



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-176



Evolved Expendable Launch Vehicle (EELV)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

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

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

Program Information

Program Name

Evolved Expendable Launch Vehicle (EELV)

DoD Component

Air Force

In the Pre-EMD phase, RDT&E funding was also received from Defense Advanced Research Projects Agency (Defense-Wide PE 0603226E) and the National Reconnaissance Office.

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References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 10, 2013

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 10, 2013

Mission and Description

The mission of the Evolved Expendable Launch Vehicle (EELV) program is to acquire launch services to provide critical space support required to satisfy DoD warfighter, national security, and other Government spacelift missions while fostering interagency and commercial cooperation. This mission includes the execution of flight worthiness certification processes and booster-to-satellite mission integration to maintain assured access to space and achieve 100% mission success.

The EELV system includes launch vehicles, launch capability, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (alternative upper and lower stage rocket propulsion sub-systems, mission feasibility analysis, secondary payloads, dual integration, special flight instrumentation, loads analysis, etc.), post-flight data evaluation and analysis, mission assurance, infrastructure, critical component engineering, Government Mission Director support, system/process and reliability improvements, training, and other technical support. The system also includes launch site operations activities, activities in support of assured access, systems integration and tests, and other related support activities. Previous launch services were provided by Titan II, Delta II, Atlas II, and Titan IV launch vehicle systems. Additionally the program is working to develop two or more domestic, commercially viable, space launch providers that meet all National Security Space (NSS) launch requirements.

In accordance with section 2273 title 10, United States Code (USC) and 2013 U.S. Space Transportation Policy the DoD is responsible for maintaining assured access to space. EELV is the foundation for the access for intermediate and larger class payloads for the foreseeable future. In accordance with policy, EELV maintains at least two families of space launch vehicles capable of reliably launching national security payloads.

Executive Summary

Since the 2014 SAR (containing launch data as of January 2015) there have been nine successful National Security Space (NSS) EELV program launches and three commercially procured missions. Of those, nine were Atlas V launch vehicles and three were Delta IV launch vehicles: Magnetospheric Multiscale (MMS) for the National Aeronautics and Space Administration (NASA) on March 12, 2015; Global Positioning System (GPS) IIF-9 on March 25, 2015; AFSPC-5 on May 20, 2015; GPS IIF-10 on July 15, 2015; Wideband Global SATCOM (WGS)-7 on July 23, 2015; Mobile User Objective System (MUOS)-4 on September 2, 2015; Morelos 3 for the Mexican Ministry of Communications and Transportation on October 2, 2015; National Reconnaissance Office Launch (NROL)-55 on October 8, 2015; GPS IIF-11 on October 31, 2015; the International Space Station supply spacecraft Cygnus for NASA on December 6, 2015; GPS IIF-12 on February 05, 2016; and NROL-45 on February 10, 2016. The remaining CY 2016 NSS missions include ten launches: eight from the Eastern Range and two from the Western Range.

The current EELV Acquisition Strategy, approved in 2013, is being executed in two phases (Phase 1 and Phase 1A) prior to moving to the fully revised Acquisition Strategy being developed for Phase 2. The Phase 1 contract, awarded in December 2013, established a "Block Buy" requirements construct to reduce launch service cost and stabilize the industrial base. Per the approved procurement plan, all FY 2015 launch procurements have been ordered and the FY 2016 orders are on schedule to finish in May 2016, completing all contractual commitments to date.

EELV Phase 1A marks a milestone in the Air Force's (AF) ongoing efforts to reintroduce competition into the program. Phase 1A is projected to compete 9 missions for procurement through FY 2017, a GPS III mission being the first competitive solicitation. The draft version of the Request for Proposal (RFP) for the GPS III launch service competitive bids was posted on FedBizOpps on May 13, 2015. When the draft RFP was posted a Space and Missile Systems Center (SMC) internal Comment Resolution Matrix (CRM) was inadvertently exposed for approximately seven hours. The AF handled the situation as a potential Procurement Integrity Act violation in order to ensure a fair competition. SMC notified Offerors on May 15, 2015, addressed all of the offerors' concerns, and coordinated resolution. The Assistant Secretary of the Air Force (General Counsel) (SAF/GC), OUSD (AT&L) and Defense Procurement and Acquisition Policy (DPAP) conducted independent reviews and found no issues. Final closure was documented in the AF Determinations and Findings stating "the inadvertent release discussed above did not have any impact on the pending award or selection of the contractor for the EELV Phase 1A GPS III acquisition."

The final Phase 1A RFP for the first GPS III Launch Services was released on September 30, 2015 and proposals were received on November 16, 2015. The launch service includes launch vehicle production, mission integration, and launch operations. Source selection is on-going with planned contract award in March 2016.

