Selected Acquisition Report (SAR)

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

Evolved Expendable Launch Vehicle (EELV)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Report Documentation Page

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Selected Acquisition Report-SAR

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Common Acronyms and Abbreviations

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

Program Information

Program Name

Evolved Expendable Launch Vehicle (EELV)

DoD Component

Air Force

Responsible Office

Responsible Office

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Date Assigned June 29, 2011

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.

In accordance with section 2273 title 10, United States Code (USC) and 2013 US 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. EELV is maintaining at least two families of space launch vehicles (currently Atlas & Delta) capable of reliably launching national security payloads.

Executive Summary

BACKGROUND:

EELV started in the Development Phase in 1998. IOC and Full Operational Capability were achieved in June 2006. On August 21, 2007 the revised APB documented the program transition past the Production Phase (Milestone C) and move into the Sustainment Phase. EELV was no longer classified as a Major Defense Acquisition Program (MDAP). The program submitted a close-out SAR on September 30, 2007. However, Congress enacted Section 838 in the FY 2012 National Defense Authorization Act (NDAA) requiring EELV to resume MDAP reporting. On March 26, 2012 the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)) issued an Acquisition Decision Memorandum (ADM) implementing the NDAA by re-designating EELV as an MDAP Acquisition Category I - Defense (ACAT-ID) program, requiring the Program Manager to resume cost reporting with respect to APUC and PAUC. When reporting resumed in the March 2012 SAR, the program triggered a critical Nunn-McCurdy breach due to exceeding both APUC and PAUC critical cost thresholds compared to the original EELV APB dated July 26, 2004 and the current APB dated August 21, 2007. The Secretary of Defense was notified of the critical Nunn-McCurdy breach on April 6, 2012 and Congress was notified on April 13, 2012. This Nunn-McCurdy unit cost breach necessitated a Milestone C rescission as required by the Weapon System Acquisition Reform Act.

On July 12, 2012, USD(AT&L) certified to Congress that the EELV program is essential to national security; no alternative is available at less cost; new cost estimates are reasonable; the management structure is adequate; and the program is a higher priority than the program(s) whose funding must be reduced to accommodate the growth in program cost.

The program subsequently restructured the contracting strategy for launch capability enabling the Government to implement Should-Cost Initiatives, incentivize the contractor's technical performance, monitor control accounts through Earned Value Management reviews, and increase face-to-face interaction.

A revised APB was approved by USD(AT&L) Milestone Decision Authority on February 10, 2013. This APB updated the Current and Original Baseline cost thresholds to the Office of the Secretary of Defense Cost Assessment and Program Evaluation's (OSD CAPE) Independent Cost Estimate (ICE), extending the program from 2020 to 2030 and increasing the quantity of launch services by 60. The amended Acquisition Strategy Document Amendment and the ADM reinstating Milestone C completion were also approved by USD(AT&L) February 10, 2013.

SIGNIFICANT EVENTS SINCE LAST SAR:

There have been nine successful National Security Space (NSS) EELV program launches and two National Aeronautics and Space Administration (NASA) mission since the last SAR dated December 2012 (containing launch data as of April 15, 2013). Of those, seven were Atlas V launch vehicles and four were Delta IV launch vehicles: Global Positioning System (GPS) IIF-4 on May 15, 2013, Wideband Global Satellite System (WGS)-5 on May 24, 2013, Mobile User Objective System (MUOS)-2 on July 19, 2013, WGS-6 on August 7, 2013, National Reconnaissance Office Launch (NROL)-65 on a Delta Heavy vehicle on August 28, 2013, Advanced Extremely High Frequency (AEHF)-3 on September 18, 2013, Mars Atmosphere and Volatile Evolution (MAVEN) for NASA on November 20, 2013, NROL-39 on December 6, 2013, Tracking & Data Relay Satellite (TDRS) -L for NASA on January 24, 2014, GPS IIF-5 on February 20, 2014, Defense Meteorological Satellite Program (DMSP)-19 on April 3, 2014 and NROL-67 on April 10, 2014. The remaining calendar year 2014 NSS mission manifest includes seven launches: six from the Eastern Range and one from the Western Range.

