funding shortfall, which impacts the completion of required government testing and delays warfighter access to enhanced survivable and secure Nuclear Command, Control, and Communications (NC3) capability. In addition, the CPT sub-program has a FY 2019 Procurement funding shortfall resulting from FY 2018 Congressional reductions of \$56M, impacting the program's ability to procure remaining terminals required to attain FOC. The program is actively pursuing other funding options to address the shortfalls.

The contractor completed development of the new Ground Transportable Antenna (GTA), and the program received MDA approval to procure this configuration in April 2018. With the procurement of 9 GTAs, we now have 51 LRIP terminals on contract, of which 22 are delivered and 5 are installed. The first operational installation required for Initial Operational Test & Evaluation (IOT&E) began in January 2019 and is pending operational acceptance.

The FAB-T program office continues to maintain focus on completing development of the new Airborne Antenna, which is the last of five FAB-T CPT configurations, to support a production decision in 1st quarter FY 2020, and conducting site visits in preparation for fielding the initial terminals on order.

In June 2018, the National Security Agency (NSA) issued FAB-T a one-year interim Authority To Operate (ATO) for the FAB-T cryptographic units in support of the Type ATO, which Air Force Space Command/A6 (AFSPC/A6) approved in August 2018. These certifications are a pre-requisite to installing the FAB-T CPTs on operational networks.

The MDA signed the revised APB in July 2018. The program faced challenges with finalizing the operational software baseline and resolving Test Observation Reports noted during NC3 integration testing, delaying IOT&E completion 5 months past the baseline objective date; however, the program is still on track for IOT&E completion before the threshold date of November 2019.

In November 2018, the program conducted a Force Element Terminal (FET) Section 804 Vector Check with the Secretary of the Air Force for Acquisitions (SAF/AQ) and received approval to continue developing the FET acquisition strategy as a rapid prototyping effort which accelerates contract award by one year. FET risk reduction studies are underway to identify platform integration and installation issues, as well as nuclear hardness requirements for survivability. The FET Acquisition Strategy Panel was conducted in February 2019 and the program is targeting FET Development contract award in 4th quarter FY 2019.

In February 2019, the program received MDA approval to increase CPT Low Rate Initial Production (LRIP) quantity from 53 to 84 terminals in order to avoid a break in production and significant terminal cost increases. The program will procure as many terminals in FY 2019 as funding allows.

The MDA signed the Air Force Program Executive Officer (AFPEO) for NC3 Assignment Memorandum on August 7, 2018 to consolidate governance and acquisition oversight of the NC3 Weapon System by transferring several programs to the AFPEO NC3 portfolio. FAB-T CPT and FAB-T FET were transitioned from AFPEO for Space to AFPEO NC3, effective December 1, 2018.

| History of Significant Developments Since Program Initiation |   |
|--|---|
| History of Significant Developments Since Program Initiation |   |
| Date   | Significant Development Description   |
| August 1999  | DepSecDef initiates FAB-T by Program Decision Memorandum (PDM) as an ACAT II program  |
| September 2002   | FAB-T Development Cost Plus Award Fee (CPAF) contract awarded to Boeing   |
| August 2006  | USD(AT&L) designates FAB-T as an ACAT ID program  |
| February 2009  | FAB-T Key Decision Point-C (KDP-C) satisfies Milestone B requirements   |
| January 2012   | USD(AT&L) restructures Boeing FAB-T Development contract to Firm Fixed Price due to cost growth and schedule delays   |
| September 2012   | Alternate Source contract awarded to Raytheon to incentivize competition and performance.   |
| December 2013  | Deputy Secretary's Management Action Group (DMAG) decision to proceed with Command Post Terminal (CPT) only; Force Element Terminal (FET) deferred out of FYDP due to lack of platform integration funding                                    |
| June 2014  | FAB-T CPT Production Firm Fixed Price (FFP) contract awarded to Raytheon  |
| July 2015  | Congressional notification from USD(AT&L) to divide FAB-T into two sub-programs (CPT and FET)   |
| September 2015   | FAB-T CPT Milestone C approved  |
| October 2015   | Contract award for 10 LRIPs (6 Ground Fixed & 4 Airborne terminals with antenna modification kits)  |
| June 2016  | Contract award for 12 LRIPs (6 Ground Fixed & 6 Airborne terminals with antenna modification kits)  |
| May 2017   | Contract award for 20 LRIPs (15 terminals with new Ground Fixed Antenna & 5 Airborne terminals with antenna modification kits)  |
| November 2017  | USD(AT&L) redesignates FAB-T as an ACAT IC program  |
| December 2017  | FAB-T FET Cost Capability Analysis (CCA) complete   |
| March 2018   | USSTRATCOM/J8 prioritizes FET requirements to expedite capability   |
| April 2018   | Contract award for 9 LRIPs (Ground Transportable Antennas (GTA))  |
| June 2018  | NSA issued FAB-T a one-year interim Authority to Operate (ATO) for FAB-T cryptographic units  |
| June 2018  | Capability Development Council (CDC) approves FET CCA   |
| July 2018  | MDA signed the revised FAB-T APB  |
| August 2018  | Air Force Space Command/A6 approved the FAB-T Type ATO  |
| August 2018  | Secretary of the Air Force for Acquisitions (SAF/AQ) reassigns several programs, including FAB-T CPT and FAB-T FET, from Air Force Program Executive Office (AFPEO) for Space to AFPEO for Nuclear Command, Control, and Communications (NC3) |
| November 2018  | Conducted FAB-T FET Section 804 Vector Check with SAF/AQ; received approval to continue developing the FET Acquisition Strategy as a Rapid Prototyping effort   |
| December 2018  | FAB-T CPT and FAB-T FET formally transition from AFPEO for Space to AFPEO NC3, effective December 1, 2018   |
| January 2019   | First FAB-T CPT operational installation began  |
| February 2019  | MDA approval to increase CPT LRIP quantity from 53 to 84 terminals  |
| February 2019  | MDA designated FAB-T FET as a Middle Tier of Acquisitions (Section 804) Rapid Prototyping effort  |

## Threshold Breaches

### CPT

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#### APB Breaches

|                     |             |                          |
|---------------------|-------------|--------------------------|
| <b>Schedule</b>     |             | <input type="checkbox"/> |
| <b>Performance</b>  |             | <input type="checkbox"/> |
| <b>Cost</b>         | RDT&E       | <input type="checkbox"/> |
|                     | Procurement | <input type="checkbox"/> |
|                     | MILCON      | <input type="checkbox"/> |
|                     | Acq O&M     | <input type="checkbox"/> |
| <b>O&amp;S Cost</b> |             | <input type="checkbox"/> |
| <b>Unit Cost</b>    | PAUC        | <input type="checkbox"/> |
|                     | APUC        | <input type="checkbox"/> |

#### Nunn-McCurdy Breaches

|                              |      |      |
|------------------------------|------|------|
| <b>Current UCR Baseline</b>  |      |      |
|                              | PAUC | None |
|                              | APUC | None |
| <b>Original UCR Baseline</b> |      |      |
|                              | PAUC | None |
|                              | APUC | None |

### FET

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#### APB Breaches

|                     |             |                          |
|---------------------|-------------|--------------------------|
| <b>Schedule</b>     |             | <input type="checkbox"/> |
| <b>Performance</b>  |             | <input type="checkbox"/> |
| <b>Cost</b>         | RDT&E       | <input type="checkbox"/> |
|                     | Procurement | <input type="checkbox"/> |
|                     | MILCON      | <input type="checkbox"/> |
|                     | Acq O&M     | <input type="checkbox"/> |
| <b>O&amp;S Cost</b> |             | <input type="checkbox"/> |
| <b>Unit Cost</b>    | PAUC        | <input type="checkbox"/> |
|                     | APUC        | <input type="checkbox"/> |

#### Nunn-McCurdy Breaches

|                              |      |      |
|------------------------------|------|------|
| <b>Current UCR Baseline</b>  |      |      |
|                              | PAUC | None |
|                              | APUC | None |
| <b>Original UCR Baseline</b> |      |      |
|                              | PAUC | None |
|                              | APUC | None |

# Schedule



## CPT

| Schedule Events   |                                  |  |          |                  |
|---|----------------------------------|--|----------|------------------|
| Events  | SAR Baseline Production Estimate | Current APB Production Objective/Threshold |          | Current Estimate |
| Contract Award (Increment 1)                                    | Sep 2002                         | Sep 2002                                   | Sep 2002 | Sep 2002         |
| System Requirements Review                                      | Jan 2003                         | Jan 2003                                   | Jan 2003 | Jan 2003         |
| System Design Review  | Jul 2003                         | Jul 2003                                   | Jul 2003 | Jul 2003         |
| Conduct Low Data Rate (LDR) System Critical Design Review (CDR) | Feb 2007                         | Feb 2007                                   | Feb 2007 | Feb 2007         |
| Conduct eXtended High Data Rate (XDR) System CDR                | Oct 2008                         | Oct 2008                                   | Oct 2008 | Oct 2008         |
| Deliver First LDR System Engineering Development Model (EDM)    | Jan 2009                         | Jan 2009                                   | Jan 2009 | Jan 2009         |
| LRIP Decision System LDR and XDR                                | Sep 2015                         | Sep 2015                                   | Sep 2015 | Sep 2015         |
| Operational Test & Evaluation (OT&E) Complete                   | Dec 2017                         | May 2019                                   | Nov 2019 | Oct 2019 (Ch-1)  |
| FRP Decision  | Apr 2018                         | Sep 2019                                   | Mar 2020 | Dec 2019 (Ch-1)  |
| IOC   | Dec 2019                         | Jun 2021                                   | Dec 2021 | Jun 2021         |
| FOC   | Dec 2021                         | Mar 2023                                   | Sep 2023 | Mar 2023         |

### Change Explanations

(Ch-1) The current estimate for OT&E Complete changed from May 2019 to October 2019, and FRP Decision changed from September 2019 to December 2019, due to delays in completion of software updates.

### Acronyms and Abbreviations

CDR - Critical Design Review  
 EDM - Engineering Development Model  
 IOT&E - Initial Operational Test & Evaluation  
 LDR - Low Data Rate  
 OT&E - Operational Test & Evaluation  
 XDR - eXtended Data Rate

## FET

| Schedule Events   |                                   |  |          |                  |        |
|---|-----------------------------------|--|----------|------------------|--------|
| Events  | SAR Baseline Development Estimate | Current APB Production Objective/Threshold |          | Current Estimate |        |
| Contract Award (Increment 1)                                    | Sep 2002                          | Sep 2002                                   | Sep 2002 | Sep 2002         |        |
| System Requirements Review                                      | Jan 2003                          | Jan 2003                                   | Jan 2003 | Jan 2003         |        |
| System Design Review  | Jul 2003                          | Jul 2003                                   | Jul 2003 | Jul 2003         |        |
| Conduct Low Data Rate (LDR) System Critical Design Review (CDR) | Feb 2007                          | Feb 2007                                   | Feb 2007 | Feb 2007         |        |
| Conduct eXtended High Data Rate (XDR) System CDR                | Oct 2008                          | Oct 2008                                   | Oct 2008 | Oct 2008         |        |
| Deliver First LDR System Engineering Development Model (EDM)    | Jan 2009                          | Jan 2009                                   | Jan 2009 | Jan 2009         |        |
| LRIP Decision System LDR and XDR                                | TBD                               | TBD  | TBD      | TBD              |        |
| Operational Test & Evaluation (OT&E) Complete                   | TBD                               | TBD  | TBD      | TBD              |        |
| FRP Decision  | TBD                               | TBD  | TBD      | TBD              |        |
| IOC   | N/A                               | TBD  | TBD      | TBD              | (Ch-1) |
| FOC   | N/A                               | TBD  | TBD      | TBD              | (Ch-1) |

### Change Explanations

(Ch-1) The current estimates for IOC and FOC changed from N/A to TBD to reflect the updated APB.

### Notes

The Force Element Terminal (FET) subprogram schedule for LRIP, IOT&E, and FRP are TBD at this time. FET acquisition strategy in development in preparation for FET Development contract award in 4th Quarter FY 2019.

The AWT ORD for the capability now known as FET, approved March 29, 2004, established the IOC/FOC criteria as 20% and 85% (respectively) of the platforms being modified. MAJCOMs determine specific IOC and FOC criteria and dates for the platforms.