The FY 2015 National Defense Authorization Act (NDAA) restricted the use of Russian engines (RD-180) for NSS missions. It provided an exemption for Phase 1 "Block Buy" contract missions as well as any Russian engines procured prior to February 2014. The DoD Office of General Counsel (DoD/OGC) reviewed United Launch Alliance's (ULA) contract for procurement of RD-180 engines. The OSD/GC determined that ULA only has five engines (referred to as "Golden Engines") that meet the fully paid for exception, therefore limiting the number engine available for competitions. ULA informed SMC/Launch Systems Enterprise Directorate (SMC/LE), in August 2015, that they had released the five "Golden Engines" into their production flow to meet current contractual commitments; therefore additional engines would be required for ULA to compete the Atlas V launch vehicle. On November 16, 2015, ULA publicly announced they would not bid for the first GPS III competitive mission due in part to the RD-180 restrictions. The FY 2016 NDAA language provided four additional engines available for new launch service contracts. Subsequently, FY 2016 Appropriations Act allowed for use of FY 2016 funds for EELV services competitive procurements for any certified launch vehicle regardless of the country of origin of the rocket engine, notwithstanding any other provision of law. Based on this language and since the AF anticipates only three FY 2016 funded competition, the FY 2016 NDAA and FY 2016 Appropriations Act are not in conflict for 2016 and the AF does not expect to rely on this provision of law. The AF supports the continued use of RD-180 engines until a capable alternative is developed to maintain assured access to space and foster robust competition. Therefore, the AF position is that Section 1608 FY 2015 NDAA should be amended to avoid the need for annual appropriations to allow for future competitions.

The AF announced on May 26, 2015 that Space Exploration Technologies Corporation's (SpaceX's) Falcon 9 Launch System was certified for NSS launches with Falcon 9v1.1 as the baseline. This certification takes into account all of the Spring 2015 Secretary of the Air Force's Independent Review Committee's recommendations, to include allowing New Entrant certification with some open work, provided there are jointly approved work plans in place that support potential NSS mission processing timelines. SpaceX is now eligible for an award of specified NSS missions to include the GPS III-2 launch service. SpaceX has also evolved their Falcon 9v1.1 configuration into the Falcon 9 Upgrade. To update the certification baseline, SpaceX and AF built Joint Work Plans for the verifications and demonstrations of certification requirements with a credible Integrated Master Schedule. AF announced that the certified baseline configuration of SpaceX's Falcon 9 Launch System was updated to Falcon 9 Upgrade for use in NSS missions on January 25, 2016.

A Falcon 9 v1.1 commercial launch experienced an in-flight mishap resulting in loss of vehicle on June 28, 2015. An official investigation was led by a SpaceX/Federal Aviation Administration (FAA) Anomaly Investigation Team (AIT). The AIT completed its investigation and presented findings to the Air Force Space Command (AFSPC) Commander on October 21, 2015. The AIT briefed the FAA on November 18, 2015 and submitted their final report. The 45th Space Wing authorized the return to flight operations from a Range Safety perspective on December 1, 2015. The FAA officially closed the investigation on December 9, 2015 based on their oversight during the investigation and review of the final report. SMC is also conducting an independent assessment of the mishap and the SpaceX investigation, due to be completed in early 2016. The mishap does not affect the certification status of the SpaceX Falcon 9 v1.1 launch system. Any corrective actions will be addressed as part of the AF's established mission assurance processes. SpaceX returned to flight on December 21, 2015, with the successful launch of the commercial ORBCOMM-2 mission.

SMC/LE continues to be actively engaged with a number of industry partners to expeditiously certify three additional launch systems to launch NSS missions. First, ULA submitted a Statement of Intent (SOI) for their next generation launch system, named the Vulcan, on February 11, 2015. Vulcan completed a launch system Preliminary Design Review in December 2015, and the Vulcan Certification Plan is expected to be completed by early 2016. Secondly, SpaceX submitted a SOI for the Falcon Heavy launch vehicle in 2015. Finally, a third provider submitted a SOI on November 13, 2015 (identification is Proprietary and not releasable at this time). The AF acknowledged receipt, assembled a team, has engaged with the provider, and will begin certification plan development in early 2016.

AFSPC and SMC/LE are working together to develop a Spacelift CPD. The CPD will replace the current EELV ORD which has been in use since EELV program formation. The CPD includes EELV-class as well as smaller lift requirements, reorganizes and updates many system requirements (Key Performance Parameters, Key System Attributes, and Other System Attributes), updates EELV mission reference orbits including mass-to-orbit values and orbital insertion accuracy values, and addresses several other requirements topics (resiliency, rideshare, stage disposal, and debris). The JROC approval of the CPD is expected by Summer 2016.

SMC/LE is executing the requirements in the FY 2015 NDAA and Appropriations Act for a new engine technical maturation and risk reduction program, and the development of a Rocket Propulsion System (RPS). Work is already underway with NASA's ABEDRR program, AFRL's HydroCarbon Boost (HCB) program, and combustion stability tool modeling with Georgia Tech Research Institute. SMC/LE is also working with SMC/Advanced Systems and Development Directorate to execute ten Broad Agency Announcement contracts to advance domestic technology, improve technical maturity, and reduce engine development risks. SMC/LE is also executing two RPS Other Transaction Agreements with 1) Orbital ATK for development of prototypes of the Common Booster Segment (CBS) solid rocket motor (main stage), GEM 63XL strap-on solid rocket motor, and an Extendable Nozzle for Blue Origin's BE-3U upper stage engine and 2) SpaceX for the development of a prototype of the Raptor engine for the upper stage of the Falcon 9 and Falcon Heavy launch vehicles to effectively, efficiently, and expeditiously transition off the RD-180. Ongoing awards are planned through February 2016.

The FY 2017 President's Budget leverages the \$492M of RPS FY 2014-2016 funding for the development of new launch systems via a public-private partnership agreements with launch system providers. These investment agreements will deliver launch capability for NSS missions including completing the U.S. produced RPS started in FY 2014-2016. While a priority is to quickly eliminate the use of foreign-produced systems, the AF also intends to improve assured access to space by transitioning to a long-term sustained competitive environment and fully implement the National Space Transportation Policy direction: to increase the U.S. commercial space transportation industry robustness and cost effectiveness; foster innovation-driven entrepreneurship and international competitiveness; and benefit the U.S. economy. The overall goal of the

launch system investment is to ensure two or more domestic, commercially viable launch providers that also meet NSS requirements will be available by the end of Phase 2 (FY 2022) or earlier.