The contract negotiations with United Launch Alliance (ULA) to acquire a lot buy of launch services from FY 2013

through FY 2017 and the capability to launch those vehicles through 2019, were completed on November 14, 2013 and final contract award was December 18, 2013. This contract implements key provisions of the ADM approved by the USD(AT&L) in February 2013, which implements Economic Order Quantity purchasing, increases industrial base stability and introduces competition as early as possible.

During the October 4, 2012 launch of GPS IIF-3, the Delta IV RL-10B-2 second stage engine did not perform as expected. Despite delivery of the GPS IIF-3 satellite into its proper orbit a discretionary Accident Investigation Board (AIB) was directed. On May 6, 2013, the Air Force Space Command Commander was briefed on the status of the engine anomaly investigation; the outcome was resulting in mission specific flight clearance for WGS-5 along with the recommendation to transition to Phase 2 of the investigation. The contractor's Phase 1 investigation closed mid-May 2013. WGS-5, WGS-6, NROL-65 and GPS IIF-5 have since successfully launched on a Delta IV that incorporated hardware and procedural changes to mitigate the remaining identified risks. An AIB report was issued on July 31, 2013, and the AIB Phase 1 investigation was completed in October 2013. The ongoing Phase 2 investigation involves the technical team’s assessment of the Phase 1 conclusions to determine whether additional changes will be required. The ongoing contractor's Phase 2 estimated completion date is April 22, 2014. Clearance for Delta IV launches will be evaluated on a mission-by-mission basis pending final approval by the Air Force Space Command Commander, no earlier that May 2014.

An Acquisition Strategy and draft Request for Proposal are in development for competitive launch service awards estimated to begin in FY 2015. EELV continues working with multiple launch providers on the New Entrant Certification process. Initial assessments have been completed for the Orbital Sciences Corporation Antares, and Space Exploration Technologies Corporation (SpaceX) Falcon Heavy Statements of Intent. The New Entrant Certification Guide (NECG) tailoring for Antares is pending Orbital’s readiness and tailoring for Falcon Heavy is pending SpaceX’s readiness.

The Space and Missile Systems Center Launch Systems Directorate (SMC/LR) and SpaceX tailored NECG requirements for the Falcon 9 version 1.1 and signed a formal agreement to begin certification on June 7, 2013. The first Falcon 9 version 1.1 flight took place September 29, 2013, the second flight on December 3, 2013 and the third flight on January 6, 2014. SMC/LR is assessing these flights and the other defined certification requirements.

In preparation for the upcoming Phase 1A competitive launch service awards, two early integration studies will be performed for the SpaceX Falcon 9 v1.1 launch system, one for the GPS III constellation and one for the Space-Base Infrared System (SBIRS) constellation. The launch vehicle portion of the study for GPS III was awarded to SpaceX on March 10, 2014, the satellite vehicle portion was awarded April 3, 2014 and the SBIRS launch vehicle study was awarded on April 10, 2014.