**Acronyms and Abbreviations**

AWT - Airborne Wideband Terminal  
CDR - Critical Design Review  
EDM - Engineering Development Model  
FET - Force Element Terminal  
IOT&E - Initial Operational Test & Evaluation  
LDR - Low Data Rate  
MAJCOM - Major Command  
ORD - Operational Requirements Document  
OT&E - Operational Test & Evaluation  
XDR - eXtended Data Rate

**(U//~~FOUO~~) Performance**

**(U//~~FOUO~~) CPT**

| <b>(U//<del>FOUO</del>) Performance Characteristics</b> |   |                                     |                             |
|---|---|-------------------------------------|-----------------------------|
| <b>SAR Baseline<br/>Production<br/>Estimate</b>         | <b>Current APB<br/>Production<br/>Objective/Threshold</b> | <b>Demonstrated<br/>Performance</b> | <b>Current<br/>Estimate</b> |
| <p>(b)(3)-10 USC § 130</p>                              |   |                                     |                             |

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(b)(3) 10 USC § 130



**Requirements Reference**

CPD dated August 5, 2015

**Change Explanations**

None

## Acronyms and Abbreviations

AEHF - Advanced Extremely High Frequency  
 AETC - Air Education and Training Command  
 AFCPT - Air Force Command Post Terminal  
 AFRB - Air Force Report Back  
 AFSPC - Air Force Space Command  
 APS - Advanced Polar System  
 ASMCS - AEHF Satellite Mission Control Subsystem  
 BC - Backwards Compatible  
 BLOS - Beyond Line-of-Sight  
 C3 - Command, Control and Communications  
 CBRN - Chemical, Biological, Radiological, and Nuclear  
 CJCSI - Chairman of the Joint Chiefs of Staff Instruction  
 CMS - Constellation Management System  
 CONOPS - Concept of Operations  
 CPT - Command Post Terminal  
 DAMA - Demand Assignment Multiple Access  
 DCMA - Defense Contract Management Agency  
 DIACAP - DoD Information Assurance Certification & Accreditation Process  
 DIRECT - Defense IEMATS Replacement Command and Control Terminal  
 DMU - Dual Modem Unit  
 DoDI - Department of Defense Instruction  
 E3 - Electromagnetic Environment Effects  
 EAM - Emergency Action Message  
 EDM - Engineering Development Model  
 EHF - Extremely High Frequency  
 FAB-T - Family of Advanced Beyond Line-of-Sight Terminals  
 FDM - Force Direction Message  
 FET - Force Element Terminal (formerly known as Airborne Wideband Terminal, or AWT)  
 FMC - Fully Mission Capable  
 FOT - Follow-on Operational Test  
 FPIF - Fixed Price Incentive Firm  
 HEMP - High-Altitude Electromagnetic Pulse  
 IA - Information Assurance  
 IAW - In Accordance With  
 IEMATS - Improved Emergency Message Automatic Transmission System  
 IER - Information Exchange Requirement  
 ISD - Instructional Systems Development  
 LDR - Low Data Rate  
 LDTO - Lead Developmental Test Organization  
 MEECN - Minimum Essential Emergency Communications Network  
 Milstar - Military Strategic and Tactical Relay  
 MMA - Milstar Messaging Application  
 MMPU - Minuteman MEECN Program Update  
 MPSS - Mission Planning Sub System  
 MRT - Mean Repair Time  
 NAS - Naval Air Station  
 NAST-T - Networked AEHF Satellite Test Tool  
 NC3 - Nuclear Command, Control & Communications  
 NMT - Navy Multi-Band Terminal  
 NPES - Nuclear Planning and Execution System  
 NRB - Navy Report Back  
 NSV - Nuclear Survivability and Vulnerability

OIPT - Overarching Integrated Product Team  
OPAF - Other Procurement, Air Force  
OPU - Operator Processing Unit  
OT&E - Operational Test & Evaluation  
PCMR - Probability of Correct Message Receipt  
PNVC - Presidential and National Voice Conferencing  
POTUS - President of the United States  
SCAMP - Single Channel, Anti-jam, Man-Portable Terminal  
SCIS - Secure Communications Integrated System  
SECDEF - Secretary of Defense  
SECN - Survivable Emergency Conferencing Network  
SMART-T - Secure Mobile Anti-Jam Reliable Tactical Terminal  
STIG - Security Technical Implementation Guidance  
T=O - Threshold = Objective  
TO - Technical Order  
TT&C - Telemetry, Tracking & Control  
UFO-E/EE - UHF Follow On - EHF/EHF Enhanced  
UHF - Ultra High Frequency  
USSTRATCOM - United States Strategic Command  
XDR - eXtended Data Rate

(U//~~FOUO~~) FET

| <del>(U//FOUO)</del> Performance Characteristics  |   |  |                  |   |
|---|---|--|------------------|---|
| SAR Baseline Development Estimate   | Current APB Production Objective/Threshold  | Demonstrated Performance   | Current Estimate |   |
| <del>(U//FOUO)</del> Network Ready  |   |  |                  |   |
| The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures. The system must also satisfy the technical requirements for Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoD Defense Architecture Framework (DoDAF) content, including specified operational effective information exchanges 2) Compliant with Net-centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD Information Enterprise Architecture (DoD IEA), excepting tactical and non-operational (OP) communications 3) Compliant with GIG Technical Guidance (GTG) to include Information Technology (IT) standards identified in the Standards Profile View (StdV-1) and implementation guidance GIG Enterprise Service Profiles (GESPs) | The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures. The system must also satisfy the technical requirements for Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoD Defense Architecture Framework (DoDAF) content, including specified operational effective information exchanges 2) Compliant with Net-centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD Information Enterprise Architecture (DoD IEA), excepting tactical and non-operational (OP) communications 3) Compliant with GIG Technical Guidance (GTG) to include Information Technology (IT) standards identified in the Standards Profile View (StdV-1) and implementation guidance GIG Enterprise Service Profiles (GESPs) | The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures. The system must also satisfy the technical requirements for transition to Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoD Defense Architecture Framework (DoDAF) content, including specified operational effective information exchanges 2) Compliant with Net-centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD DoD IEA, excepting tactical and non-OP communications 3) Compliant GTG to include IT standards identified in the StdV-1 and implementation guidance of GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) Information | TBD              | <del>(U//FOUO)</del> The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures. The system must also satisfy the technical requirements for Net-Centric military operations to include 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoD Defense Architecture Framework (DoDAF) content, including specified operational effective information exchanges 2) Compliant with Net-centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD Information Enterprise Architecture (DoD IEA), excepting tactical and non-operational (OP) communications 3) Compliant with GIG Technical Guidance (GTG) to include Information Technology (IT) standards identified in the Standards Profile View (StdV-1) and implementation guidance GIG Enterprise Service |

|  |  |  |  |   |
|--|--|--|--|---|
| necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an Authorization to Operate (ATO) by the Designated Accrediting Authority (DAA), and 5) Supportability requirements to include Selective Availability Anti-spoofing Module (SAASM), Spectrum and Joint Tactical Radio System (JTRS) requirements. | necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an Authorization to Operate (ATO) by the Designated Accrediting Authority (DAA), and 5) Supportability requirements to include Selective Availability Anti-spoofing Module (SAASM), Spectrum and Joint Tactical Radio System (JTRS) requirements. | assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an Interim Authorization to Operate (IATO) or ATO by the DAA, and 5) Supportability requirements to include Selective Availability Anti-spoofing Module (SAASM), Spectrum and JTRS requirements. |  | Profiles (GESPs) necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an Authorization to Operate (ATO) by the Designated Accrediting Authority (DAA), and 5) Supportability requirements to include Selective Availability Anti-spoofing Module (SAASM), Spectrum and Joint Tactical Radio System (JTRS) requirements. |
|--|--|--|--|---|

**~~(U//FOUO)~~ Strategic Services**

|  |  |   |     |   |
|--|--|---|-----|---|
| Terminals supporting nuclear/strategic operations will enable emergency action message dissemination while meeting the Probability of Correct Message Receipt (PCMR) requirements stated in Appendix F to Enclosure A CJCSI) 6811.01. Each Nuclear Command Center node or force element platform must be able to simultaneously support all services assigned to that node/platform as mandated in the Emergency Action Procedures of the Joint Staff directed networks and the USSTRATCOM Network Operating | Terminals supporting nuclear/strategic operations will enable emergency action message dissemination while meeting the Probability of Correct Message Receipt (PCMR) requirements stated in Appendix F to Enclosure A CJCSI) 6811.01. Each Nuclear Command Center node or force element platform must be able to simultaneously support all services assigned to that node/platform as mandated in the Emergency Action Procedures of the Joint Staff directed networks and the USSTRATCOM Network Operating | (T=O) Terminals supporting nuclear/strategic operations will enable emergency action message dissemination while meeting the Probability of Correct Message Receipt (PCMR) requirements stated in Appendix F to Enclosure A CJCSI) 6811.01. Each Nuclear Command Center node or force element platform must be able to simultaneously support all services assigned to that node/platform as mandated in the Emergency Action Procedures of the Joint Staff directed networks | TBD | <del>(U//FOUO)</del> Terminals supporting nuclear/strategic operations will enable emergency action message dissemination while meeting the Probability of Correct Message Receipt (PCMR) requirements stated in Appendix F to Enclosure A CJCSI) 6811.01. Each Nuclear Command Center node or force element platform must be able to simultaneously support all services assigned to that node/platform as mandated in the Emergency Action Procedures of the Joint Staff directed networks and the USSTRATCOM |
|--|--|---|-----|---|

|   |   |  |  |   |
|---|---|--|--|---|
| Instruction for USSTRATCOM directed networks. FE platforms will be required to perform this function with a single FAB-T. | Instruction for USSTRATCOM directed networks. FE platforms will be required to perform this function with a single FAB-T. | and the USSTRATCOM Network Operating Instruction for USSTRATCOM directed networks. FE platforms will be required to perform this function with a single FAB-T. |  | Network Operating Instruction for USSTRATCOM directed networks. FE platforms will be required to perform this function with a single FAB-T. |
|---|---|--|--|---|

**(U//~~FOUO~~) Terminal Survivability**

|  |  |  |     |   |
|--|--|--|-----|---|
| Terminals supporting nuclear operations must be fully mission capable up to the maximum nuclear environment that the platform is expected to survive. Any recovery from circumvention required for a dose rate event will not be part of the Emergency Action Message (EAM) transmission timeline. | Terminals supporting nuclear operations must be fully mission capable up to the maximum nuclear environment that the platform is expected to survive. Any recovery from circumvention required for a dose rate event will not be part of the Emergency Action Message (EAM) transmission timeline. | (T=O) Terminals supporting nuclear operations must be fully mission capable up to the maximum nuclear environment that the platform is expected to survive. Any recovery from circumvention required for a dose rate event will not be part of the Emergency Action Message (EAM) transmission timeline. | TBD | <del>(U//FOUO)</del> Terminals supporting nuclear operations must be fully mission capable up to the maximum nuclear environment that the platform is expected to survive. Any recovery from circumvention required for a dose rate event will not be part of the Emergency Action Message (EAM) transmission timeline. |
|--|--|--|-----|---|

**(U//~~FOUO~~) Capacity**

|   |   |   |     |  |
|---|---|---|-----|--|
| The FET, in conjunction with ancillary cryptographic equipment, will support up to seven simultaneous protected EHF networks (Point-to-Point [PTP] calls, conference networks, reportback service, and simplex broadcast service). Terminals will include all equipment necessary to accept system data rates defined in the Milstar and AEHF satellite system ORDs and EPS CDD as described in Table 4 of the CDD. | The FET, in conjunction with ancillary cryptographic equipment, will support up to seven simultaneous protected EHF networks (Point-to-Point [PTP] calls, conference networks, reportback service, and simplex broadcast service). Terminals will include all equipment necessary to accept system data rates defined in the Milstar and AEHF satellite system ORDs and EPS CDD as described in Table 4 of the CDD. | (T=O) The FET, in conjunction with ancillary cryptographic equipment, will support up to seven simultaneous protected EHF networks (Point-to-Point [PTP] calls, conference networks, reportback service, and simplex broadcast service). Terminals will include all equipment necessary to accept system data rates defined in the Milstar and AEHF satellite system ORDs and EPS CDD as described in Table 4 of the CDD. | TBD | <del>(U//FOUO)</del> The FET, in conjunction with ancillary cryptographic equipment, will support up to seven simultaneous protected EHF networks (Point-to-Point [PTP] calls, conference networks, reportback service, and simplex broadcast service). Terminals will include all equipment necessary to accept system data rates defined in the Milstar and AEHF satellite system ORDs and EPS CDD as described in Table 4 of the CDD. |
|---|---|---|-----|--|

**(U//~~FOUO~~) Sustainment**

|  |  |  |     |  |
|--|--|--|-----|--|
| The FAB-T FET must meet a Reliability, | The FAB-T FET must meet a Reliability, | The FAB-T FET must meet a Reliability, | TBD | <del>(U//FOUO)</del> The FAB-T FET must meet a |
|--|--|--|-----|--|

|   |   |  |     |  |
|---|---|--|-----|--|
| Maintainability and Dependability requirement of 0.9923. Mean Repair Time (MRT) is the average on -equipment, organizational level corrective maintenance time to return a system to operational status. The MRT (excluding the antenna/pedestal) will not exceed 15 minutes. MRT will be achievable in a deployed environment. | Maintainability and Dependability requirement of 0.9923. Mean Repair Time (MRT) is the average on -equipment, organizational level corrective maintenance time to return a system to operational status. The MRT (excluding the antenna/pedestal) will not exceed 15 minutes. MRT will be achievable in a deployed environment. | Maintainability and Dependability requirement of 0.9923. Mean Repair Time (MRT) is the average on-equipment, organizational level corrective maintenance time to return a system to operational status. The MRT (excluding the antenna/pedestal) should not exceed 30 minutes. MRT will be achievable in a deployed environment. |     | Reliability, Maintainability and Dependability requirement of 0.9923. Mean Repair Time (MRT) is the average on -equipment, organizational level corrective maintenance time to return a system to operational status. The MRT (excluding the antenna/pedestal) will not exceed 15 minutes. MRT will be achievable in a deployed environment. |
| <b>(U//FOUO) Training</b>   |   |  |     |  |
| Contractor is developing Type 1 operator and maintainer course material along with Computer Based Training as part of the development contract. Training materials will be supplied to all services. A joint Training Program need not be developed.  | Contractor is developing Type 1 operator and maintainer course material along with Computer Based Training as part of the development contract. Training materials will be supplied to all services. A joint Training Program need not be developed.  | (T=O) Contractor is developing Type 1 operator and maintainer course material along with Computer Based Training as part of the development contract. Training materials will be supplied to all services. A joint Training Program need not be developed.   | TBD | <del>(U//FOUO)</del> Contractor is developing Type 1 operator and maintainer course material along with Computer Based Training as part of the development contract. Training materials will be supplied to all services. A joint Training Program need not be developed.  |

### Requirements Reference

CDD dated February 15, 2013

### Change Explanations

None

### Notes

The KPPs were updated in accordance with Joint Capabilities Integration and Development System guidance - supersedes KPPs reported in APB dated December 22, 2007.