There will be a period of transition for launch service missions procured between FY 2018-2022, known as Phase 2. The strategy will require multiple approaches to acquire launch services, the AF plans to sole source two NRO heavy missions on Delta IV Heavy launch vehicles in order to meet required launch dates. The remaining launch service missions during this timeframe will be open to all certified launch service providers. Due to the restrictions on the use of the RD-180 powered Atlas V launch vehicle for NSS missions, the AF may allocate, or dual-sole source, missions among the available providers to assure access to space for all national security missions.

The AF, in coordination with the NRO, is developing a total program SCP. The SCP will support a revised APB and addresses the current RDT&E Total Cost APB breach.

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

Threshold Breaches

APB Breaches		Explanation of Breach
Schedule	<input type="checkbox"/>	The RDT&E breach was previously reported in the December 2014 SAR.
Performance	<input type="checkbox"/>	
Cost	<input checked="" type="checkbox"/>	
	RDT&E	
	Procurement	
	MILCON	
	Acq O&M	
O&S Cost	<input type="checkbox"/>	
Unit Cost	<input type="checkbox"/>	
	PAUC	
	APUC	

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

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone I	Dec 1996	Dec 1996	Dec 1996	Dec 1996
Milestone II	Jun 1998	Jun 1998	Jun 1998	Jun 1998
Tailored CDR	Oct 1999	Oct 1999	Oct 1999	Oct 1999
MLV First Operational Flight	Aug 2002	Aug 2002	Aug 2002	Aug 2002
HLV OLSD Flight	Dec 2004	Dec 2004	Dec 2004	Dec 2004
Initial & Full Operational Capability	Jun 2006	Jun 2006	Jun 2006	Jun 2006
HLV First Operational Flight	Nov 2007	Nov 2007	Nov 2007	Nov 2007
Milestone C Reapproval	Feb 2013	Feb 2013	Feb 2013	Feb 2013

Change Explanations

None

Acronyms and Abbreviations

CDR - Critical Design Review
 HLV - Heavy-Lift Vehicle
 MLV - Medium-Lift Vehicle
 OLSD - Operational Launch Service Demonstration

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Performance Mass to Orbit				
LEO: 100nm X 100nm 63.4 deg (lbs)				
19,550	19,550	17,000	17,000	17,000
POLAR 1: 450nm x 450nm, 98.2 deg (lbs)				
5,060-8,050 (15%)	5,060-8,050 (15%)	4,400-7,000	4,400-7,000	4,400-7,000
POLAR 2: 100nm x 100nm, 90 deg (lbs)				
43,050	43,050	41,000	41,000	41,000
SEMI-SYNC: 10,998nm x 100nm, 55.0 deg (lbs)				
2,875-5,152 (15%)	2,875-5,152 (15%)	2,500-4,725	2,500-4,725	2,500-4,725
GTO: 19,324nm x 90nm, 27 deg (lbs)				
7,015-9,775 (15%)	7,015-9,775 (15%)	6,100-8,500	6,100-8,500	6,100-8,500
MOLNIYA: 21,150nm x 650nm, 63.4 deg (lbs)				
8,050	8,050	7,000	7,000	7,000
GEO: 19,323nm x19,323nm, 0 deg (lbs)				
14,175	14,175	13,500	13,500	13,500
Vehicle Design Reliability (%)				
>98	>98	98	98	98
Standardization				
Launch Pads				
Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site	Standardized and able to launch all configs of EELV for that site
Payload interfaces				
One std payload interface	One std payload interface	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)	Std payload interface for each vehicle class (add'l interface rqmts met by payload adapter)

Requirements Reference

Operational Requirements Document (ORD) II dated September 15, 1998

Change Explanations

None

Notes

There have been 92 successful launches (59 NSS and 33 NASA and commercial).

Performance Characteristics were not designed to represent any specific satellite mission. Demonstrated Performance has been verified via Government review and analysis.

Acronyms and Abbreviations

add'l - additional

configs - configurations

deg - degree

GEO - Geosynchronous Earth Orbit

GTO - Geosynchronous Transfer Orbit

lbs - pounds

LEO - Low Earth Orbit

MOLNIYA - A highly inclined, highly elliptical orbit first used by the Russian MOLNIYA satellite

NASA - National Aeronautics and Space Administration

nm - nautical mile

NSS - National Security Space

POLAR - Polar Orbit

rqmts - requirements

SEMI-SYNC - Semi-Synchronous Orbit

Std - Standard

Track to Budget

RDT&E

Appn	BA	PE	
Air Force	3600	04	0603853F
	Project	Name	
	650006	EELV Pre-EMD (Sunk)	
	Notes:	FY 1995-1998	
Air Force	3600	05	0604853F
	Project	Name	
	650004	Evolved Expendable Launch Vehicle EMD (Sunk)	
	650006	Next Generation Liquid Rocket Engine	

Notes

The program also received funding from Defense Advanced Research Projects Agency (Defense-Wide PE 0603226E) and National Reconnaissance Office (Sunk).