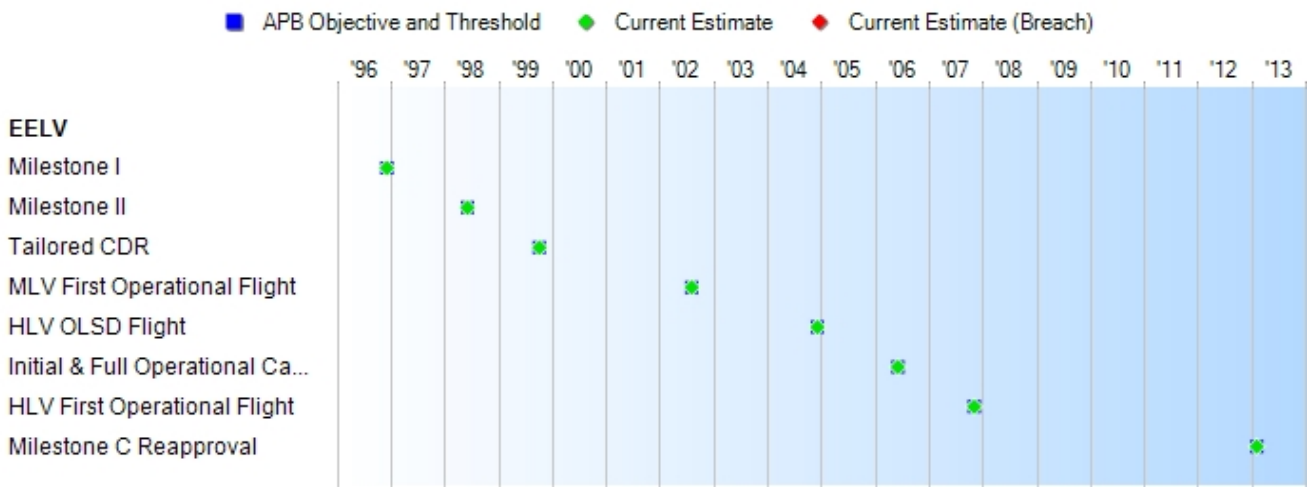
There are no significant software-related issues with this program at this time.

Threshold Breaches

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

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

Schedule



Milestones	SAR Baseline Prod Est	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

Memo

Current Estimates are the actual dates the Milestones were met.

Acronyms and Abbreviations

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

Performance

Characteristics	SAR Baseline Prod Est	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	TBD	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	TBD	4,400-7,000
POLAR 2: 100nm x 100nm, 90 deg (lbs)	43,050	43,050	41,000	TBD	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	TBD	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	TBD	6,100-8,500
MOLNIYA: 21,150nm x 650nm, 63.4 deg (lbs)	8,050	8,050	7,000	TBD	7,000
GEO: 19,323nm x19,323nm, 0 deg (lbs)	14,175	14,175	13,500	TBD	13,500
Vehicle Design Reliability (%)	>98	>98	98	TBD	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	All NSS mission required variants of the Atlas V launch vehicle configs have successfully flown. Variants included the 401, 411, 421, 501, 531, and 551 configs. For Delta IV the variants	Standardized and able to launch all configs of EELV for that site

				required for NSS missions flown are Heavy, Medium+ (5,4), Medium+ (4,2), Medium (4,0) and Medium+ (5,2) configs. Successful launches have occurred for each launch vehicle family from both the Eastern and Western launch bases.	
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 inter face for each vehicle class (add'l interface rqmts met by payload adapter)	Std payload inter face for each vehicle class (add'l interface rqmts met by payload adapter)

Requirements Source

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

Change Explanations

None

Memo

Standardization of Launch Pads performance is by launch vehicle family.

Though there have been 70 successful launches (43 NSS and 27 NASA and commercial), the "Demonstrated Performance" section remains TBD (except the Standardization of Launch Pads), these launches were not designed to validate any specific performance characteristic, but to accomplish a mission.

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-Sychronous Orbit
Std - Standard

Track to Budget

RDT&E

Appn	BA	PE	
Air Force 3600	04	0603853F	
Project		**Name**	
0006		EELV Pre-EMD	(Sunk)
Notes:		FY 1995-1998	
Air Force 3600	05	0604853F	
Project		**Name**	
0004		EELV EMD	(Sunk)
Notes:		No funding beyond FY 2014	

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 Vehicle Infrastructure
MSEELV		Evolved Expendable Launch Vehicle

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 and international customers.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2012 $M			BY2012 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	2365.1	2365.1	2601.6	2336.5	1962.1	1962.1	1931.2
Procurement	59078.3	59078.3	64986.1	56229.7	67367.3	67367.3	65691.2
Flyaway	--	--	--	56229.7	--	--	65691.2
Recurring	--	--	--	56229.7	--	--	65691.2
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	58566.2	69329.4	69329.4	67622.4

Confidence Level for Current APB Cost 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.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	1	1	1
Procurement	151	151	162
Total	152	152	163

Unit of measure is a launch service. A launch service is the delivery of specified payload(s) to a specified orbit.

