

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

05 - System Development and Demonstration (SDD)**0604853F Evolved Expendable Launch Vehicle - EMD 0004**

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
0004 Evolved Expendable Launch Vehicle	321,777	56,954	8,000	15,000	14,000	10,000	0	0	0	1,390,386
Quantity of RDT&E Articles	0	1	0	0	0	0	0	0	0	1

(U) New Start effort:

In FY04, PE0604853F, Evolved Expendable Launch Vehicle, includes new start efforts for Assured Access to Space in order to maintain two viable launch service providers.

(U) **A. Mission Description**

The Evolved Expendable Launch Vehicle (EELV) program is a jointly funded (government and industry) space launch system developed in partnership with industry to provide two competitive families of launch vehicles (Delta IV & Atlas V). The program will satisfy the government's National Launch Forecast (NLF) requirements, reduce the cost of space launch by at least 25%, and satisfy commercial satellites' industrial launch services needs.

EELV is a commercial launch service, not a weapon system. The EELV program includes launch vehicles, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (mission feasibility analysis, secondary payloads, dual manifesting, dual integration, special flight instrumentation, loads analysis, etc.), post-flight data evaluation and analysis, mission assurance, assured access, government mission director, system/process and reliability improvements, training, and technical support. In addition, the system includes launch site/operations activities, activities in support of assured access, systems integration and tests, and other related support activities. The program will also design and develop a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching Government manifested payloads via commercial launch services, including those currently supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from current expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.

An EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. A HLV demonstration test article is scheduled for launch in FY03.

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05 - System Development and Demonstration (SDD)**0604853F Evolved Expendable Launch Vehicle - EMD 0004**(U) **A. Mission Description Continued**(U) FY 2002 (\$ in Thousands)

(U)	\$0	Accomplishments/Planned Program
(U)	\$219,630	Continued System Development/Analysis
(U)	\$28,638	Provided Systems Engineering
(U)	\$17,009	Program Management and Other Support Costs
(U)	\$3,500	Began GPS Metric Tracking Booster Capability Integration
(U)	\$53,000	Continued HLV Demonstration Integration
(U)	\$321,777	Total

(U) FY 2003 (\$ in Thousands)

(U)	\$0	Accomplishments/Planned Program
(U)	\$10,202	Complete System Development/Analysis
(U)	\$2,831	Other Support Costs
(U)	\$15,921	Continue GPS Metric Tracking Booster Capability Integration
(U)	\$28,000	Continue HLV Demonstration Integration; Accomplish Demonstration Article Launch and Delivery/Review
(U)	\$56,954	Total

(U) FY 2004 (\$ in Thousands)

(U)	\$0	Accomplishments/Planned Program
(U)	\$1,000	Continue GPS Metric Tracking Booster Capability Integration
(U)	\$7,000	Assured Access initiatives
(U)	\$8,000	Total

(U) **B. Budget Activity Justification**

This program element is in Budget Activity 5, System Demonstration and Development, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

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0604853F Evolved Expendable Launch Vehicle - EMD 0004

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	320,321	57,562	1,000	1,339,705
(U) Appropriated Value	315,320	57,562		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-1,543	-608		
b. Small Business Innovative Research	-5,000			
c. Omnibus or Other Above Threshold Reprogram	13,000			
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2003 PBR			7,000	
(U) Current Budget Submit/FY 2004 PBR	321,777	56,954	8,000	1,390,386

(U) **Significant Program Changes:**

FY02 OMNIBUS provided funds for Contractor Requests for Equitable Adjustments due to impacts of 9-11 enhanced security activities. Funding for Assured Access begins in FY04 to maintain two viable launch providers.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										176,634
(U) Other APPN										
(U) NRO (Non-AF budget)*										95,100
(U) MPAF (BA 05, PE 0305953F, P-26)**	0	165,605	609,310	758,278	634,684	929,884	1,305,300	730,200	6,848,900	11,982,161
(U) DARPA (Non-AF Budget) (PE 0603226E)***										9,845

* Total includes FY96 and FY97 funding.