Procurement

Appn	BA	PE	
Air Force	3020	05	0305953F
	Line Item	Name	
	MSEELC	Evolved Expendable Launch Capability (Sunk)	
	MSEELV	Evolved Expendable Launch Vehicle (Sunk)	
Air Force	3021	01	0305953F
	Line Item	Name	
	MSEELC	Evolved Expendable Launch Capability (Space)	
	MSEELV	Evolved Expendable Launch Vehicle (Space)	

Notes

The program also receives funding from Navy for procurement of EELV Launch Services (ELS) for Mobile User Objective System (MUOS) spacecraft (APPN 1507, BA 02, PE 0303109N, Line Item 243300), as well as from the National Reconnaissance Office.

In December 2014, the Office of Management and Budget directed the DoD to establish a new space procurement APPN as a five-year availability account. Beginning in FY 2016, Air Force major procurement funding formerly under APPN 3020F (Missile Procurement, Air Force) BA 05 will now be under 3021F (Space Procurement, Air Force) BA 01.

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2012 \$M			BY 2012 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	2365.1	2365.1	2601.6	3886.4 ¹	1962.1	1962.1	3642.6
Procurement	59078.3	59078.3	64986.1	51690.0	67367.3	67367.3	58795.4
Flyaway	--	--	--	51690.0	--	--	58795.4
Recurring	--	--	--	51690.0	--	--	58795.4
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	61443.4	61443.4	N/A	55576.4	69329.4	69329.4	62438.0

¹ APB Breach

Confidence Level

Confidence Level of cost estimate for current APB: 50%

This Independent Cost Estimate (ICE), like all life cycle cost estimates developed by the Office of the Secretary of Defense Cost Assessment and Program Evaluation (OSD CAPE), is built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life cycle cost estimates prepared for Major Defense Acquisition Programs (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Cost Notes

The deviation is due to receiving additional RDT&E funding to transition off the Russian RD-180 engine. The sources of the additional funding are the FY 2014 Omnibus reprogramming for a technical maturation and risk reduction program to invest in key propulsion technologies; the FY 2015 National Defense Authorization Act (NDAA) and Appropriations Act, 2015 for development of a Rocket Propulsion System no later than FY 2019; the FY 2016 NDAA, Appropriations Act, 2016 and additional funding in the FY 2017 PB to invest in one or more launch provider's emerging launch systems. The breach will be resolved with a revised APB based on the approval of an updated Acquisition Strategy incorporating the increased scope.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	1	1	1
Procurement	151	151	160
Total	152	152	161

Quantity Notes

The decrease in quantity from 164 in the previous report to 160 is due to a decrease in launch vehicle requirements.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	2178.0	227.8	296.6	296.6	247.2	197.8	198.6	0.0	3642.6
Procurement	21184.8	1891.8	2307.0	2209.7	2715.9	2521.4	2205.2	23759.6	58795.4
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 2017 Total	23362.8	2119.6	2603.6	2506.3	2963.1	2719.2	2403.8	23759.6	62438.0
PB 2016 Total	23338.8	2245.4	2493.8	2454.3	2761.4	2484.5	3273.4	25728.2	64779.8
Delta	24.0	-125.8	109.8	52.0	201.7	234.7	-869.6	-1968.6	-2341.8

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	1	0	0	0	0	0	0	0	0	1
Production	0	76	7	7	5	8	7	6	44	160
PB 2017 Total	1	76	7	7	5	8	7	6	44	161
PB 2016 Total	1	76	8	7	6	7	7	8	45	165
Delta	0	0	-1	0	-1	1	0	-2	-1	-4

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	9.8
1995	--	--	--	--	--	--	30.0
1996	--	--	--	--	--	--	110.6
1997	--	--	--	--	--	--	62.9
1998	--	--	--	--	--	--	92.3
1999	--	--	--	--	--	--	242.0
2000	--	--	--	--	--	--	321.8
2001	--	--	--	--	--	--	388.0
2002	--	--	--	--	--	--	321.8
2003	--	--	--	--	--	--	55.8
2004	--	--	--	--	--	--	7.5
2005	--	--	--	--	--	--	21.0
2006	--	--	--	--	--	--	19.1
2007	--	--	--	--	--	--	29.9
2008	--	--	--	--	--	--	18.3
2009	--	--	--	--	--	--	33.3
2010	--	--	--	--	--	--	43.9
2011	--	--	--	--	--	--	53.8
2012	--	--	--	--	--	--	14.5
2013	--	--	--	--	--	--	29.9
2014	--	--	--	--	--	--	46.2
2015	--	--	--	--	--	--	225.6
2016	--	--	--	--	--	--	227.8
2017	--	--	--	--	--	--	296.6
2018	--	--	--	--	--	--	296.6
2019	--	--	--	--	--	--	247.2
2020	--	--	--	--	--	--	197.8
2021	--	--	--	--	--	--	198.6
Subtotal	1	--	--	--	--	--	3642.6