The Current Estimate reflects the requirements provided by Air Force Space Command.

Cost and Funding

Funding Summary

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

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	1906.2	25.0	0.0	0.0	0.0	0.0	0.0	0.0	1931.2
Procurement	17073.2	1877.3	2090.1	2299.4	2220.3	2410.0	2700.3	35020.6	65691.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	18979.4	1902.3	2090.1	2299.4	2220.3	2410.0	2700.3	35020.6	67622.4
PB 2014 Total	19273.9	2762.0	2750.9	3050.8	2929.1	3268.1	3605.3	33045.0	70685.1
Delta	-294.5	-859.7	-660.8	-751.4	-708.8	-858.1	-905.0	1975.6	-3062.7

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	1	0	0	0	0	0	0	0	0	1
Production	0	62	6	7	7	7	6	7	60	162
PB 2015 Total	1	62	6	7	7	7	6	7	60	163
PB 2014 Total	1	62	7	8	8	8	8	7	43	152
Delta	0	0	-1	-1	-1	-1	-2	0	17	11

Cost and Funding

Annual Funding By Appropriation

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

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
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	--	--	--	--	--	--	25.0
Subtotal	**1**	**--**	**--**	**--**	**--**	**--**	**1931.2**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2012 $M	Non End Item Recurring Flyaway BY 2012 $M	Non Recurring Flyaway BY 2012 $M	Total Flyaway BY 2012 $M	Total Support BY 2012 $M	Total Program BY 2012 $M
1994	--	--	--	--	--	--	13.2
1995	--	--	--	--	--	--	39.7
1996	--	--	--	--	--	--	143.6
1997	--	--	--	--	--	--	80.6
1998	--	--	--	--	--	--	117.5
1999	--	--	--	--	--	--	304.9
2000	--	--	--	--	--	--	399.4
2001	--	--	--	--	--	--	474.8
2002	--	--	--	--	--	--	389.7
2003	--	--	--	--	--	--	66.7
2004	--	--	--	--	--	--	8.7
2005	--	--	--	--	--	--	23.9
2006	--	--	--	--	--	--	21.1
2007	--	--	--	--	--	--	32.1
2008	--	--	--	--	--	--	19.3
2009	--	--	--	--	--	--	34.6
2010	--	--	--	--	--	--	45.1
2011	--	--	--	--	--	--	54.2
2012	--	--	--	--	--	--	14.4
2013	--	--	--	--	--	--	29.1
2014	--	--	--	--	--	--	23.9
Subtotal	**1**	**--**	**--**	**--**	**--**	**--**	**2336.5**

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 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 TY$
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
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	2254.7	--	--	2254.7	--	2254.7
2014	6	1877.3	--	--	1877.3	--	1877.3
2015	7	2090.1	--	--	2090.1	--	2090.1
2016	7	2299.4	--	--	2299.4	--	2299.4
2017	7	2220.3	--	--	2220.3	--	2220.3
2018	6	2410.0	--	--	2410.0	--	2410.0
2019	7	2700.3	--	--	2700.3	--	2700.3
2020	7	2862.9	--	--	2862.9	--	2862.9
2021	8	3495.3	--	--	3495.3	--	3495.3
2022	6	2861.2	--	--	2861.2	--	2861.2
2023	6	3261.5	--	--	3261.5	--	3261.5
2024	6	3608.3	--	--	3608.3	--	3608.3
2025	6	3454.6	--	--	3454.6	--	3454.6
2026	8	3939.3	--	--	3939.3	--	3939.3
2027	8	4325.9	--	--	4325.9	--	4325.9
2028	5	3272.7	--	--	3272.7	--	3272.7