Demonstrated Performance is TBD at this time.

**Acronyms and Abbreviations**

AEHF - Advanced Extremely High Frequency  
AWT - Advanced Wideband Terminal  
BC - Backward Compatibility  
CJCSI - Chairman of the Joint Chiefs of Staff Instruction  
EAM - Emergency Action Message  
FE - Force Element  
FET - Force Element Terminal  
IA - Information Assurance  
ORD - Operational Requirement Document  
PCMR - Probability of Correct Message Receipt

## Track to Budget

## CPT

## RDT&amp;E

| Appn      | BA   | PE |                |   |
|-----------|------|----|----------------|---|
| Air Force | 3600 | 07 | 0303001F       |   |
|           |      |    | <b>Project</b> | <b>Name</b>   |
|           |      |    | 672490         | Family of Advanced BLoS Terminals (FAB-T) (Sunk)            |
| Air Force | 3600 | 07 | 0303601F       |   |
|           |      |    | <b>Project</b> | <b>Name</b>   |
|           |      |    | 672487         | MILSATCOM Terminals (Sunk)                                  |
|           |      |    | 672489         | FAB-T Alternative (Sunk)                                    |
|           |      |    | 672490         | Family of Adv Beyond Line of Sight Terminals (FAB-T) (Sunk) |
| Air Force | 3600 | 07 | 1203001F       |   |
|           |      |    | <b>Project</b> | <b>Name</b>   |
|           |      |    | 672490         | Family of Advanced BLoS Terminals (FAB-T)                   |

## Procurement

| Appn      | BA   | PE |                  |   |
|-----------|------|----|------------------|---|
| Air Force | 3010 | 05 | 1203001F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | 000075           | Other Production Charges (Shared)               |
| Air Force | 3010 | 06 | 1203001F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | 000999           | Initial Spares/Repair Parts (Shared)            |
| Air Force | 3010 | 06 | 0303601F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | 000999           | Initial Spares/Repair Parts (Sunk)              |
| Air Force | 3010 | 06 | 0303001F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | 000999           | Initial Spares/Repair Parts (Sunk)              |
| Air Force | 3010 | 05 | 0303001F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | FBLOST           | Family of Beyond Line-of-Sight Terminals (Sunk) |
| Air Force | 3010 | 05 | 0303601F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |
|           |      |    | FBLOST           | Family of Beyond Line-of-Sight Terminals (Sunk) |
| Air Force | 3010 | 05 | 1203001F         |   |
|           |      |    | <b>Line Item</b> | <b>Name</b>                                     |

|           |                  |   |          |
|-----------|------------------|---|----------|
|           | FBLOST           | Family of Beyond Line-of-Sight Terminals          |          |
| Air Force | 3010 05          | 0303601F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | OTHACF           | Other Aircraft                                    | (Sunk)   |
| Air Force | 3021 01          | 0303001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | FBLOST           | Family of Advanced Beyond Line of Sight Terminals | (Sunk)   |
| Air Force | 3021 01          | 1203001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | FBLOST           | Family of Beyond Line-of-Sight Terminals          | (Shared) |
| Air Force | 3021 02          | 0303001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | SSPARE           | Initial Spares/Repair Parts                       | (Sunk)   |
| Air Force | 3021 02          | 1203001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | SSPARE           | Initial Spares/Repair Parts                       | (Shared) |
| Air Force | 3080 03          | 0303601F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | 836700           | Family of Beyond Line-of-Sight Terminals          | (Sunk)   |
| Air Force | 3080 03          | 0303001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | 836700           | Family of Beyond Line-of-Sight Terminals          | (Sunk)   |
| Air Force | 3080 03          | 0303601F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | 836780           | MILSATCOM Space                                   | (Sunk)   |
| Air Force | 3080 05          | 0303001F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | 861900           | Spares and Repair Parts                           | (Sunk)   |
| Air Force | 3080 05          | 0303601F  |          |
|           | <b>Line Item</b> | <b>Name</b>                                       |          |
|           | 861900           | Spares and Repair Parts                           | (Sunk)   |

FET

**RDT&E**

| Appn      | BA             | PE   |        |
|-----------|----------------|--|--------|
| Air Force | 3600 07        | 0303001F   |        |
|           | <b>Project</b> | <b>Name</b>  |        |
|           | 672490         | Family of Adv Beyond Line of Sight Terminals (FAB-T) | (Sunk) |
| Air Force | 3600 07        | 0303601F   |        |

| Project | Name   |        |
|---------|--|--------|
| 672487  | MILSATCOM Terminals                                  | (Sunk) |
| 672489  | FAB-T Alternative                                    | (Sunk) |
| 672490  | Family of Adv Beyond Line of Sight Terminals (FAB-T) | (Sunk) |

Air Force 3600 07 1203001F

| Project | Name   |        |
|---------|--|--------|
| 672490  | Family of Adv Beyond Line of Sight Terminals (FAB-T) | (Sunk) |
| 673040  | Force Element Terminal                               |        |

### Procurement

| Appn           | BA | PE       |
|----------------|----|----------|
| Air Force 3021 | 01 | 1203001F |

| Line Item | Name                          |
|-----------|-------------------------------|
| FET000    | FAB-T Force Element Terminals |

## Cost and Funding

### Cost Summary - Total Program

| Total Acquisition Cost - Total Program |  |  |     |                     |  |  |                     |
|--|--|--|-----|---------------------|--|--|---------------------|
| Appropriation                          | BY 2015 \$M                            |  |     | BY 2015 \$M         | TY \$M                                 |  |                     |
|  | SAR Baseline<br>Production<br>Estimate | Current APB<br>Production<br>Objective/Threshold |     | Current<br>Estimate | SAR Baseline<br>Production<br>Estimate | Current APB<br>Production<br>Objective | Current<br>Estimate |
| RDT&E                                  | 3083.1                                 | 3102.2   | --  | 3061.7              | 2924.7                                 | 2945.1                                 | 2937.3              |
| Procurement                            | 1459.0                                 | 1532.6   | --  | 1341.6              | 1688.9                                 | 1776.7                                 | 1590.5              |
| Flyaway                                | --                                     | --   | --  | 876.0               | --                                     | --                                     | 1039.2              |
| Recurring                              | --                                     | --   | --  | 876.0               | --                                     | --                                     | 1039.2              |
| Non Recurring                          | --                                     | --   | --  | 0.0                 | --                                     | --                                     | 0.0                 |
| Support                                | --                                     | --   | --  | 465.6               | --                                     | --                                     | 551.3               |
| Other Support                          | --                                     | --   | --  | 146.8               | --                                     | --                                     | 169.8               |
| Initial Spares                         | --                                     | --   | --  | 318.8               | --                                     | --                                     | 381.5               |
| 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                                  | 4542.1                                 | 4634.8   | N/A | 4403.3              | 4613.6                                 | 4721.8                                 | 4527.8              |

## Cost and Funding

### Cost Summary - CPT

| Total Acquisition Cost - CPT |                                  |  |        |                  |                                  |                                  |                  |
|------------------------------|----------------------------------|--|--------|------------------|----------------------------------|----------------------------------|------------------|
| Appropriation                | BY 2015 \$M                      |  |        | BY 2015 \$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                        | 1159.0                           | 1178.1                                     | 1295.9 | 1211.3           | 1075.7                           | 1096.1                           | 1136.9           |
| Procurement                  | 584.0                            | 657.6                                      | 723.4  | 559.8            | 622.4                            | 710.2                            | 596.1            |
| Flyaway                      | --                               | --   | --     | 355.1            | --                               | --                               | 376.6            |
| Recurring                    | --                               | --   | --     | 355.1            | --                               | --                               | 376.6            |
| Non Recurring                | --                               | --   | --     | 0.0              | --                               | --                               | 0.0              |
| Support                      | --                               | --   | --     | 204.7            | --                               | --                               | 219.5            |
| Other Support                | --                               | --   | --     | 98.6             | --                               | --                               | 108.0            |
| Initial Spares               | --                               | --   | --     | 106.1            | --                               | --                               | 111.5            |
| MILCON                       | 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              |
| Total                        | 1743.0                           | 1835.7                                     | N/A    | 1771.1           | 1698.1                           | 1806.3                           | 1733.0           |

#### Current APB Cost Estimate Reference

Air Force Service Cost Position dated March 20, 2018

#### Cost Notes

This section covers the FAB-T Program Command Post Terminal (CPT) subprogram.

If an Independent Cost Estimate, Component Cost Estimate, or Program Office Estimate has been completed for the program in the previous year, list any program risks identified in the estimates, the potential impacts of the risks on program cost, and approaches to mitigate the risks.

Installation of CPT ground terminals has been identified in the SCP as an area of potential risk due to variation among the individual sites. This risk is mitigated by including funding in the estimate to cover 5% overall cost growth to the installation effort beyond scope identified in site surveys.

CPT has fixed price procurement contract options for terminal purchases that expire at the end of fiscal year 2019. If the remaining procurement options are not exercised prior to the end of fiscal year 2019, then the program faces cost and schedule risks. This risk is being actively monitored and managed by concerted effort to complete all remaining terminal buys before the end of fiscal year 2019.

| Total Quantity - CPT |                                  |                        |                  |
|----------------------|----------------------------------|------------------------|------------------|
| Quantity             | SAR Baseline Production Estimate | Current APB Production | Current Estimate |
| RDT&E                | 25                               | 25                     | 25               |
| Procurement          | 84                               | 84                     | 84               |
| Total                | 109                              | 109                    | 109              |

#### Quantity Notes

For CPT there is a total of 109 systems, which includes 25 Engineering Development Models (EDMs) (12 Boeing and 13 Raytheon) and 84 production systems. All quantities shown reflect the program baseline as approved in the Milestone C ADM.