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1994	--	--	--	--	--	--	13.2
1995	--	--	--	--	--	--	39.7
1996	--	--	--	--	--	--	143.7
1997	--	--	--	--	--	--	80.6
1998	--	--	--	--	--	--	117.5
1999	--	--	--	--	--	--	305.1
2000	--	--	--	--	--	--	399.4
2001	--	--	--	--	--	--	474.6
2002	--	--	--	--	--	--	389.6
2003	--	--	--	--	--	--	66.7
2004	--	--	--	--	--	--	8.7
2005	--	--	--	--	--	--	23.9
2006	--	--	--	--	--	--	21.1
2007	--	--	--	--	--	--	32.1
2008	--	--	--	--	--	--	19.3
2009	--	--	--	--	--	--	34.7
2010	--	--	--	--	--	--	45.1
2011	--	--	--	--	--	--	54.2
2012	--	--	--	--	--	--	14.4
2013	--	--	--	--	--	--	29.1
2014	--	--	--	--	--	--	44.4
2015	--	--	--	--	--	--	214.7
2016	--	--	--	--	--	--	213.5
2017	--	--	--	--	--	--	273.1
2018	--	--	--	--	--	--	268.1
2019	--	--	--	--	--	--	219.0
2020	--	--	--	--	--	--	171.8
2021	--	--	--	--	--	--	169.1
Subtotal	1	--	--	--	--	--	3886.4

Quantity of one represents the Heavy-Lift Vehicle (HLV) Operational Launch Service Demonstration (OLSD), also referred to as the Heavy Demo, launched in December 2004.

Included in the previous years funds above are Defense Advanced Research Projects Agency (DARPA) and National Reconnaissance Office (NRO) provided funding. Previously stated in past SARs as Advanced Research Projects Agency (ARPA) and National User.

Annual Funding 3020 Procurement Missile Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	1	68.1	--	--	68.1	--	68.1
2001	5	518.4	--	--	518.4	--	518.4
2002	--	--	6.1	--	6.1	--	6.1
2003	1	200.2	--	--	200.2	--	200.2
2004	7	1094.2	--	--	1094.2	--	1094.2
2005	4	670.6	--	--	670.6	--	670.6
2006	1	721.7	--	--	721.7	--	721.7
2007	3	1013.1	--	--	1013.1	--	1013.1
2008	5	1586.0	--	--	1586.0	--	1586.0
2009	6	2213.2	--	--	2213.2	--	2213.2
2010	5	1558.5	--	--	1558.5	--	1558.5
2011	8	2097.9	--	--	2097.9	--	2097.9
2012	9	3070.5	--	--	3070.5	--	3070.5
2013	7	2254.8	--	--	2254.8	--	2254.8
2014	6	1877.3	--	--	1877.3	--	1877.3
2015	8	2234.2	--	--	2234.2	--	2234.2
Subtotal	76	21178.7	6.1	--	21184.8	--	21184.8

Annual Funding 3020 Procurement Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2000	1	83.6	--	--	83.6	--	83.6
2001	5	629.5	--	--	629.5	--	629.5
2002	--	--	7.3	--	7.3	--	7.3
2003	1	236.6	--	--	236.6	--	236.6
2004	7	1265.3	--	--	1265.3	--	1265.3
2005	4	753.5	--	--	753.5	--	753.5
2006	1	788.6	--	--	788.6	--	788.6
2007	3	1079.8	--	--	1079.8	--	1079.8
2008	5	1660.1	--	--	1660.1	--	1660.1
2009	6	2285.0	--	--	2285.0	--	2285.0
2010	5	1585.3	--	--	1585.3	--	1585.3
2011	8	2091.5	--	--	2091.5	--	2091.5
2012	9	3010.2	--	--	3010.2	--	3010.2
2013	7	2161.2	--	--	2161.2	--	2161.2
2014	6	1774.5	--	--	1774.5	--	1774.5
2015	8	2087.1	--	--	2087.1	--	2087.1
Subtotal	76	21491.8	7.3	--	21499.1	--	21499.1

Cost Quantity Information		
3020 Procurement Missile Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 \$M
2000	1	83.6
2001	5	629.5
2002	--	--
2003	1	236.6
2004	7	1265.3
2005	4	753.5
2006	1	1789.8
2007	3	2126.6
2008	5	1636.3
2009	6	2098.6
2010	5	1510.1
2011	8	2134.7
2012	9	2864.2
2013	7	2125.3
2014	6	1018.2
2015	8	1219.5
Subtotal	76	21491.8

Annual Funding 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	7	1891.8	--	--	1891.8	--	1891.8
2017	7	2307.0	--	--	2307.0	--	2307.0
2018	5	2209.7	--	--	2209.7	--	2209.7
2019	8	2715.9	--	--	2715.9	--	2715.9
2020	7	2521.4	--	--	2521.4	--	2521.4
2021	6	2205.2	--	--	2205.2	--	2205.2
2022	10	3216.8	--	--	3216.8	--	3216.8
2023	6	2773.9	--	--	2773.9	--	2773.9
2024	5	2783.9	--	--	2783.9	--	2783.9
2025	5	2653.1	--	--	2653.1	--	2653.1
2026	7	3055.3	--	--	3055.3	--	3055.3
2027	7	3359.8	--	--	3359.8	--	3359.8
2028	4	2505.0	--	--	2505.0	--	2505.0
2029	--	1680.7	--	--	1680.7	--	1680.7
2030	--	1731.1	--	--	1731.1	--	1731.1
Subtotal	84	37610.6	--	--	37610.6	--	37610.6