2029	--	1937.2	--	--	1937.2	--	1937.2
2030	--	2001.7	--	--	2001.7	--	2001.7
Subtotal	**162**	**65685.1**	**6.1**	**--**	**65691.2**	**--**	**65691.2**

Annual Funding BY$
3020 | Procurement | Missile Procurement, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2012 $M	Non End Item Recurring Flyaway BY 2012 $M	Non Recurring Flyaway BY 2012 $M	Total Flyaway BY 2012 $M	Total Support BY 2012 $M	Total Program BY 2012 $M
2000	1	83.6	--	--	83.6	--	83.6
2001	5	629.7	--	--	629.7	--	629.7
2002	--	--	7.3	--	7.3	--	7.3
2003	1	236.4	--	--	236.4	--	236.4
2004	7	1264.6	--	--	1264.6	--	1264.6
2005	4	753.6	--	--	753.6	--	753.6
2006	1	788.2	--	--	788.2	--	788.2
2007	3	1079.4	--	--	1079.4	--	1079.4
2008	5	1659.5	--	--	1659.5	--	1659.5
2009	6	2283.1	--	--	2283.1	--	2283.1
2010	5	1585.1	--	--	1585.1	--	1585.1
2011	8	2090.0	--	--	2090.0	--	2090.0
2012	9	3005.6	--	--	3005.6	--	3005.6
2013	7	2147.8	--	--	2147.8	--	2147.8
2014	6	1756.8	--	--	1756.8	--	1756.8
2015	7	1919.2	--	--	1919.2	--	1919.2
2016	7	2070.4	--	--	2070.4	--	2070.4
2017	7	1960.0	--	--	1960.0	--	1960.0
2018	6	2085.7	--	--	2085.7	--	2085.7
2019	7	2291.2	--	--	2291.2	--	2291.2
2020	7	2381.5	--	--	2381.5	--	2381.5
2021	8	2850.5	--	--	2850.5	--	2850.5
2022	6	2287.7	--	--	2287.7	--	2287.7
2023	6	2556.6	--	--	2556.6	--	2556.6
2024	6	2773.0	--	--	2773.0	--	2773.0
2025	6	2602.8	--	--	2602.8	--	2602.8
2026	8	2909.8	--	--	2909.8	--	2909.8
2027	8	3132.7	--	--	3132.7	--	3132.7
2028	5	2323.5	--	--	2323.5	--	2323.5

2029	--	1348.4	--	--	1348.4	--	1348.4
2030	--	1366.0	--	--	1366.0	--	1366.0
Subtotal	**162**	**56222.4**	**7.3**	**--**	**56229.7**	**--**	**56229.7**

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 Procurement (3020) funds, comprise 101 of the 162 total launches. The remaining missions in the table above include funding and quantities from other sources to include the National Reconnaissance Office, the Department of the Navy and one Cooperative Agreement purchase by the Australian Government. Navy funding is for procurement of launch services for 11 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
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	629.7
2002	--	--
2003	1	236.4
2004	7	1264.6
2005	4	753.6
2006	1	1788.9
2007	3	2125.3
2008	5	1636.0
2009	6	2096.9
2010	5	1508.6
2011	8	2142.6
2012	9	2860.5
2013	7	2136.8
2014	6	1842.2
2015	7	1894.1
2016	7	2074.4
2017	7	1698.2
2018	6	2236.1
2019	7	2653.2
2020	7	2363.2
2021	8	2852.6
2022	6	2290.0
2023	6	2559.3
2024	6	2775.9
2025	6	2606.1
2026	8	2913.3

2027	8	3136.6
2028	5	3063.7
2029	--	--
2030	--	--
Subtotal	**162**	**56222.4**

Low Rate Initial Production

There is no LRIP for this Program.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