** The Cost To Complete value is an estimate based on 117 AF launches in the current manifest, FY 2002-2020.

*** Total includes FY94 funding.

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(U) **E. Acquisition Strategy**

The EELV concept of families of launch vehicles emphasizes commonality of hardware, infrastructure, and economies of scale to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - The Boeing Company (TBC) and Lockheed Martin Astronautics (LMA) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. On 16 Oct 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LMA for the development effort. The contractors have contributed additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor has invested approximately \$1B. Simultaneous with the award of the development effort, Initial Launch Services (ILS) contracts were awarded to Boeing for \$1.38B (19 missions) and to Lockheed Martin for \$649M (9 missions).

On 18 Sep 2000, a revised acquisition strategy was reviewed by the DEPSECDEF and signed by USD (AT&L). Under the revised strategy, only TBC will develop a Vandenberg AFB launch facility. LMA transferred two West Coast Defense Meteorological Satellite Program (DMSP) missions to TBC and provided the government additional consideration. Furthermore, the program restructure included the procurement of a SECAF-directed heavy lift demonstration launch to increase confidence in the Delta IV Heavy Lift Vehicle (HLV) prior to the first operational government HLV launch.

The acquisition approach maintains competition throughout the life of the program, leverages the commercial launch market, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over existing systems. The EELV system will launch the government portion of the NLF through 2020 and the government will continue to work in partnership with industry to capture continuous product and process improvements that will enhance reliability and reduce both the contractors' and government's total operating costs.

(U) **F. Schedule Profile**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Boeing Pad 37 Dedication	*											
(U) Boeing RS-68 Engine Certification	*											
(U) 1st Commercial Atlas V Launch				*								
(U) 1st Commercial Delta IV Launch					*							
(U) GPS Metric Tracking Project Planning & Requirements Analysis						X						
(U) 1st Government Medium Launch						X						
(U) HLV Demonstration Launch								X				
(U) GPS Metric Tracking Project Planning & Requirements Integration											X	
* completed event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

05 - System Development and Demonstration (SDD)

0604853F Evolved Expendable Launch Vehicle - EMD 0004

(U) **A. Project Cost Breakdown (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
(U) Continue System Development/Analysis	219,630	10,202	
(U) Provide Systems Engineering	28,638		
(U) Program Management and Other Support Costs	17,009	2,831	
(U) Begin GPS Metric Tracking Booster Capability Integration	3,500	15,921	1,000
(U) Continue HLV Demonstration Integration	53,000	28,000	
(U) Assured Access			7,000
(U) Total	321,777	56,954	8,000

(U) **B. Budget Acquisition History and Planning Information (\$ in Thousands)**(U) **Performing Organizations:**

<u>Contractor or</u> <u>Government</u> <u>Performing</u> <u>Activity</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u>	<u>Award or</u> <u>Obligation</u> <u>Date</u>	<u>Performing</u> <u>Activity</u> <u>EAC</u>	<u>Project</u> <u>Office</u> <u>EAC</u>	<u>Total Prior</u> <u>to FY 2002</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget</u> <u>FY 2003</u>	<u>Budget</u> <u>FY 2004</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Organizations</u>										
Prime Contractor Boeing	OTA/ILS	Oct 98	641,452	641,452	509,879	131,188	45,576	3,500	19,000	709,143
Prime Contractor Lockheed Martin	OTA/ILS	Oct 98	500,000	500,000	386,026	144,942	8,547	3,500	19,000	562,015
<u>Support and Management Organizations</u>										
SPO/CTF Range Mission Spt	Various	Various	33,337	33,337	22,135	11,202	2,831	1,000	1,000	38,168
FFRDC	SS/CPAF	Annual	67,214	67,214	38,576	28,638	0			67,214
Other Cntr Spt	Various	Various	14,013	14,013	8,206	5,807	0			14,013
<u>Test and Evaluation Organizations</u>										
None										

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(U) Government Furnished Property:

<u>Item</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u>	<u>Award or</u> <u>Obligation</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 2002</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget</u> <u>FY 2003</u>	<u>Budget</u> <u>FY 2004</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 2002</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget</u> <u>FY 2003</u>	<u>Budget</u> <u>FY 2004</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development				895,905	276,130	54,123	7,000	38,000	1,271,158
Subtotal Support and Management				68,917	45,647	2,831	1,000	1,000	119,395
Subtotal Test and Evaluation									
Total Project				964,822	321,777	56,954	8,000	39,000	1,390,553

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