Annual Funding 3021 Procurement Space Procurement, Air Force							
Fiscal Year	Quantity	BY 2012 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2016	7	1737.4	--	--	1737.4	--	1737.4
2017	7	2079.4	--	--	2079.4	--	2079.4
2018	5	1954.2	--	--	1954.2	--	1954.2
2019	8	2354.2	--	--	2354.2	--	2354.2
2020	7	2143.0	--	--	2143.0	--	2143.0
2021	6	1836.8	--	--	1836.8	--	1836.8
2022	10	2626.8	--	--	2626.8	--	2626.8
2023	6	2221.6	--	--	2221.6	--	2221.6
2024	5	2185.6	--	--	2185.6	--	2185.6
2025	5	2042.7	--	--	2042.7	--	2042.7
2026	7	2305.9	--	--	2305.9	--	2305.9
2027	7	2484.5	--	--	2484.5	--	2484.5
2028	4	1817.2	--	--	1817.2	--	1817.2
2029	--	1194.6	--	--	1194.6	--	1194.6
2030	--	1207.0	--	--	1207.0	--	1207.0
Subtotal	84	30190.9	--	--	30190.9	--	30190.9

All EELV launch services are fully funded in the year ordered, two or three years prior to launch, depending on vehicle configuration, and are fixed price. Launch support and capability costs are funded on an annual basis.

The Air Force missions, purchased with Missile (3020) and Space (3021) Procurement funds, comprise 105 of the 160 total launches. The remaining missions in the table above include funding and quantities from other sources to include the National Reconnaissance Office, and the Department of the Navy. Navy funding is for procurement of launch services for five Mobile User Objective System (MUOS) spacecraft. Navy procurement funding and quantities were first included in the December 2003 EELV SAR; however, the MUOS program baseline also includes these funds. There is one additional Air Force mission, the Heavy-Lift Vehicle Demonstration mission, that was purchased with RDT&E (3600) funds.

Cost Quantity Information 3021 Procurement Space Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2012 \$M
2016	7	2589.4
2017	7	2694.4
2018	5	1753.0
2019	8	2366.1
2020	7	2408.7
2021	6	2137.5
2022	10	2649.0
2023	6	2230.9
2024	5	2193.4
2025	5	2065.5
2026	7	2320.0
2027	7	2487.6
2028	4	2295.4
2029	--	--
2030	--	--
Subtotal	84	30190.9

Low Rate Initial Production

There is no LRIP for this program.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

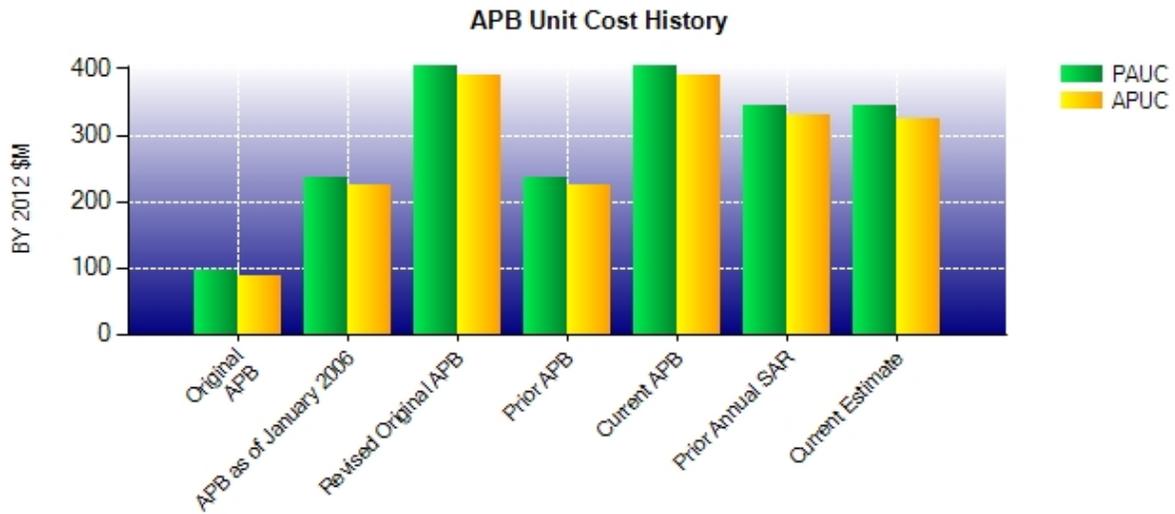
Unit Cost Report

Item	BY 2012 \$M	BY 2012 \$M	% Change
	Current UCR Baseline (Feb 2013 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	61443.4	55576.4	
Quantity	152	161	
Unit Cost	404.233	345.195	-14.60
Average Procurement Unit Cost			
Cost	59078.3	51690.0	
Quantity	151	160	
Unit Cost	391.247	323.062	-17.43

Item	BY 2012 \$M	BY 2012 \$M	% Change
	Revised Original UCR Baseline (Feb 2013 APB)	Current Estimate (Dec 2015 SAR)	
Program Acquisition Unit Cost			
Cost	61443.4	55576.4	
Quantity	152	161	
Unit Cost	404.233	345.195	-14.60
Average Procurement Unit Cost			
Cost	59078.3	51690.0	
Quantity	151	160	
Unit Cost	391.247	323.062	-17.43

Average unit cost figures reported above are a combination of each of three different launch vehicle configurations and annual launch capability requirements. The average unit cost will vary due to shifts in payload weight and volume, mission-unique services, number of missions per year and other factors.