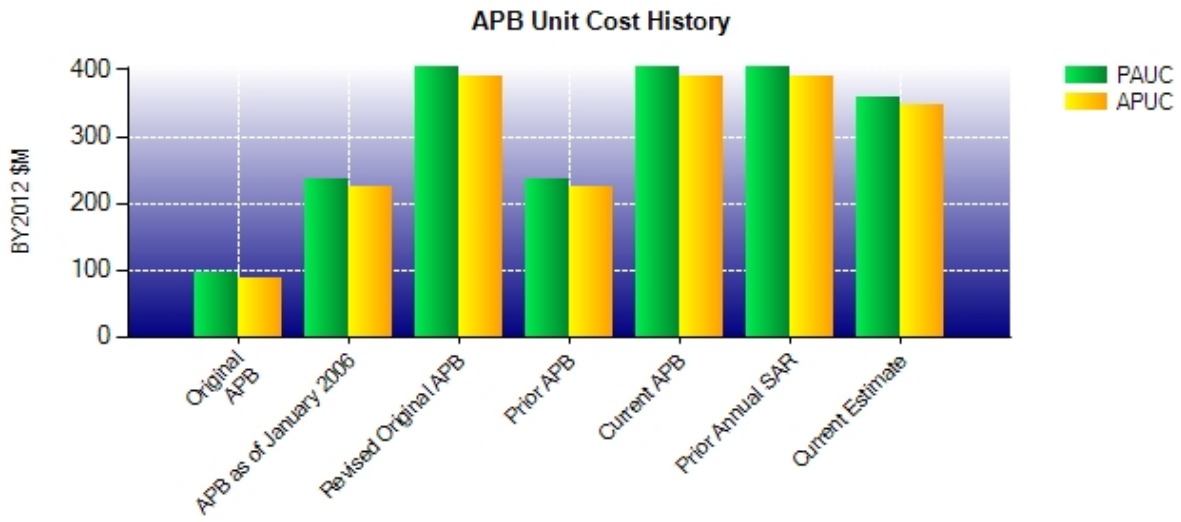
Unit Cost Report

	BY2012 $M	BY2012 $M	
Unit Cost	**Current UCR Baseline (FEB 2013 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	61443.4	58566.2	
Quantity	152	163	
Unit Cost	404.233	359.302	-11.12
Average Procurement Unit Cost (APUC)			
Cost	59078.3	56229.7	
Quantity	151	162	
Unit Cost	391.247	347.097	-11.28

	BY2012 $M	BY2012 $M	
Unit Cost	**Revised Original UCR Baseline (FEB 2013 APB)**	**Current Estimate (DEC 2013 SAR)**	**BY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	61443.4	58566.2	
Quantity	152	163	
Unit Cost	404.233	359.302	-11.12
Average Procurement Unit Cost (APUC)			
Cost	59078.3	56229.7	
Quantity	151	162	
Unit Cost	391.247	347.097	-11.28

Unit cost figures reported above are a combination of each of three different launch vehicle configurations and annual launch capability requirements. 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



		BY2012 $M		TY $M	
	Date	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 2012	404.234	391.248	465.034	455.112
Current Estimate	DEC 2013	359.302	347.097	414.861	405.501

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	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 Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
456.114	7.491	-15.412	1.462	0.000	-34.794	0.000	0.000	-41.253	414.861

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	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 Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
446.141	7.528	-14.830	1.471	0.000	-34.809	0.000	0.000	-40.640	405.501

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	N/A	N/A
Total Cost (TY $M)	2000.0	17347.8	69329.4	67622.4
Total Quantity	N/A	181	152	163
Prog. Acq. Unit Cost (PAUC)	N/A	95.844	456.114	414.861