**Cost Summary - FET**

| Total Acquisition Cost - FET |                                   |   |        |                  |                                   |                                   |                  |
|------------------------------|-----------------------------------|---|--------|------------------|-----------------------------------|-----------------------------------|------------------|
| Appropriation                | BY 2015 \$M                       |   |        | BY 2015 \$M      | TY \$M                            |                                   |                  |
|                              | SAR Baseline Development Estimate | Current APB Development Objective/Threshold |        | Current Estimate | SAR Baseline Development Estimate | Current APB Development Objective | Current Estimate |
| RDT&E                        | 1924.1                            | 1924.1                                      | 2116.5 | 1850.4           | 1849.0                            | 1849.0                            | 1800.4           |
| Procurement                  | 875.0                             | 875.0                                       | 962.5  | 781.8            | 1066.5                            | 1066.5                            | 994.4            |
| Flyaway                      | --                                | --  | --     | 520.9            | --                                | --                                | 662.6            |
| Recurring                    | --                                | --  | --     | 520.9            | --                                | --                                | 662.6            |
| Non Recurring                | --                                | --  | --     | 0.0              | --                                | --                                | 0.0              |
| Support                      | --                                | --  | --     | 260.9            | --                                | --                                | 331.8            |
| Other Support                | --                                | --  | --     | 48.2             | --                                | --                                | 61.8             |
| Initial Spares               | --                                | --  | --     | 212.7            | --                                | --                                | 270.0            |
| MILCON                       | 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              |
| Total                        | 2799.1                            | 2799.1                                      | N/A    | 2632.2           | 2915.5                            | 2915.5                            | 2794.8           |

**Current APB Cost Estimate Reference**

Air Force SCP dated July 07, 2015

**Cost Notes**

No cost estimate for the program has been completed in the previous year.

| Total Quantity - FET |                                   |                         |                  |     |
|----------------------|-----------------------------------|-------------------------|------------------|-----|
| Quantity             | SAR Baseline Development Estimate | Current APB Development | Current Estimate |     |
| RDT&E                |                                   | 26                      | 26               | 35  |
| Procurement          |                                   | 132                     | 132              | 109 |
| Total                |                                   | 158                     | 158              | 144 |

## Cost and Funding

### Funding Summary - Total Program

| Appropriation Summary                                   |        |         |         |         |         |         |         |             |        |
|---|--------|---------|---------|---------|---------|---------|---------|-------------|--------|
| FY 2020 President's Budget / December 2018 SAR (TY\$ M) |        |         |         |         |         |         |         |             |        |
| Appropriation   | Prior  | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total  |
| RDT&E   | 2302.7 | 27.5    | 131.5   | 183.8   | 147.1   | 71.7    | 73.0    | 0.0         | 2937.3 |
| Procurement   | 480.3  | 63.9    | 41.8    | 10.1    | 0.0     | 88.9    | 90.5    | 815.0       | 1590.5 |
| 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 2020 Total   | 2783.0 | 91.4    | 173.3   | 193.9   | 147.1   | 160.6   | 163.5   | 815.0       | 4527.8 |
| PB 2019 Total   | 2858.3 | 112.5   | 191.4   | 169.6   | 127.2   | 160.6   | 260.8   | 634.3       | 4514.7 |
| Delta   | -75.3  | -21.1   | -18.1   | 24.3    | 19.9    | 0.0     | -97.3   | 180.7       | 13.1   |

## Cost and Funding

### Funding Summary - CPT

| Appropriation Summary                                   |        |         |         |         |         |         |         |             |        |
|---|--------|---------|---------|---------|---------|---------|---------|-------------|--------|
| FY 2020 President's Budget / December 2018 SAR (TY\$ M) |        |         |         |         |         |         |         |             |        |
| Appropriation   | Prior  | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total  |
| RDT&E   | 1085.0 | 3.9     | 16.0    | 17.0    | 15.0    | 0.0     | 0.0     | 0.0         | 1136.9 |
| Procurement   | 480.3  | 63.9    | 41.8    | 10.1    | 0.0     | 0.0     | 0.0     | 0.0         | 596.1  |
| 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 2020 Total   | 1565.3 | 67.8    | 57.8    | 27.1    | 15.0    | 0.0     | 0.0     | 0.0         | 1733.0 |
| PB 2019 Total   | 1634.2 | 68.8    | 34.1    | 10.1    | 0.0     | 0.0     | 0.0     | 0.0         | 1747.2 |
| Delta   | -68.9  | -1.0    | 23.7    | 17.0    | 15.0    | 0.0     | 0.0     | 0.0         | -14.2  |

| Quantity Summary  |               |       |         |         |         |         |         |         |             |       |
|---|---------------|-------|---------|---------|---------|---------|---------|---------|-------------|-------|
| FY 2020 President's Budget / December 2018 SAR (TY\$ M) |               |       |         |         |         |         |         |         |             |       |
| Quantity  | Undistributed | Prior | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total |
| Development   | 25            | 0     | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 25    |
| Production  | 0             | 82    | 2       | 0       | 0       | 0       | 0       | 0       | 0           | 84    |
| PB 2020 Total   | 25            | 82    | 2       | 0       | 0       | 0       | 0       | 0       | 0           | 109   |
| PB 2019 Total   | 25            | 82    | 2       | 0       | 0       | 0       | 0       | 0       | 0           | 109   |
| Delta   | 0             | 0     | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 0     |

## Funding Summary - FET

| Appropriation Summary                                   |        |         |         |         |         |         |         |             |        |
|---|--------|---------|---------|---------|---------|---------|---------|-------------|--------|
| FY 2020 President's Budget / December 2018 SAR (TY\$ M) |        |         |         |         |         |         |         |             |        |
| Appropriation   | Prior  | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total  |
| RDT&E   | 1217.7 | 23.6    | 115.5   | 166.8   | 132.1   | 71.7    | 73.0    | 0.0         | 1800.4 |
| Procurement   | 0.0    | 0.0     | 0.0     | 0.0     | 0.0     | 88.9    | 90.5    | 815.0       | 994.4  |
| 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 2020 Total   | 1217.7 | 23.6    | 115.5   | 166.8   | 132.1   | 160.6   | 163.5   | 815.0       | 2794.8 |
| PB 2019 Total   | 1224.1 | 43.7    | 157.3   | 159.5   | 127.2   | 160.6   | 260.8   | 634.3       | 2767.5 |
| Delta   | -6.4   | -20.1   | -41.8   | 7.3     | 4.9     | 0.0     | -97.3   | 180.7       | 27.3   |

| Quantity Summary  |               |       |         |         |         |         |         |         |             |       |
|---|---------------|-------|---------|---------|---------|---------|---------|---------|-------------|-------|
| FY 2020 President's Budget / December 2018 SAR (TY\$ M) |               |       |         |         |         |         |         |         |             |       |
| Quantity  | Undistributed | Prior | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total |
| Development   | 35            | 0     | 0       | 0       | 0       | 0       | 0       | 0       | 0           | 35    |
| Production  | 0             | 0     | 0       | 0       | 0       | 0       | 7       | 8       | 94          | 109   |
| PB 2020 Total   | 35            | 0     | 0       | 0       | 0       | 0       | 7       | 8       | 94          | 144   |
| PB 2019 Total   | 28            | 0     | 0       | 0       | 0       | 0       | 7       | 29      | 73          | 137   |
| Delta   | 7             | 0     | 0       | 0       | 0       | 0       | 0       | -21     | 21          | 7     |

## Cost and Funding

### Annual Funding By Appropriation - CPT

| Annual Funding - CPT  |          |                            |                                |                       |               |               |               |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 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 |
| 2001  | --       | --                         | --                             | --                    | --            | --            | 2.1           |
| 2002  | --       | --                         | --                             | --                    | --            | --            | 4.1           |
| 2003  | --       | --                         | --                             | --                    | --            | --            | 20.2          |
| 2004  | --       | --                         | --                             | --                    | --            | --            | 44.6          |
| 2005  | --       | --                         | --                             | --                    | --            | --            | 67.3          |
| 2006  | --       | --                         | --                             | --                    | --            | --            | 76.3          |
| 2007  | --       | --                         | --                             | --                    | --            | --            | 75.1          |
| 2008  | --       | --                         | --                             | --                    | --            | --            | 108.0         |
| 2009  | --       | --                         | --                             | --                    | --            | --            | 81.7          |
| 2010  | --       | --                         | --                             | --                    | --            | --            | 73.7          |
| 2011  | --       | --                         | --                             | --                    | --            | --            | 102.6         |
| 2012  | --       | --                         | --                             | --                    | --            | --            | 161.5         |
| 2013  | --       | --                         | --                             | --                    | --            | --            | 47.6          |
| 2014  | --       | --                         | --                             | --                    | --            | --            | 118.8         |
| 2015  | --       | --                         | --                             | --                    | --            | --            | 72.9          |
| 2016  | --       | --                         | --                             | --                    | --            | --            | 6.3           |
| 2017  | --       | --                         | --                             | --                    | --            | --            | 20.2          |
| 2018  | --       | --                         | --                             | --                    | --            | --            | 2.0           |
| 2019  | --       | --                         | --                             | --                    | --            | --            | 3.9           |
| 2020  | --       | --                         | --                             | --                    | --            | --            | 16.0          |
| 2021  | --       | --                         | --                             | --                    | --            | --            | 17.0          |
| 2022  | --       | --                         | --                             | --                    | --            | --            | 15.0          |
| Subtotal  | 25       | --                         | --                             | --                    | --            | --            | 1136.9        |

| Annual Funding - CPT  |          |                            |                                |                       |               |               |               |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 3600   RDT&E   Research, Development, Test, and Evaluation, Air Force |          |                            |                                |                       |               |               |               |
| Fiscal Year   | Quantity | BY 2015 \$M                |                                |                       |               |               |               |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2001  | --       | --                         | --                             | --                    | --            | --            | 2.7           |
| 2002  | --       | --                         | --                             | --                    | --            | --            | 5.2           |
| 2003  | --       | --                         | --                             | --                    | --            | --            | 25.1          |
| 2004  | --       | --                         | --                             | --                    | --            | --            | 54.1          |
| 2005  | --       | --                         | --                             | --                    | --            | --            | 79.6          |
| 2006  | --       | --                         | --                             | --                    | --            | --            | 87.7          |
| 2007  | --       | --                         | --                             | --                    | --            | --            | 84.1          |
| 2008  | --       | --                         | --                             | --                    | --            | --            | 118.5         |
| 2009  | --       | --                         | --                             | --                    | --            | --            | 88.5          |
| 2010  | --       | --                         | --                             | --                    | --            | --            | 78.8          |
| 2011  | --       | --                         | --                             | --                    | --            | --            | 107.7         |
| 2012  | --       | --                         | --                             | --                    | --            | --            | 166.6         |
| 2013  | --       | --                         | --                             | --                    | --            | --            | 48.3          |
| 2014  | --       | --                         | --                             | --                    | --            | --            | 118.9         |
| 2015  | --       | --                         | --                             | --                    | --            | --            | 72.2          |
| 2016  | --       | --                         | --                             | --                    | --            | --            | 6.1           |
| 2017  | --       | --                         | --                             | --                    | --            | --            | 19.3          |
| 2018  | --       | --                         | --                             | --                    | --            | --            | 1.9           |
| 2019  | --       | --                         | --                             | --                    | --            | --            | 3.6           |
| 2020  | --       | --                         | --                             | --                    | --            | --            | 14.4          |
| 2021  | --       | --                         | --                             | --                    | --            | --            | 15.0          |
| 2022  | --       | --                         | --                             | --                    | --            | --            | 13.0          |
| Subtotal  | 25       | --                         | --                             | --                    | --            | --            | 1211.3        |

| Annual Funding - CPT                                 |          |                            |                                |                       |               |               |               |  |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 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 |  |
| 2007   | --       | 4.3                        | --                             | --                    | 4.3           | --            | 4.3           |  |
| 2008   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2009   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2010   | --       | 1.3                        | --                             | --                    | 1.3           | --            | 1.3           |  |
| 2011   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2012   | --       | 3.7                        | --                             | --                    | 3.7           | --            | 3.7           |  |
| 2013   | --       | 4.6                        | --                             | --                    | 4.6           | --            | 4.6           |  |
| 2014   | --       | 1.5                        | --                             | --                    | 1.5           | 0.4           | 1.9           |  |
| 2015   | 9        | 44.9                       | --                             | --                    | 44.9          | 21.4          | 66.3          |  |
| 2016   | 8        | 42.3                       | --                             | --                    | 42.3          | 8.7           | 51.0          |  |
| 2017   | 1        | 4.4                        | --                             | --                    | 4.4           | 3.8           | 8.2           |  |
| 2018   | 3        | 5.9                        | --                             | --                    | 5.9           | 7.9           | 13.8          |  |
| 2019   | 2        | 8.8                        | --                             | --                    | 8.8           | 11.6          | 20.4          |  |
| 2020   | --       | 5.2                        | --                             | --                    | 5.2           | 4.4           | 9.6           |  |
| 2021   | --       | 0.7                        | --                             | --                    | 0.7           | 0.9           | 1.6           |  |
| Subtotal   | 23       | 127.6                      | --                             | --                    | 127.6         | 59.1          | 186.7         |  |

| Annual Funding - CPT                                 |          |                            |                                |                       |               |               |               |  |
|--|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3010   Procurement   Aircraft Procurement, Air Force |          |                            |                                |                       |               |               |               |  |
| Fiscal Year  | Quantity | BY 2015 \$M                |                                |                       |               |               |               |  |
|  |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |  |
| 2007   | --       | 4.7                        | --                             | --                    | 4.7           | --            | 4.7           |  |
| 2008   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2009   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2010   | --       | 1.4                        | --                             | --                    | 1.4           | --            | 1.4           |  |
| 2011   | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2012   | --       | 3.8                        | --                             | --                    | 3.8           | --            | 3.8           |  |
| 2013   | --       | 4.6                        | --                             | --                    | 4.6           | --            | 4.6           |  |
| 2014   | --       | 1.5                        | --                             | --                    | 1.5           | 0.4           | 1.9           |  |
| 2015   | 9        | 43.4                       | --                             | --                    | 43.4          | 20.7          | 64.1          |  |
| 2016   | 8        | 40.1                       | --                             | --                    | 40.1          | 8.2           | 48.3          |  |
| 2017   | 1        | 4.1                        | --                             | --                    | 4.1           | 3.5           | 7.6           |  |
| 2018   | 3        | 5.4                        | --                             | --                    | 5.4           | 7.1           | 12.5          |  |
| 2019   | 2        | 7.8                        | --                             | --                    | 7.8           | 10.4          | 18.2          |  |
| 2020   | --       | 4.5                        | --                             | --                    | 4.5           | 3.9           | 8.4           |  |
| 2021   | --       | 0.6                        | --                             | --                    | 0.6           | 0.8           | 1.4           |  |
| Subtotal   | 23       | 121.9                      | --                             | --                    | 121.9         | 55.0          | 176.9         |  |