Unit Cost History



Item	Date	BY 2012 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 1998	97.147	87.193	95.844	87.827
APB as of January 2006	Jul 2004	236.886	223.191	230.358	219.571
Revised Original APB	Feb 2013	404.233	391.247	456.114	446.141
Prior APB	Aug 2007	236.886	223.191	230.358	219.571
Current APB	Feb 2013	404.233	391.247	456.114	446.141
Prior Annual SAR	Dec 2014	345.456	330.281	392.605	379.934
Current Estimate	Dec 2015	345.195	323.062	387.814	367.471

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	
95.844	-6.787	55.829	-1.019	1.510	310.650	0.087	0.000	360.270	456.114

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
456.114	1.390	-17.971	1.580	0.000	-53.299	0.000	0.000	-68.300	387.814

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	
87.827	-6.789	54.306	-1.026	0.000	311.823	0.000	0.000	358.314	446.141

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
446.141	1.412	-17.523	1.590	0.000	-64.149	0.000	0.000	-78.670	367.471

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Dec 1996	Dec 1996	Dec 1996	Dec 1996
Milestone II	Jun 1998	N/A	Jun 1998	Jun 1998
Milestone III	Jul 2003	N/A	N/A	N/A
IOC	TBD	TBD	Jun 2006	Jun 2006
Total Cost (TY \$M)	2000.0	17347.8	69329.4	62438.0
Total Quantity	N/A	181	152	161
PAUC	N/A	95.844	456.114	387.814

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	1962.1	67367.3	--	69329.4
Previous Changes				
Economic	+1.4	+599.8	--	+601.2
Quantity	--	+2750.0	--	+2750.0
Schedule	--	+254.4	--	+254.4
Engineering	--	--	--	--
Estimating	+507.2	-8662.4	--	-8155.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+508.6	-5058.2	--	-4549.6
Current Changes				
Economic	-3.6	-373.8	--	-377.4
Quantity	--	-1538.5	--	-1538.5
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1175.5	-1601.4	--	-425.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1171.9	-3513.7	--	-2341.8
Adjustments	--	--	--	--
Total Changes	+1680.5	-8571.9	--	-6891.4
CE - Cost Variance	3642.6	58795.4	--	62438.0
CE - Cost & Funding	3642.6	58795.4	--	62438.0

Summary BY 2012 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	2365.1	59078.3	--	61443.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	+2120.0	--	+2120.0
Schedule	--	+0.1	--	+0.1
Engineering	--	--	--	--
Estimating	+469.0	-7032.3	--	-6563.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+469.0	-4912.2	--	-4443.2
Current Changes				
Economic	--	--	--	--
Quantity	--	-1167.0	--	-1167.0
Schedule	--	-9.3	--	-9.3
Engineering	--	--	--	--
Estimating	+1052.3	-1299.8	--	-247.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1052.3	-2476.1	--	-1423.8
Adjustments	--	--	--	--
Total Changes	+1521.3	-7388.3	--	-5867.0
CE - Cost Variance	3886.4	51690.0	--	55576.4
CE - Cost & Funding	3886.4	51690.0	--	55576.4

Previous Estimate: December 2014

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-3.6
Increased funding to invest in new launch systems providers to support National Security Space (NSS) mission requirements. (Estimating)	+1050.3	+1173.4
Adjustment for current and prior escalation. (Estimating)	+2.0	+2.1
RDT&E Subtotal	+1052.3	+1171.9

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-373.8
Quantity Variance resulting from a reduction of four launch services, from 164 to 160, based on decreased Satellite Vehicle requirements. (Quantity)	-1167.0	-1538.5
Stretch-out of Launch Vehicle configuration procurement profile due to requirements by Satellite Vehicles shifting between years. (Schedule)	-31.8	-24.1
Acceleration of procurement buy profile within the FYDP to align with new Satellite Vehicle requirements. (Schedule)	+22.5	+24.1
Increased funding required for changes in Launch Vehicle configuration requirements due to Satellite Vehicles requirements. (Estimating)	+404.4	+491.6
Revised estimate for launch service pricing from FY 2017 - FY 2028 based on final negotiated contract values. (Estimating)	-1756.5	-2148.2
Adjustment for current and prior escalation. (Estimating)	+52.3	+55.2
Procurement Subtotal	-2476.1	-3513.7

Change Explanations Notes

The FY 2017 PB provides additional RDT&E funds for investing in new launch systems. EELV will invest in public-private partnership agreements with launch system providers to deliver launch capability for NSS missions leveraging the U.S. produced propulsion systems while maintaining mission success. The results of the shared Government-industry investment will be multiple competitive, domestic launch service providers where each NSS mission can be supported by multiple launch providers.

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: FY13+ Phase I Buy
Contractor: United Launch Services, LLC
Contractor Location: 9501 East Panorama Circle
 Centennial, CO 80112
Contract Number: FA8811-13-C-0003
Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Fixed Fee (CPFF)
Award Date: June 26, 2013
Definitization Date: December 18, 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
1087.0	N/A	7	2576.8	N/A	0	2527.7	2536.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an increase in the scope of work as a result of the increase in the quantity of launch services, twelve, on the FFP portion on the contract.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2016)	+63.9	-7.1
Previous Cumulative Variances	+30.2	-11.0
Net Change	+33.7	+3.9

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to launch cycle time reductions and streamlining project affordability .

The favorable net change in the schedule variance is due to updated schedule and performance as a result of the addition of the FY 2016 options.

Notes

Contract FA881-C-13-0003 is reported as two separate efforts to enable Cost and Schedule Variance reporting for the CPIF/CPFF efforts. Contract number FA881-C-13-0003/1 is the FFP portion, including the quantity, of the contract.