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	1962.1	67367.3	--	69329.4
Previous Changes				
Economic	+0.9	+1354.8	--	+1355.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+0.2	-0.2	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1.1	+1354.6	--	+1355.7
Current Changes				
Economic	+0.6	-135.2	--	-134.6
Quantity	--	+2505.0	--	+2505.0
Schedule	--	+238.3	--	+238.3
Engineering	--	--	--	--
Estimating	-32.6	-5638.8	--	-5671.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-32.0	-3030.7	--	-3062.7
Adjustments	--	--	--	--
Total Changes	-30.9	-1676.1	--	-1707.0
CE - Cost Variance	1931.2	65691.2	--	67622.4
CE - Cost & Funding	1931.2	65691.2	--	67622.4

Summary Base Year 2012 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	2365.1	59078.3	--	61443.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	+0.1	--	+0.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	+0.1	--	+0.1
Current Changes				
Economic	--	--	--	--
Quantity	--	+1894.6	--	+1894.6
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-28.6	-4743.3	--	-4771.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-28.6	-2848.7	--	-2877.3
Adjustments	--	--	--	--
Total Changes	-28.6	-2848.6	--	-2877.2
CE - Cost Variance	2336.5	56229.7	--	58566.2
CE - Cost & Funding	2336.5	56229.7	--	58566.2

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+0.6
Adjustment for current and prior escalation. (Estimating)	-1.6	-1.2
Reduction in funding for higher AF priorities. (Estimating)	-27.0	-31.4
RDT&E Subtotal	-28.6	-32.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-135.2
Quantity change from 151 to 162 based on increased Satellite Vehicle requirements provided by Air Force Space Command. (Quantity)	+1894.6	+2505.0
Launch service requirements by satellite vehicles are being delayed into later years. (Schedule)	0.0	+238.3
Adjustment for current and prior escalation. (Estimating)	+51.3	+54.7
Net decrease from the change in launch vehicle configuration requirements. (Estimating)	-294.5	-411.3
Adjustment to estimate for FY 2018 - FY 2030 with revised cost assumptions based on negotiated contract. (Estimating)	-1113.8	-1511.5
Savings realized in the current Future Years Defense Program (FYDP) negotiated in the award of the new FY 2013 - FY 2017 Phase 1 contract. (Estimating)	-3386.3	-3770.7
Procurement Subtotal	-2848.7	-3030.7

Contracts

Appropriation: Procurement

Contract Name	**FY13+ Phase I Buy**
Contractor	United Launch Services, LLC
Contractor Location	Centennial, CO 80112, CO 80112
Contract Number, Type	FA8811-13-C-0003, FFP/CPIF/CPFF
Award Date	June 26, 2013
Definitization Date	December 18, 2013

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	2576.5	N/A	7	2576.5	2576.5

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 on December 18, 2013.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP/CPIF/CPFF contract.

Contract Comments

This is the first time this contract is being reported.

Appropriation: Procurement

Contract Name	**Launch Capability (ELC-3 FY13)**
Contractor	United Launch Services, LLC
Contractor Location	Centennial, CO 80112
Contract Number, Type	FA8811-13-C-0001, CPIF
Award Date	October 01, 2012
Definitization Date	July 30, 2013

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
983.1	N/A	0	1024.9	N/A	0	1024.9	1024.9

Target Price Change Explanation

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

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (9/30/2013)	-9.4	-5.5
Previous Cumulative Variances	+3.1	-12.3
Net Change	-12.5	+6.8

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the GPS IIF launch anomaly investigation and a higher volume of Safety Action items than planned.

The favorable net change in the schedule variance is due to launch delays and maintenance projects at the launch pads.

Contract Comments

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

Appropriation: Procurement

Contract Name	**FY12 EELV Launch Services (ELS5)**
Contractor	United Launch Services, LLC.
Contractor Location	Centennial, CO, CO 80112
Contract Number, Type	FA8811-13-C-0002, FFP
Award Date	May 02, 2011
Definitization Date	January 10, 2014

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	693.0	N/A	4	693.0	693.0

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 FY11 EELV Launch Services (ELS4) contract FA8811-11-C-0001.