| Cost Quantity Information - CPT<br>3010   Procurement   Aircraft Procurement, Air Force |          |   |
|---|----------|---|
| Fiscal Year   | Quantity | End Item<br>Recurring<br>Flyaway<br>(Aligned With<br>Quantity)<br>BY 2015 \$M |
| 2007  | --       | --  |
| 2008  | --       | --  |
| 2009  | --       | --  |
| 2010  | --       | --  |
| 2011  | --       | --  |
| 2012  | --       | --  |
| 2013  | --       | --  |
| 2014  | --       | --  |
| 2015  | 9        | 47.7  |
| 2016  | 8        | 42.4  |
| 2017  | 1        | 5.3   |
| 2018  | 3        | 15.9  |
| 2019  | 2        | 10.6  |
| 2020  | --       | --  |
| 2021  | --       | --  |
| Subtotal  | 23       | 121.9   |

| Annual Funding - CPT                              |          |                            |                                |                       |               |               |               |  |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3080   Procurement   Other 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  | --       | 1.9                        | --                             | --                    | 1.9           | --            | 1.9           |  |
| 2011  | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2012  | --       | --                         | --                             | --                    | --            | --            | --            |  |
| 2013  | --       | 5.0                        | --                             | --                    | 5.0           | --            | 5.0           |  |
| 2014  | --       | 0.4                        | --                             | --                    | 0.4           | 2.9           | 3.3           |  |
| 2015  | 8        | 34.6                       | --                             | --                    | 34.6          | 12.2          | 46.8          |  |
| 2016  | --       | --                         | --                             | --                    | --            | 33.1          | 33.1          |  |
| Subtotal  | 8        | 41.9                       | --                             | --                    | 41.9          | 48.2          | 90.1          |  |

| Annual Funding - CPT                              |          |                            |                                |                       |               |               |               |    |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|----|
| 3080   Procurement   Other Procurement, Air Force |          |                            |                                |                       |               |               |               |    |
| Fiscal Year                                       | Quantity | BY 2015 \$M                |                                |                       |               |               |               |    |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |    |
| 2010  | --       | 2.0                        | --                             | --                    | 2.0           | --            | 2.0           | -- |
| 2011  | --       | --                         | --                             | --                    | --            | --            | --            | -- |
| 2012  | --       | --                         | --                             | --                    | --            | --            | --            | -- |
| 2013  | --       | 5.1                        | --                             | --                    | 5.1           | --            | 5.1           | -- |
| 2014  | --       | 0.4                        | --                             | --                    | 0.4           | 2.9           | 3.3           | -- |
| 2015  | 8        | 34.3                       | --                             | --                    | 34.3          | 12.1          | 46.4          | -- |
| 2016  | --       | --                         | --                             | --                    | --            | 32.3          | 32.3          | -- |
| Subtotal  | 8        | 41.8                       | --                             | --                    | 41.8          | 47.3          | 89.1          | -- |

| Cost Quantity Information - CPT<br>3080   Procurement   Other Procurement, Air Force |          |   |
|--|----------|---|
| Fiscal Year  | Quantity | End Item<br>Recurring<br>Flyaway<br>(Aligned With<br>Quantity)<br>BY 2015 \$M |
| 2010   | --       | --  |
| 2011   | --       | --  |
| 2012   | --       | --  |
| 2013   | --       | --  |
| 2014   | --       | --  |
| 2015   | 8        | 41.8  |
| 2016   | --       | --  |
| Subtotal   | 8        | 41.8  |

| Annual Funding - CPT                              |          |                            |                                |                       |               |               |               |  |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3021   Procurement   Space 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 |  |
| 2016  | 11       | 40.5                       | --                             | --                    | 40.5          | 11.7          | 52.2          |  |
| 2017  | 16       | 83.4                       | --                             | --                    | 83.4          | 17.2          | 100.6         |  |
| 2018  | 26       | 38.9                       | --                             | --                    | 38.9          | 43.4          | 82.3          |  |
| 2019  | --       | 23.5                       | --                             | --                    | 23.5          | 20.0          | 43.5          |  |
| 2020  | --       | 15.8                       | --                             | --                    | 15.8          | 16.4          | 32.2          |  |
| 2021  | --       | 5.0                        | --                             | --                    | 5.0           | 3.5           | 8.5           |  |
| Subtotal  | 53       | 207.1                      | --                             | --                    | 207.1         | 112.2         | 319.3         |  |

| Annual Funding - CPT                              |          |                            |                                |                       |               |               |               |  |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3021   Procurement   Space Procurement, Air Force |          |                            |                                |                       |               |               |               |  |
| Fiscal Year                                       | Quantity | BY 2015 \$M                |                                |                       |               |               |               |  |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |  |
| 2016  | 11       | 38.7                       | --                             | --                    | 38.7          | 11.2          | 49.9          |  |
| 2017  | 16       | 78.0                       | --                             | --                    | 78.0          | 16.1          | 94.1          |  |
| 2018  | 26       | 35.5                       | --                             | --                    | 35.5          | 39.7          | 75.2          |  |
| 2019  | --       | 21.0                       | --                             | --                    | 21.0          | 18.0          | 39.0          |  |
| 2020  | --       | 13.9                       | --                             | --                    | 13.9          | 14.4          | 28.3          |  |
| 2021  | --       | 4.3                        | --                             | --                    | 4.3           | 3.0           | 7.3           |  |
| Subtotal  | 53       | 191.4                      | --                             | --                    | 191.4         | 102.4         | 293.8         |  |

| Cost Quantity Information - CPT<br>3021   Procurement   Space Procurement, Air Force |          |   |
|--|----------|---|
| Fiscal Year  | Quantity | End Item<br>Recurring<br>Flyaway<br>(Aligned With<br>Quantity)<br>BY 2015 \$M |
| 2016   | 11       | 39.7  |
| 2017   | 16       | 57.7  |
| 2018   | 26       | 94.0  |
| 2019   | --       | --  |
| 2020   | --       | --  |
| 2021   | --       | --  |
| Subtotal   | 53       | 191.4   |

## Annual Funding By Appropriation - FET

| Annual Funding - FET  |          |                                  |   |                             |                  |                  |                  |
|---|----------|----------------------------------|---|-----------------------------|------------------|------------------|------------------|
| 3600   RDT&E   Research, Development, Test, and Evaluation, Air Force |          |                                  |   |                             |                  |                  |                  |
| Fiscal Year   | Quantity | TY \$M                           |   |                             |                  |                  |                  |
|   |          | End Item<br>Recurring<br>Flyaway | Non End<br>Item<br>Recurring<br>Flyaway | Non<br>Recurring<br>Flyaway | Total<br>Flyaway | Total<br>Support | Total<br>Program |
| 2001  | --       | --                               | --                                      | --                          | --               | --               | 3.2              |
| 2002  | --       | --                               | --                                      | --                          | --               | --               | 6.4              |
| 2003  | --       | --                               | --                                      | --                          | --               | --               | 31.7             |
| 2004  | --       | --                               | --                                      | --                          | --               | --               | 70.1             |
| 2005  | --       | --                               | --                                      | --                          | --               | --               | 105.8            |
| 2006  | --       | --                               | --                                      | --                          | --               | --               | 119.9            |
| 2007  | --       | --                               | --                                      | --                          | --               | --               | 117.9            |
| 2008  | --       | --                               | --                                      | --                          | --               | --               | 169.7            |
| 2009  | --       | --                               | --                                      | --                          | --               | --               | 128.4            |
| 2010  | --       | --                               | --                                      | --                          | --               | --               | 115.8            |
| 2011  | --       | --                               | --                                      | --                          | --               | --               | 161.3            |
| 2012  | --       | --                               | --                                      | --                          | --               | --               | 118.7            |
| 2013  | --       | --                               | --                                      | --                          | --               | --               | 50.2             |
| 2014  | --       | --                               | --                                      | --                          | --               | --               | 7.1              |
| 2015  | --       | --                               | --                                      | --                          | --               | --               | --               |
| 2016  | --       | --                               | --                                      | --                          | --               | --               | 5.9              |
| 2017  | --       | --                               | --                                      | --                          | --               | --               | --               |
| 2018  | --       | --                               | --                                      | --                          | --               | --               | 5.6              |
| 2019  | --       | --                               | --                                      | --                          | --               | --               | 23.6             |
| 2020  | --       | --                               | --                                      | --                          | --               | --               | 115.5            |
| 2021  | --       | --                               | --                                      | --                          | --               | --               | 166.8            |
| 2022  | --       | --                               | --                                      | --                          | --               | --               | 132.1            |
| 2023  | --       | --                               | --                                      | --                          | --               | --               | 71.7             |
| 2024  | --       | --                               | --                                      | --                          | --               | --               | 73.0             |
| Subtotal  | 35       | --                               | --                                      | --                          | --               | --               | 1800.4           |

| Annual Funding - FET  |          |                            |                                |                       |               |               |               |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|
| 3600   RDT&E   Research, Development, Test, and Evaluation, Air Force |          |                            |                                |                       |               |               |               |
| Fiscal Year   | Quantity | BY 2015 \$M                |                                |                       |               |               |               |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2001  | --       | --                         | --                             | --                    | --            | --            | 4.1           |
| 2002  | --       | --                         | --                             | --                    | --            | --            | 8.1           |
| 2003  | --       | --                         | --                             | --                    | --            | --            | 39.4          |
| 2004  | --       | --                         | --                             | --                    | --            | --            | 85.1          |
| 2005  | --       | --                         | --                             | --                    | --            | --            | 125.2         |
| 2006  | --       | --                         | --                             | --                    | --            | --            | 137.7         |
| 2007  | --       | --                         | --                             | --                    | --            | --            | 132.0         |
| 2008  | --       | --                         | --                             | --                    | --            | --            | 186.2         |
| 2009  | --       | --                         | --                             | --                    | --            | --            | 139.1         |
| 2010  | --       | --                         | --                             | --                    | --            | --            | 123.9         |
| 2011  | --       | --                         | --                             | --                    | --            | --            | 169.3         |
| 2012  | --       | --                         | --                             | --                    | --            | --            | 122.5         |
| 2013  | --       | --                         | --                             | --                    | --            | --            | 50.9          |
| 2014  | --       | --                         | --                             | --                    | --            | --            | 7.1           |
| 2015  | --       | --                         | --                             | --                    | --            | --            | --            |
| 2016  | --       | --                         | --                             | --                    | --            | --            | 5.8           |
| 2017  | --       | --                         | --                             | --                    | --            | --            | --            |
| 2018  | --       | --                         | --                             | --                    | --            | --            | 5.2           |
| 2019  | --       | --                         | --                             | --                    | --            | --            | 21.7          |
| 2020  | --       | --                         | --                             | --                    | --            | --            | 104.0         |
| 2021  | --       | --                         | --                             | --                    | --            | --            | 147.3         |
| 2022  | --       | --                         | --                             | --                    | --            | --            | 114.3         |
| 2023  | --       | --                         | --                             | --                    | --            | --            | 60.8          |
| 2024  | --       | --                         | --                             | --                    | --            | --            | 60.7          |
| Subtotal  | 35       | --                         | --                             | --                    | --            | --            | 1850.4        |

| Annual Funding - FET                              |          |                            |                                |                       |               |               |               |  |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3021   Procurement   Space 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 |  |
| 2023  | 7        | 59.6                       | --                             | --                    | 59.6          | 29.3          | 88.9          |  |
| 2024  | 8        | 60.6                       | --                             | --                    | 60.6          | 29.9          | 90.5          |  |
| 2025  | 36       | 179.5                      | --                             | --                    | 179.5         | 100.1         | 279.6         |  |
| 2026  | 37       | 177.1                      | --                             | --                    | 177.1         | 83.8          | 260.9         |  |
| 2027  | 21       | 148.7                      | --                             | --                    | 148.7         | 75.5          | 224.2         |  |
| 2028  | --       | 35.1                       | --                             | --                    | 35.1          | 8.3           | 43.4          |  |
| 2029  | --       | 2.0                        | --                             | --                    | 2.0           | 4.9           | 6.9           |  |
| Subtotal  | 109      | 662.6                      | --                             | --                    | 662.6         | 331.8         | 994.4         |  |

| Annual Funding - FET                              |          |                            |                                |                       |               |               |               |  |
|---|----------|----------------------------|--------------------------------|-----------------------|---------------|---------------|---------------|--|
| 3021   Procurement   Space Procurement, Air Force |          |                            |                                |                       |               |               |               |  |
| Fiscal Year                                       | Quantity | BY 2015 \$M                |                                |                       |               |               |               |  |
|   |          | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |  |
| 2023  | 7        | 49.3                       | --                             | --                    | 49.3          | 24.3          | 73.6          |  |
| 2024  | 8        | 49.2                       | --                             | --                    | 49.2          | 24.2          | 73.4          |  |
| 2025  | 36       | 142.8                      | --                             | --                    | 142.8         | 79.6          | 222.4         |  |
| 2026  | 37       | 138.1                      | --                             | --                    | 138.1         | 65.3          | 203.4         |  |
| 2027  | 21       | 113.7                      | --                             | --                    | 113.7         | 57.7          | 171.4         |  |
| 2028  | --       | 26.3                       | --                             | --                    | 26.3          | 6.2           | 32.5          |  |
| 2029  | --       | 1.5                        | --                             | --                    | 1.5           | 3.6           | 5.1           |  |
| Subtotal  | 109      | 520.9                      | --                             | --                    | 520.9         | 260.9         | 781.8         |  |

| Cost Quantity Information - FET<br>3021   Procurement   Space Procurement, Air Force |          |   |
|--|----------|---|
| Fiscal Year  | Quantity | End Item<br>Recurring<br>Flyaway<br>(Aligned With<br>Quantity)<br>BY 2015 \$M |
| 2023   | 7        | 33.4  |
| 2024   | 8        | 38.2  |
| 2025   | 36       | 172.0   |
| 2026   | 37       | 176.8   |
| 2027   | 21       | 100.5   |
| 2028   | --       | --  |
| 2029   | --       | --  |
| Subtotal   | 109      | 520.9   |