Contract Identification

Appropriation: Procurement
Contract Name: FY13+ Phase I Buy
Contractor: United Launch Services, LLC
Contractor Location: 9501 East Panorama Circle
 Centennial, CO 80112
Contract Number: FA8811-13-C-0003/1
Contract Type: Firm Fixed Price (FFP)
Award Date: June 26, 2013
Definitization Date: December 18, 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
1946.2	N/A	14	3344.5	N/A	26	3344.5	3344.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the completion of negotiations and definitization of the contract, the addition of twelve launch procurements, and contract modifications.

Cost and Schedule Variance Explanations

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

Notes

Contract FA881-C-13-0003 is reported as two separate efforts to enable Cost and Schedule Variance reporting for the CPIF/CPFF efforts. Contract number FA881-C-13-0003/1 is the FFP portion of the contract.

Of the 26 launch procurements, 5 have been launched. Contract completion is estimated to be in 2019.

Contract Identification

Appropriation: Procurement
Contract Name: FY12 EELV Launch Services (ELS5)
Contractor: United Launch Services, LLC.
Contractor Location: 9501 East Panorama Circle
 Centennial, CO 80112
Contract Number: FA8811-13-C-0002
Contract Type: Firm Fixed Price (FFP)
Award Date: May 02, 2011
Definitization Date: January 10, 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
1787.0	N/A	10	513.0	N/A	4	513.0	513.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the April 2013 contract de-scope, moving 6 missions to the FY 2011 EELV Launch Services contract FA8811-11-C-0001 and the completion of negotiations and definitization of the contract on January 10, 2014.

Cost and Schedule Variance Explanations

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

Notes

Of the 4 missions, 3 have been launched. Contract completion is estimated to be in 2018.

Contract Identification

Appropriation: RDT&E
Contract Name: Rocket Propulsion System Prototypes: Common Booster Segment, BE-3U Extendable Nozzle & GEM63XL
Contractor: ATK Launch Systems Inc
Contractor Location: 5000 S. 8400 W.
 Magna, UT 84044-2202
Contract Number: FA8811-16-9-0002
Contract Type: Other Transaction Agreement (OTA)
Award Date: January 13, 2016
Definitization Date: January 13, 2016

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
47.0	N/A	0	47.0	N/A	0	47.0	47.0

Cost and Schedule Variance Explanations

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

Notes

This is the first time this contract is being reported.

Other Transaction Agreement for the shared cost investment in the development of subject Rocket Propulsion Systems Prototypes. With at most one-third statutory cost-sharing by contractor.

Contract Identification

Appropriation: Procurement
Contract Name: Initial Launch Services
Contractor: United Launch Services, LLC
Contractor Location: 9501 East Panorama Circle
 Centennial, CO 80127
Contract Number: F04701-98-D-0001
Contract Type: Firm Fixed Price (FFP)
Award Date: October 16, 1998
Definitization Date: October 16, 1998

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
649.0	N/A	9	1633.6	N/A	16	1633.6	1633.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an increase in the quantity of missions included in the contract and contract modifications.

Cost and Schedule Variance Explanations

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

Notes

Of the 16 missions, 16 have been launched.

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

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	1	1	1	100.00%
Production	58	58	160	36.25%
Total Program Quantity Delivered	59	59	161	36.65%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	62438.0	Years Appropriated	23
Expended to Date	18654.6	Percent Years Appropriated	62.16%
Percent Expended	29.88%	Appropriated to Date	25482.4
Total Funding Years	37	Percent Appropriated	40.81%

The above data is current as of February 15, 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	December 31, 2015
Source of Estimate:	Headquarter Air Force Space Command
Quantity to Sustain:	0
Unit of Measure:	Years
Service Life per Unit:	31.00 Years
Fiscal Years in Service:	FY 2000 - FY 2030

Sustainment Strategy

EELV is a launch service procurement. The Government never takes possession of hardware, therefore has no sustainment strategy.

Antecedent Information

The EELV program provides launch services for all DoD and National Reconnaissance Office satellite vehicles. No single antecedent system covered EELV's combined launch capabilities. Previous launch services were provided by Titan II, Delta II, Atlas II, and Titan IV launch vehicle systems. Titan IV was selected as the program that was the closest representation of an antecedent system. Cost details were provided by the Air Force Total Ownership Cost database.

Cost Element	Annual O&S Costs BY2012 \$M	
	EELV Average Annual Cost Per Years	Titan IV (Antecedent) Average Annual Cost Per Launch Vehicle
Unit-Level Manpower	--	11.561
Unit Operations	--	67.656
Maintenance	--	12.638
Sustaining Support	--	0.003
Continuing System Improvements	--	--
Indirect Support	--	0.343
Other	40.500	--
Total	40.500	92.201

Other O&S funds support critical infrastructure at the Eastern and Western Ranges.

Item	Total O&S Cost \$M			
	EELV		Titan IV (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	1256.8	1382.5	1255.5	N/A
Then Year	1388.3	N/A	1381.1	N/A

Equation to Translate Annual Cost to Total Cost

EELV unitized costs are calculated by using the Total O&S Cost divided by the Service Life: BY12 \$1,255.5M divided by 31 years to equal the annual cost of \$40.5M.

O&S Cost Variance		
Category	BY 2012 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2014 SAR	1255.5	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	1255.5	

Disposal Estimate Details

Date of Estimate: December 31, 2015
Source of Estimate:
Disposal/Demilitarization Total Cost (BY 2012 \$M): Total costs for disposal of all Years are 0.0

EELV is a launch service and therefore has no disposal costs.