Cost and Schedule Variance Explanations

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

Contract Comments

Of the 4 missions none have been launched. Contract completion is estimated to be in 2016.

Appropriation: Procurement

Contract Name	**FY11 EELV Launch Services (ELS4)**
Contractor	United Launch Services, LLC.
Contractor Location	Centennial, CO 80112
Contract Number, Type	FA8811-11-C-0001, FFP
Award Date	May 02, 2011
Definitization Date	April 04, 2013

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
575.0	N/A	3	1299.3	N/A	11	1299.3	1299.3

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.

Cost and Schedule Variance Explanations

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

Contract Comments

Of the 11 missions, 7 have been launched. Contract completion is estimated to be in 2016.

Appropriation: Procurement

Contract Name	**Launch Service**
Contractor	United Launch Services, LLC.
Contractor Location	Centennial, CO 80127
Contract Number, Type	FA8816-06-C-0004, FFP
Award Date	February 28, 2007
Definitization Date	February 28, 2007

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
227.0	N/A	2	733.7	N/A	7	733.7	733.7

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.

Cost and Schedule Variance Explanations

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

Contract Comments

All 7 missions have been launched. Contract is complete.

Appropriation: Procurement

Contract Name	**Initial Launch Services**
Contractor	United Launch Services, LLC
Contractor Location	Centennial, CO 80127
Contract Number, Type	F04701-98-D-0001, FFP
Award Date	October 16, 1998
Definitization Date	October 16, 1998

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	1504.5	N/A	16	1504.5	1504.5

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.

Cost and Schedule Variance Explanations

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

Contract Comments

Of the 16 missions, 13 have been launched. Contract completion is estimated to be in 2016.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	1	1	1	100.00%
Production	43	43	162	26.54%
Total Program Quantity Delivered	44	44	163	26.99%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	67622.4	Years Appropriated	21
Expended to Date	16099.0	Percent Years Appropriated	56.76%
Percent Expended	23.81%	Appropriated to Date	20881.7
Total Funding Years	37	Percent Appropriated	30.88%

The above data is current as of 3/17/2014.

Operating and Support Cost

EELV

Assumptions and Ground Rules

Cost Estimate Reference:
Cost Estimate is based on the Office of the Secretary of Defense Cost Assessment and Program Evaluation (OSD CAPE) Independent Cost Estimate (ICE) approved by the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)) February 10, 2013. The relevant costs are 3400 funds which fund the EELV dedicated infrastructure to include security, utilities, and operation & maintenance of critical infrastructure at the Eastern and Western Ranges. Also supplies daily operating funds for 30th & 45th Launch Groups. Daily operating funds provide computer equipment, network support, travel, training, base support, government purchase card funds, General Services Administration (GSA) vehicles, and Systems Engineering and Technical Assistance (SETA) support. All other costs are within Total Acquisition Cost.

Sustainment Strategy:
EELV is a launch service. The estimate includes 31 years of costs.

Antecedent Information:
No previous antecedent system covered EELV's combined launch capabilities.

Unitized O&S Costs BY2012 $M		
Cost Element	**EELV Average Cost per Year**	**None (Antecedent) None**
Unit-Level Manpower	0.000	0.000
Unit Operations	0.000	0.000
Maintenance	0.000	0.000
Sustaining Support	0.000	0.000
Continuing System Improvements	0.000	0.000
Indirect Support	0.000	0.000
Other	40.500	0.000
Total	40.500	--

Unitized Cost Comments:
EELV unitized cost s are calculated as the Total O&S Cost of BY $1,255.5M divided by 31 years to equal the annual cost of BY $40.5M.

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	EELV		EELV	None (Antecedent)
Base Year	1256.8	1382.5	1255.5	N/A
Then Year	1388.3	N/A	1381.1	N/A

Total O&S Costs Comments:

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

Disposal Costs:

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