## Low Rate Initial Production

### CPT

| Item                     | Initial LRIP Decision                          | Current Total LRIP            |
|--------------------------|--|-------------------------------|
| <b>Approval Date</b>     | 7/5/2009                                       | 9/1/2015                      |
| <b>Approved Quantity</b> | 101  | 84                            |
| <b>Reference</b>         | Acquisition Strategy Production Phase Addendum | CPT-only Milestone (MS) C DAB |
| <b>Start Year</b>        | 2010   | 2015                          |
| <b>End Year</b>          | 2012   | 2020                          |

The Current Total LRIP Quantity is more than 10% of the total production quantity because an LRIP quantity of 84 terminals is required to: (1) satisfy IOC requirements and allow schedule flexibility to accommodate a shift of FRP to the right without impacting the IOC date, and (2) avoid a break in production.

The "current total LRIP" reflects an increase CPT LRIP quantity from 53 to 84 terminals as approved by the MDA in the ADM dated February 7, 2019.

Milestone C DAB was for the CPT subprogram only.

## Foreign Military Sales

CPT

---

None

FET

---

None

## Nuclear Costs

CPT

---

None

FET

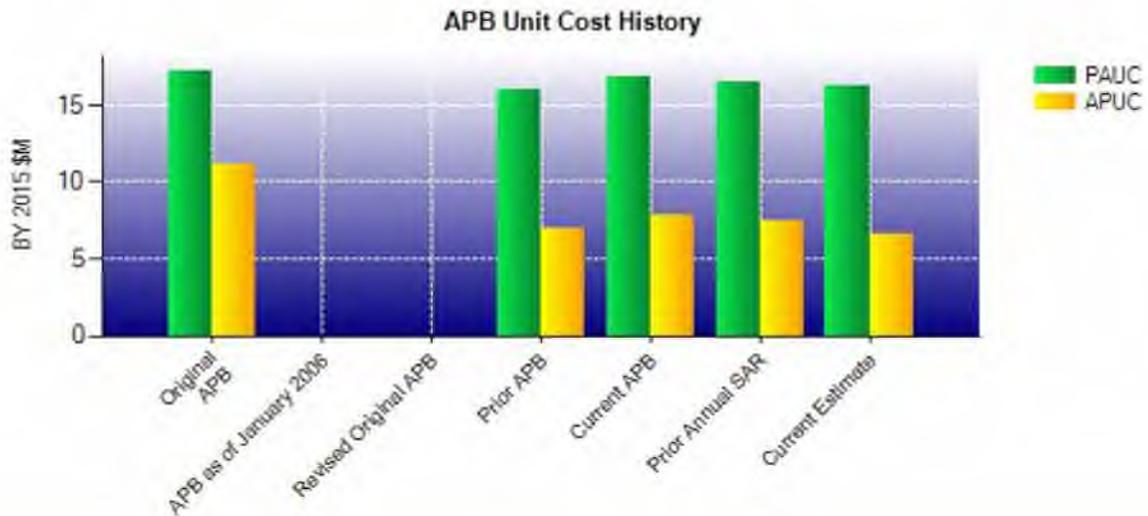
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None

**Unit Cost****CPT**

| Current UCR Baseline and Current Estimate (Base-Year Dollars) |                                     |                                 |          |
|---|-------------------------------------|---------------------------------|----------|
| Item  | BY 2015 \$M                         | BY 2015 \$M                     | % Change |
|   | Current UCR Baseline (Jul 2018 APB) | Current Estimate (Dec 2018 SAR) |          |
| <b>Program Acquisition Unit Cost</b>                          |                                     |                                 |          |
| Cost  | 1835.7                              | 1771.1                          |          |
| Quantity  | 109                                 | 109                             |          |
| Unit Cost   | 16.841                              | 16.249                          | -3.52    |
| <b>Average Procurement Unit Cost</b>                          |                                     |                                 |          |
| Cost  | 657.6                               | 559.8                           |          |
| Quantity  | 84                                  | 84                              |          |
| Unit Cost   | 7.829                               | 6.664                           | -14.88   |

| Original UCR Baseline and Current Estimate (Base-Year Dollars) |                                      |                                 |          |
|--|--------------------------------------|---------------------------------|----------|
| Item   | BY 2015 \$M                          | BY 2015 \$M                     | % Change |
|  | Original UCR Baseline (Dec 2007 APB) | Current Estimate (Dec 2018 SAR) |          |
| <b>Program Acquisition Unit Cost</b>                           |                                      |                                 |          |
| Cost   | 1639.1                               | 1771.1                          |          |
| Quantity   | 95                                   | 109                             |          |
| Unit Cost  | 17.254                               | 16.249                          | -5.82    |
| <b>Average Procurement Unit Cost</b>                           |                                      |                                 |          |
| Cost   | 939.8                                | 559.8                           |          |
| Quantity   | 84                                   | 84                              |          |
| Unit Cost  | 11.188                               | 6.664                           | -40.44   |



| APB Unit Cost History  |          |             |        |        |        |
|------------------------|----------|-------------|--------|--------|--------|
| Item                   | Date     | BY 2015 \$M |        | TY \$M |        |
|                        |          | PAUC        | APUC   | PAUC   | APUC   |
| Original APB           | Dec 2007 | 17.254      | 11.188 | 16.589 | 11.370 |
| 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              | Mar 2016 | 15.991      | 6.952  | 15.579 | 7.410  |
| Current APB            | Jul 2018 | 16.841      | 7.829  | 16.572 | 8.455  |
| Prior Annual SAR       | Dec 2017 | 16.416      | 7.508  | 16.029 | 7.969  |
| Current Estimate       | Dec 2018 | 16.249      | 6.664  | 15.899 | 7.096  |

**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 |                          |
| 14.226  | 0.024   | -2.760 | 0.942 | 0.623 | 3.199 | 0.000 | -0.675 | 1.353 | 15.579                   |

| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |       |        |       |       |       |                       |
|---|---------|-------|-------|-------|--------|-------|-------|-------|-----------------------|
| PAUC Production Estimate                          | Changes |       |       |       |        |       |       |       | PAUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng   | Est    | Oth   | Spt   | Total |                       |
| 15.579  | 0.027   | 0.001 | 0.269 | 0.686 | -1.195 | 0.000 | 0.532 | 0.320 | 15.899                |

| 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  |                          |
| 8.775   | -0.046  | -0.770 | 1.058 | 0.000 | -0.731 | 0.000 | -0.876 | -1.365 | 7.410                    |

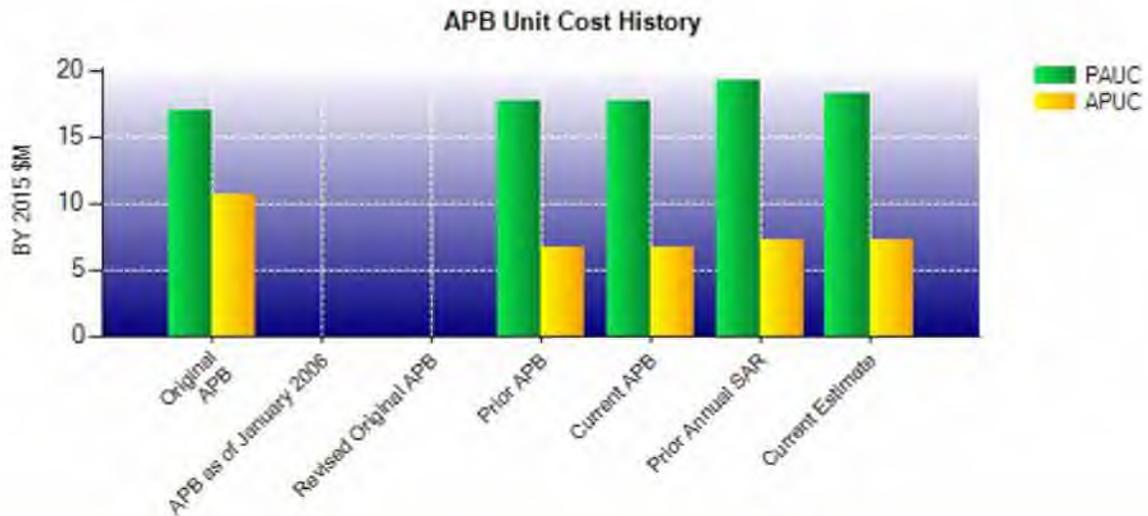
| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |       |        |       |       |        |                       |
|---|---------|-------|-------|-------|--------|-------|-------|--------|-----------------------|
| APUC Production Estimate                          | Changes |       |       |       |        |       |       |        | APUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng   | Est    | Oth   | Spt   | Total  |                       |
| 7.410   | 0.002   | 0.002 | 0.013 | 0.319 | -1.340 | 0.000 | 0.690 | -0.314 | 7.096                 |

| SAR Baseline History |                       |                          |                         |                  |          |
|----------------------|-----------------------|--------------------------|-------------------------|------------------|----------|
| Item                 | SAR Planning Estimate | SAR Development Estimate | SAR Production Estimate | Current Estimate |          |
| Milestone A          |                       | N/A                      | N/A                     | N/A              | N/A      |
| Milestone B          |                       | N/A                      | N/A                     | N/A              | N/A      |
| Milestone C          |                       | N/A                      | N/A                     | Sep 2015         | Sep 2015 |
| IOC                  |                       | N/A                      | Jun 2013                | Dec 2019         | Jun 2021 |
| Total Cost (TY \$M)  |                       | N/A                      | 1260.2                  | 1698.1           | 1733.0   |
| Total Quantity       |                       | N/A                      | 86                      | 109              | 109      |
| PAUC                 |                       | N/A                      | 14.653                  | 15.579           | 15.899   |

## FET

| Current UCR Baseline and Current Estimate (Base-Year Dollars) |                                     |                                 |          |
|---|-------------------------------------|---------------------------------|----------|
| Item  | BY 2015 \$M                         | BY 2015 \$M                     | % Change |
|   | Current UCR Baseline (Jul 2018 APB) | Current Estimate (Dec 2018 SAR) |          |
| <b>Program Acquisition Unit Cost</b>                          |                                     |                                 |          |
| Cost  | 2799.1                              | 2632.2                          |          |
| Quantity  | 158                                 | 144                             |          |
| Unit Cost   | 17.716                              | 18.279                          | +3.18    |
| <b>Average Procurement Unit Cost</b>                          |                                     |                                 |          |
| Cost  | 875.0                               | 781.8                           |          |
| Quantity  | 132                                 | 109                             |          |
| Unit Cost   | 6.629                               | 7.172                           | +8.19    |

| Original UCR Baseline and Current Estimate (Base-Year Dollars) |                                      |                                 |          |
|--|--------------------------------------|---------------------------------|----------|
| Item   | BY 2015 \$M                          | BY 2015 \$M                     | % Change |
|  | Original UCR Baseline (Dec 2007 APB) | Current Estimate (Dec 2018 SAR) |          |
| <b>Program Acquisition Unit Cost</b>                           |                                      |                                 |          |
| Cost   | 2144.8                               | 2632.2                          |          |
| Quantity   | 127                                  | 144                             |          |
| Unit Cost  | 16.888                               | 18.279                          | +8.24    |
| <b>Average Procurement Unit Cost</b>                           |                                      |                                 |          |
| Cost   | 1204.0                               | 781.8                           |          |
| Quantity   | 113                                  | 109                             |          |
| Unit Cost  | 10.655                               | 7.172                           | -32.69   |



| APB Unit Cost History  |          |             |        |        |        |
|------------------------|----------|-------------|--------|--------|--------|
| Item                   | Date     | BY 2015 \$M |        | TY \$M |        |
|                        |          | PAUC        | APUC   | PAUC   | APUC   |
| Original APB           | Dec 2007 | 16.888      | 10.655 | 16.112 | 10.717 |
| 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              | Mar 2016 | 17.716      | 6.629  | 18.453 | 8.080  |
| Current APB            | Jul 2018 | 17.716      | 6.629  | 18.453 | 8.080  |
| Prior Annual SAR       | Dec 2017 | 19.236      | 7.242  | 20.201 | 9.028  |
| Current Estimate       | Dec 2018 | 18.279      | 7.172  | 19.408 | 9.123  |

**SAR Unit Cost History**

| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |        |       |       |        |       |                       |
|---|---------|-------|-------|--------|-------|-------|--------|-------|-----------------------|
| PAUC Development Estimate                         | Changes |       |       |        |       |       |        |       | PAUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng    | Est   | Oth   | Spt    | Total |                       |
| 18.453  | 0.025   | 0.866 | 0.226 | -0.098 | 0.319 | 0.000 | -0.383 | 0.955 | 19.408                |

| Current SAR Baseline to Current Estimate (TY \$M) |         |       |       |       |       |       |        |       |                       |
|---|---------|-------|-------|-------|-------|-------|--------|-------|-----------------------|
| Initial APUC Development Estimate                 | Changes |       |       |       |       |       |        |       | APUC Current Estimate |
|   | Econ    | Qty   | Sch   | Eng   | Est   | Oth   | Spt    | Total |                       |
| 8.080   | 0.015   | 0.260 | 0.802 | 0.000 | 0.472 | 0.000 | -0.506 | 1.043 | 9.123                 |

| SAR Baseline History |                       |                          |                         |                  |        |
|----------------------|-----------------------|--------------------------|-------------------------|------------------|--------|
| Item                 | SAR Planning Estimate | SAR Development Estimate | SAR Production Estimate | Current Estimate |        |
| Milestone A          | N/A                   | N/A                      | N/A                     | N/A              | N/A    |
| Milestone B          | N/A                   | N/A                      | N/A                     | N/A              | N/A    |
| Milestone C          | N/A                   | N/A                      | N/A                     | N/A              | N/A    |
| IOC                  | N/A                   | N/A                      | N/A                     | N/A              | TBD    |
| Total Cost (TY \$M)  | N/A                   | 2915.5                   | N/A                     | N/A              | 2794.8 |
| Total Quantity       | N/A                   | 158                      | N/A                     | N/A              | 144    |
| PAUC                 | N/A                   | 18.453                   | N/A                     | N/A              | 19.408 |

**Cost Variance****CPT**

| Summary TY \$M                     |        |             |        |        |
|------------------------------------|--------|-------------|--------|--------|
| Item                               | RDT&E  | Procurement | MILCON | Total  |
| SAR Baseline (Production Estimate) | 1075.7 | 622.4       | --     | 1698.1 |
| Previous Changes                   |        |             |        |        |
| Economic                           | +2.6   | -3.8        | --     | -1.2   |
| Quantity                           | --     | +0.2        | --     | +0.2   |
| Schedule                           | +17.1  | +1.1        | --     | +18.2  |
| Engineering                        | --     | +26.8       | --     | +26.8  |
| Estimating                         | -17.6  | -9.9        | --     | -27.5  |
| Other                              | --     | --          | --     | --     |
| Support                            | --     | +32.6       | --     | +32.6  |
| Subtotal                           | +2.1   | +47.0       | --     | +49.1  |
| Current Changes                    |        |             |        |        |
| Economic                           | +0.1   | +4.0        | --     | +4.1   |
| Quantity                           | --     | --          | --     | --     |
| Schedule                           | +11.1  | --          | --     | +11.1  |
| Engineering                        | +48.0  | --          | --     | +48.0  |
| Estimating                         | -0.1   | -102.7      | --     | -102.8 |
| Other                              | --     | --          | --     | --     |
| Support                            | --     | +25.4       | --     | +25.4  |
| Subtotal                           | +59.1  | -73.3       | --     | -14.2  |
| Total Changes                      | +61.2  | -26.3       | --     | +34.9  |
| CE - Cost Variance                 | 1136.9 | 596.1       | --     | 1733.0 |
| CE - Cost & Funding                | 1136.9 | 596.1       | --     | 1733.0 |

| Summary BY 2015 \$M                |        |             |        |        |
|------------------------------------|--------|-------------|--------|--------|
| Item                               | RDT&E  | Procurement | MILCON | Total  |
| SAR Baseline (Production Estimate) | 1159.0 | 584.0       | --     | 1743.0 |
| Previous Changes                   |        |             |        |        |
| Economic                           | --     | --          | --     | --     |
| Quantity                           | --     | -0.2        | --     | -0.2   |
| Schedule                           | +16.9  | --          | --     | +16.9  |
| Engineering                        | --     | +24.3       | --     | +24.3  |
| Estimating                         | -17.3  | -9.1        | --     | -26.4  |
| Other                              | --     | --          | --     | --     |
| Support                            | --     | +31.7       | --     | +31.7  |
| Subtotal                           | -0.4   | +46.7       | --     | +46.3  |
| Current Changes                    |        |             |        |        |
| Economic                           | --     | --          | --     | --     |
| Quantity                           | --     | --          | --     | --     |
| Schedule                           | +10.5  | --          | --     | +10.5  |
| Engineering                        | +42.3  | --          | --     | +42.3  |
| Estimating                         | -0.1   | -92.5       | --     | -92.6  |
| Other                              | --     | --          | --     | --     |
| Support                            | --     | +21.6       | --     | +21.6  |
| Subtotal                           | +52.7  | -70.9       | --     | -18.2  |
| Total Changes                      | +52.3  | -24.2       | --     | +28.1  |
| CE - Cost Variance                 | 1211.3 | 559.8       | --     | 1771.1 |
| CE - Cost & Funding                | 1211.3 | 559.8       | --     | 1771.1 |

Previous Estimate: December 2017

| RDT&E  | \$M          |              |
|--|--------------|--------------|
|  | Base Year    | Then Year    |
| <b>Current Change Explanations</b>   |              |              |
| Revised escalation indices. (Economic)   | N/A          | +0.1         |
| Stretch-out of required testing into FY 2019. (Schedule)   | +10.5        | +11.1        |
| Additional funding for new scope required for development of Enhanced Software Encryption Station. (Engineering) | +42.3        | +48.0        |
| Adjustment for current and prior escalation. (Estimating)  | -0.1         | -0.1         |
| <b>RDT&amp;E Subtotal</b>  | <b>+52.7</b> | <b>+59.1</b> |

| Procurement   | \$M          |              |
|---|--------------|--------------|
|   | Base Year    | Then Year    |
| <b>Current Change Explanations</b>  |              |              |
| Revised escalation indices. (Economic)  | N/A          | +4.0         |
| Reduction due to Congressional mark in FY 2018 (APAF). (Estimating)   | -8.8         | -9.7         |
| Reduction due to change in depot activation requirements (APAF) (Estimating)  | -3.3         | -3.6         |
| Reduction due to Congressional mark in FY 2018 (SPAF) (Estimating)  | -78.0        | -87.0        |
| Adjustment for current and prior escalation. (Estimating)   | -2.4         | -2.4         |
| Adjustment for current and prior escalation. (Support)  | -1.0         | -1.2         |
| Decrease Initial Spares due to Congressional mark in FY 2018 (APAF). TY increase due to revised escalation indices. (Support) | -0.1         | +0.2         |
| Increase in Other Support due to additional years of interim contractor support being required (SPAF) (Support)               | +17.8        | +20.8        |
| Decrease in Initial Spares due to Congressional mark in FY 2019 (SPAF). (Support)   | -5.0         | -5.5         |
| Increase in Other Support due to additional years of interim contractor support being required (APAF) (Support)               | +9.9         | +11.1        |
| <b>Procurement Subtotal</b>   | <b>-70.9</b> | <b>-73.3</b> |

**Cost Variance****FET**

| Summary TY \$M                      |        |             |        |        |
|-------------------------------------|--------|-------------|--------|--------|
| Item                                | RDT&E  | Procurement | MILCON | Total  |
| SAR Baseline (Development Estimate) | 1849.0 | 1066.5      | --     | 2915.5 |
| Previous Changes                    |        |             |        |        |
| Economic                            | -3.5   | -7.9        | --     | -11.4  |
| Quantity                            | +7.1   | -157.3      | --     | -150.2 |
| Schedule                            | -54.9  | +79.7       | --     | +24.8  |
| Engineering                         | -14.1  | --          | --     | -14.1  |
| Estimating                          | -0.1   | +65.4       | --     | +65.3  |
| Other                               | --     | --          | --     | --     |
| Support                             | --     | -62.4       | --     | -62.4  |
| Subtotal                            | -65.5  | -82.5       | --     | -148.0 |
| Current Changes                     |        |             |        |        |
| Economic                            | +5.5   | +9.5        | --     | +15.0  |
| Quantity                            | +16.8  | --          | --     | +16.8  |
| Schedule                            | --     | +7.7        | --     | +7.7   |
| Engineering                         | --     | --          | --     | --     |
| Estimating                          | -5.4   | -14.0       | --     | -19.4  |
| Other                               | --     | --          | --     | --     |
| Support                             | --     | +7.2        | --     | +7.2   |
| Subtotal                            | +16.9  | +10.4       | --     | +27.3  |
| Total Changes                       | -48.6  | -72.1       | --     | -120.7 |
| CE - Cost Variance                  | 1800.4 | 994.4       | --     | 2794.8 |
| CE - Cost & Funding                 | 1800.4 | 994.4       | --     | 2794.8 |

| Summary BY 2015 \$M                 |        |             |        |        |
|-------------------------------------|--------|-------------|--------|--------|
| Item                                | RDT&E  | Procurement | MILCON | Total  |
| SAR Baseline (Development Estimate) | 1924.1 | 875.0       | --     | 2799.1 |
| Previous Changes                    |        |             |        |        |
| Economic                            | --     | --          | --     | --     |
| Quantity                            | +6.2   | -86.4       | --     | -80.2  |
| Schedule                            | +4.6   | --          | --     | +4.6   |
| Engineering                         | -11.4  | --          | --     | -11.4  |
| Estimating                          | -77.5  | +58.7       | --     | -18.8  |
| Other                               | --     | --          | --     | --     |
| Support                             | --     | -57.9       | --     | -57.9  |
| Subtotal                            | -78.1  | -85.6       | --     | -163.7 |
| Current Changes                     |        |             |        |        |
| Economic                            | --     | --          | --     | --     |
| Quantity                            | +9.5   | --          | --     | +9.5   |
| Schedule                            | --     | --          | --     | --     |
| Engineering                         | --     | --          | --     | --     |
| Estimating                          | -5.1   | -10.3       | --     | -15.4  |
| Other                               | --     | --          | --     | --     |
| Support                             | --     | +2.7        | --     | +2.7   |
| Subtotal                            | +4.4   | -7.6        | --     | -3.2   |
| Total Changes                       | -73.7  | -93.2       | --     | -166.9 |
| CE - Cost Variance                  | 1850.4 | 781.8       | --     | 2632.2 |
| CE - Cost & Funding                 | 1850.4 | 781.8       | --     | 2632.2 |

Previous Estimate: December 2017

| RDT&E  | \$M       |           |
|--|-----------|-----------|
|  | Base Year | Then Year |
| <b>Current Change Explanations</b>   |           |           |
| Revised escalation indices. (Economic)   | N/A       | +5.5      |
| Quantity variance resulting from an increase in estimated future EDM terminals from 10 to 17 due to updated program requirements. (Quantity) | +9.5      | +16.8     |
| Revised estimate due to internal realignment in FY 2020, FY 2021, FY 2022, FY 2023 (Estimating)  | -4.6      | -4.9      |
| Revised estimate due to Congressional mark in FY 2019. (Estimating)  | 0.0       | 0.0       |
| Adjustment for current and prior escalation. (Estimating)  | -0.5      | -0.5      |
| RDT&E Subtotal   | +4.4      | +16.9     |

| Procurement   | \$M       |           |
|---|-----------|-----------|
|   | Base Year | Then Year |
| <b>Current Change Explanations</b>  |           |           |
| Stretch-out of procurement buy schedule due to only receiving baseline extension amount in FY 2024 resulting in decreased quantities in FY 2024 and additional quantities in FY 2027 (SPAF). (Schedule) | 0.0       | +7.7      |
| Decrease in Other Support due to revised program buy schedule. Decreased quantities in FY 2024 and added quantities to FY 2027 (SPAF). (Support)  | -3.6      | -4.3      |
| Revised estimate due to realignment of buy quantities resulting in less quantity discount in FY 2024 lot and greater quantity discount to FY 2027 (SPAF). (Estimating)                                  | -10.3     | -14.0     |
| Revised estimate due to realignment of buy quantities resulting in less quantity discount in FY 2024 and a greater quantity discount in FY 2027. (SPAF) (Support)                                       | +6.3      | +11.5     |
| Revised escalation indices. (Economic)  | N/A       | +9.5      |
| Procurement Subtotal  | -7.6      | +10.4     |

## Contracts

### Contract Identification

**Appropriation:** RDT&E  
**Contract Name:** FAB-T CPT Development  
**Contractor:** Raytheon  
**Contractor Location:** 1001 Boston Post Road E  
 Marlborough, MA 01752-2377  
**Contract Number:** FA8307-12-C-0013  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 07, 2012  
**Definitization Date:** April 10, 2013

### Contract Price

| Initial Contract Price (\$M) |         |     | Current Contract Price (\$M) |         |     | Estimated Price At Completion (\$M) |                 |
|------------------------------|---------|-----|------------------------------|---------|-----|-------------------------------------|-----------------|
| Target                       | Ceiling | Qty | Target                       | Ceiling | Qty | Contractor                          | Program Manager |
| 70.0                         | N/A     | 13  | 226.8                        | N/A     | 13  | 226.8                               | 226.8           |

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to increased costs for Engineering Development Model (EDM) integration and Test Observation Report (TOR) resolution.

### Cost and Schedule Variance Explanations

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

### General Contract Variance Explanation

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

### Notes

Thirteen EDMs will be produced under the contract; six will be delivered to the Government and seven will be retained by the contractor for testing purposes.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** FAB-T CPT Production  
**Contractor:** Raytheon  
**Contractor Location:** 1001 Boston Post Road East  
 Marlborough, MA 01752-2377  
**Contract Number:** FA8705-13-C-0005  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 27, 2013  
**Definitization Date:** June 02, 2014

**Contract Price**

| Initial Contract Price (\$M) |         |     | Current Contract Price (\$M) |         |     | Estimated Price At Completion (\$M) |                 |
|------------------------------|---------|-----|------------------------------|---------|-----|-------------------------------------|-----------------|
| Target                       | Ceiling | Qty | Target                       | Ceiling | Qty | Contractor                          | Program Manager |
| 298.5                        | N/A     | 84  | 395.3                        | N/A     | 84  | 395.3                               | 395.3           |

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to procurement of additional terminals with modification kits in July 2016 and May 2017, and procurement of the new Ground Transportable Antennas in May 2018, as well as an internal recalculation of all contract actions to date.

Quantity did not change as the total number of terminals did not change, the price increased because modification kit costs are greater than new antenna costs.

**Cost and Schedule Variance Explanations**

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

## Deliveries and Expenditures

### CPT

| Deliveries                       |                 |                |                |                   |
|----------------------------------|-----------------|----------------|----------------|-------------------|
| Delivered to Date                | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development                      | 17              | 17             | 25             | 68.00%            |
| Production                       | 22              | 22             | 84             | 26.19%            |
| Total Program Quantity Delivered | 39              | 39             | 109            | 35.78%            |

| Expended and Appropriated (TY \$M) |        |                            |        |
|------------------------------------|--------|----------------------------|--------|
| Total Acquisition Cost             | 1733.0 | Years Appropriated         | 19     |
| Expended to Date                   | 1230.7 | Percent Years Appropriated | 86.36% |
| Percent Expended                   | 71.02% | Appropriated to Date       | 1633.1 |
| Total Funding Years                | 22     | Percent Appropriated       | 94.24% |

The above data is current as of March 11, 2019.

### Notes

Total CPT Quantity for Development includes 12 Boeing Engineering Development Models (EDMs) and 13 Raytheon EDMs. Planned/Actuals reflect 12 deliveries under the Boeing contract and 5 deliveries to date under the Raytheon contract.

All 22 Production terminals delivered under the Raytheon contract. The first production CPT delivered in May 2017.

### FET

| Deliveries                       |                 |                |                |                   |
|----------------------------------|-----------------|----------------|----------------|-------------------|
| Delivered to Date                | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development                      | 18              | 18             | 35             | 51.43%            |
| Production                       | 0               | 0              | 109            | 0.00%             |
| Total Program Quantity Delivered | 18              | 18             | 144            | 12.50%            |

| Expended and Appropriated (TY \$M) |        |                            |        |
|------------------------------------|--------|----------------------------|--------|
| Total Acquisition Cost             | 2794.8 | Years Appropriated         | 19     |
| Expended to Date                   | 1214.8 | Percent Years Appropriated | 65.52% |
| Percent Expended                   | 43.47% | Appropriated to Date       | 1241.3 |
| Total Funding Years                | 29     | Percent Appropriated       | 44.41% |

The above data is current as of March 11, 2019.

**Notes**

Total Program Quantity reflects 28 total FET EDM systems, which includes 18 Boeing FET systems delivered to date and 10 additional FET EDMs required to complete the development effort per the Service Cost Position approved July 7, 2015, as updated based on CCA identified requirements.

## Operating and Support Cost

### CPT

#### Cost Estimate Details

|                                 |                   |
|---------------------------------|-------------------|
| <b>Date of Estimate:</b>        | March 20, 2018    |
| <b>Source of Estimate:</b>      | SCP               |
| <b>Quantity to Sustain:</b>     | 84                |
| <b>Unit of Measure:</b>         | Terminals         |
| <b>Service Life per Unit:</b>   | 33.00 Years       |
| <b>Fiscal Years in Service:</b> | FY 2018 - FY 2050 |

Costs based on the updated SCP approved on March 20, 2018. FAB-T CPT O&S consists of 84 Production Systems; there are 25 Engineering Development Models (EDMs) that will not be sustained after the program transitions to O&S. Interim Contractor Support costs are included in the Production contract and are not included in the O&S Cost.

#### Sustainment Strategy

The FAB-T Command Post Terminal (CPT) product support strategy is structured to optimize customer support and system availability, and minimize ownership costs and logistics footprint, while making the best use of public and private partnership capabilities. The FAB-T maintenance concept employs two levels of support: Organizational Level Maintenance (O-Level) and Depot Level (D-Level). O-Level support is provided by organic O&M personnel starting with successful installation and government acceptance of the first LRIP terminal. Terminals are supported with initial spares, Technical Orders, training, and technical support. The Ground Fixed CPTs will replace existing Milstar terminals in existing fixed facilities. Additionally, FAB-T does not require the creation of a new Air Force Specialty Code for O&M. The production contract includes four consecutive 12-month options for D-Level Interim Contract Support which continues until the transition to organic depot level support or a combination of public and private partnership occurs. The FAB-T technical data rights strategy is structured to support full organic and/or competitive contractor logistics support in the future with specifications, software documents, system drawings, and other engineering data to facilitate future competition for sustainment. The Business Case Analysis (BCA) is ongoing to investigate benefits of consolidating Advanced Extremely High Frequency terminal sustainment.

#### Antecedent Information

The Antecedent System is the Milstar CPT. For CPTs, FAB-T is a replacement terminal for the existing Milstar CPTs at ground (fixed and mobile) sites and E-4 and E-6 airborne platforms. There are 82 Milstar terminals, each with an expected service life of 18 years. Antecedent Costs were not normalized to reflect operational/capability differences between the FAB-T and Milstar terminals.

The antecedent Milstar CPT POE is from April 2003 finalized in Air Force Space Command's budget request to Headquarters Air Force.

| Annual O&S Costs BY2015 \$K    |                                   |  |
|--------------------------------|-----------------------------------|--|
| Cost Element                   | CPT                               |  |
|                                | Average Annual Cost Per Terminals | MILSTAR CPT (Antecedent)<br>Average Annual Cost Per Terminal |
| Unit-Level Manpower            | 26.601                            | 0.000  |
| Unit Operations                | 58.845                            | 0.234  |
| Maintenance                    | 105.676                           | 0.000  |
| Sustaining Support             | 75.418                            | 0.180  |
| Continuing System Improvements | 85.246                            | 0.000  |
| Indirect Support               | 30.214                            | 0.000  |
| Other                          | 0.000                             | 0.000  |
| <b>Total</b>                   | <b>382.000</b>                    | <b>0.414</b>   |

| Item             | Total O&S Cost \$M                            |                  |                  |                             |
|------------------|---|------------------|------------------|-----------------------------|
|                  | CPT   |                  |                  | MILSTAR CPT<br>(Antecedent) |
|                  | Current Production APB<br>Objective/Threshold | Current Estimate | Current Estimate |                             |
| <b>Base Year</b> | 1059.5  | 1165.5           | 1059.5           | N/A                         |
| <b>Then Year</b> | 1606.8  | N/A              | 1606.8           | N/A                         |

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

Total O&S Cost = service life per system \* number of systems \* unitized cost

Total O&S Cost = 33 years per terminal \* 84 terminals \* \$382K

| O&S Cost Variance                               |                |   |
|---|----------------|---|
| Category  | BY 2015<br>\$M | Change Explanations   |
| Prior SAR Total O&S Estimates - Dec<br>2017 SAR | 1191.3         |   |
| Programmatic/Planning Factors                   | 0.0            |   |
| Cost Estimating Methodology                     | 0.0            |   |
| Cost Data Update                                | 0.0            |   |
| Labor Rate                                      | -91.7          | 2018 SCP incorporated updated Government Civilian,<br>Military and Support Contractor Rates |
| Energy Rate                                     | 0.0            |   |
| Technical Input                                 | -40.1          | 2018 SCP incorporated updated lower total operational<br>hours                              |
| Other   | 0.0            |   |
| <b>Total Changes</b>                            | <b>-131.8</b>  |   |
| Current Estimate                                | 1059.5         |   |

#### Disposal Estimate Details

FAB-T

December 2018 SAR

**Date of Estimate:** March 20, 2018  
**Source of Estimate:** SCP  
**Disposal/Demilitarization Total Cost (BY 2015 \$M):** 8.5

Updated from 2015 SCP. Current SCP approved on March 20, 2018.

## FET

**Cost Estimate Details**

|                                 |                   |
|---------------------------------|-------------------|
| <b>Date of Estimate:</b>        | December 15, 2017 |
| <b>Source of Estimate:</b>      | POE               |
| <b>Quantity to Sustain:</b>     | 109               |
| <b>Unit of Measure:</b>         | Terminals         |
| <b>Service Life per Unit:</b>   | 26.00 Years       |
| <b>Fiscal Years in Service:</b> | FY 2024 - FY 2049 |

The December 15, 2017 POE is based upon the July 7, 2015 SCP, modified for revised program content, including changes to quantities and airframes. FAB-T FET O&S consists of 109 Production terminals; there are 35 EDM terminals that will not be sustained after the program transitions to O&S. Interim Contractor Support (ICS) costs are included in the Production contract and are not included in the O&S Cost.

The Air Force is currently working to determine the FET strategy; therefore, quantities, specific fiscal year placed in service, and fiscal year retired are notional pending an approved strategy.

**Sustainment Strategy**

The FAB-T FET sustainment strategy cannot be determined until the overall acquisition strategy is defined. Preliminary program funding for a notional FET program was provided in the FY 2019 PB. The FET Cost Capability Analysis concluded in December 2017 and is the first step in informing the acquisition strategy.

**Antecedent Information**

No Antecedent

| Cost Element                   | Annual O&S Costs BY2015 \$K              |                            |
|--------------------------------|--|----------------------------|
|                                | FET<br>Average Annual Cost Per Terminals | No Antecedent (Antecedent) |
| Unit-Level Manpower            | 20.356                                   | --                         |
| Unit Operations                | 0.000                                    | --                         |
| Maintenance                    | 221.797                                  | --                         |
| Sustaining Support             | 0.000                                    | --                         |
| Continuing System Improvements | 37.431                                   | --                         |
| Indirect Support               | 15.555                                   | --                         |
| Other                          | --                                       | --                         |
| <b>Total</b>                   | <b>295.139</b>                           | <b>--</b>                  |

| Item             | Total O&S Cost \$M                          |       |                  |                            |
|------------------|---|-------|------------------|----------------------------|
|                  | FET   |       | Current Estimate | No Antecedent (Antecedent) |
|                  | Current Development APB Objective/Threshold |       |                  |                            |
| <b>Base Year</b> | 896.8                                       | 986.5 | 836.4            | N/A                        |
| <b>Then Year</b> | 1438.4                                      | N/A   | 1335.4           | N/A                        |

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

Total O&S Cost = service life per system \* number of systems \* unitized cost

Total O&S Cost = 26 years per terminal \* 109 terminals \* \$295.139K

| O&S Cost Variance                            |             |                     |
|--|-------------|---------------------|
| Category                                     | BY 2015 \$M | Change Explanations |
| Prior SAR Total O&S Estimates - Dec 2017 SAR | 836.4       |                     |
| 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         |                     |
| <b>Total Changes</b>                         | <b>0.0</b>  |                     |
| Current Estimate                             | 836.4       |                     |

#### Disposal Estimate Details

**Date of Estimate:** December 15, 2017  
**Source of Estimate:** POE  
**Disposal/Demilitarization Total Cost (BY 2015 \$M):** 11.0

The estimate for FET is based on the SCP, approved July 7, 2015, as modified for revised program content, including changes to quantities and airframes.