

UNCLASSIFIED

PE NUMBER: 0604853F

PE TITLE: Evolved Expendable Launch Vehicle - EMD

Exhibit R-2, RDT&E Budget Item Justification								DATE February 2006																																					
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD																																									
Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total																																				
Total Program Element (PE) Cost	20.991	25.721	18.513	0.000	0.000	0.000	0.000	0.000	1,416.715																																				
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<p>(U) <u>A. Mission Description and Budget Item Justification</u></p> <p>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 families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.</p> <p>EELV is a launch service, not a weapon system, which is primarily funded with production funding. However, the program still has a few developmental items, including assured access (RL-10 producibility, etc.), a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight and other related support activities.</p> <p>The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage expendable launch systems and new applications of existing technology, EELV supports military, intelligence, civil, and commercial mission requirements.</p> <p>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. The HLV demonstration test article was launched on 21 Dec 2004.</p> <p>This program element is in Budget Activity 5, System Development and Demonstration, because it supports development and demonstration of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.</p> <p>(U) <u>B. Program Change Summary (\$ in Millions)</u></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">26.763</td> <td style="text-align: right;">26.093</td> <td style="text-align: right;">18.303</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">20.991</td> <td style="text-align: right;">25.721</td> <td style="text-align: right;">18.513</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-5.772</td> <td style="text-align: right;">-0.372</td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Rescissions</td> <td style="text-align: right;">-0.021</td> <td style="text-align: right;">-0.372</td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Reprogrammings</td> <td style="text-align: right;">-5.000</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">SBIR/STTR Transfer</td> <td style="text-align: right;">-0.751</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p>											<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	26.763	26.093	18.303	(U) Current PBR/President's Budget	20.991	25.721	18.513	(U) Total Adjustments	-5.772	-0.372		(U) Congressional Program Reductions				Congressional Rescissions	-0.021	-0.372		Congressional Increases				Reprogrammings	-5.000			SBIR/STTR Transfer	-0.751		
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Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable Launch Vehicle - EMD

None.

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch
Vehicle

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
0004 Evolved Expendable Launch Vehicle	20.991	25.721	18.513	0.000	0.000	0.000	0.000	0.000	1,416.715
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

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 families of launch vehicles (Delta IV & Atlas V). The program satisfies the government's National Launch Forecast (NLF) requirements, reduces the cost of space launch by at least 25%, and satisfies commercial satellites' launch services needs.

EELV is a launch service, not a weapon system, which is primarily funded with production funding. However, the program still has a few developmental items, including assured access (RL-10 producibility, etc.), a Global Positioning System (GPS) Metric Tracking capability for obtaining real-time booster position data during flight and other related support activities.

The EELV system provides two families of launch vehicles (Delta IV and Atlas V). EELV is responsible for launching government manifested payloads, including those once supported by Titan II, Delta II, Atlas II/III, and Titan IV. Evolved from heritage 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. The HLV demonstration test article was launched on 21 Dec 2004.

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

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue GPS Metric Tracking Booster Capability Integration	6.091	9.920	7.217
(U) SPO Support	0.900	1.801	1.296
(U) Assured Access initiatives	14.000	14.000	10.000
(U) Total Cost	20.991	25.721	18.513

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) MPAF (BA 05, PE 0305953F, P-28)*	413.956	773.205	936.490	1244.838	1105.076	1250.753	1428.705	13,158.510	20,311.533

Project 0004

R-1 Shopping List - Item No. 94-4 of 94-8

Exhibit R-2a (PE 0604853F)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch
Vehicle(U) **C. Other Program Funding Summary (\$ in Millions)**

* The Cost To Complete value is an estimate based on 95 AF launches in the current manifest, FY 2002-2020.

(U) **D. 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 (LM) - 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 LM 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 in excess of \$1B. At the same time as 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 would develop a Vandenberg AFB launch facility. LM 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.

On 24 Jul 2003, the investigation into Procurement Integrity Act violations by TBC resulted in transferring seven ILS missions from TBC to LM. In addition, TBC's exclusive right to west coast missions was rescinded. LM has developed a Vandenberg AFB launch facility that was completed in CY05.

All of the ILS (Buy 1/awarded) launch services are firm-fixed price contracts. Due to the decrease in the commercial market, the projected costs of the unawarded EELV launches have increased. The new acquisition strategy, which will begin in FY06, separates the launch price from the infrastructure costs. Follow-on Launch Service Buys will include launch service costs on a fixed-price contract. National launch capability infrastructure costs, to include launch and range operations, mission integration, mission unique development and integration, subcontract support engineering, factory engineering, etc., will be funded on an annual basis. The Space System Acquisition Strategy (SSAS) for EELV was revised to reflect this modified approach to provide assured access to space with two viable launch service providers.

The acquisition approach supports the 2004 National Space Transportation Policy, 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 majority of 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.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch
Vehicle

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Prime Contractor Boeing	OTA/ILS		685.257	3.155	Oct-04	11.960	Nov-05	8.608	Nov-06		708.980	
Prime Contractor Lockheed Martin	OTA/ILS		544.346	16.936	Oct-04	11.960	Nov-05	8.609	Nov-06		581.851	
Subtotal Product Development			1,229.603	20.091		23.920		17.217		0.000	1,290.831	0.000
Remarks:												
(U) <u>Support</u>												
SPO/CTF Range Mission Spt	Various		39.529	0.900		1.801		1.296			43.526	
FFRDC	SS/CPAF		67.214								67.214	
Other Cntr Spt	Various		15.144								15.144	
Subtotal Support			121.887	0.900		1.801		1.296		0.000	125.884	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,351.490	20.991		25.721		18.513		0.000	1,416.715	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

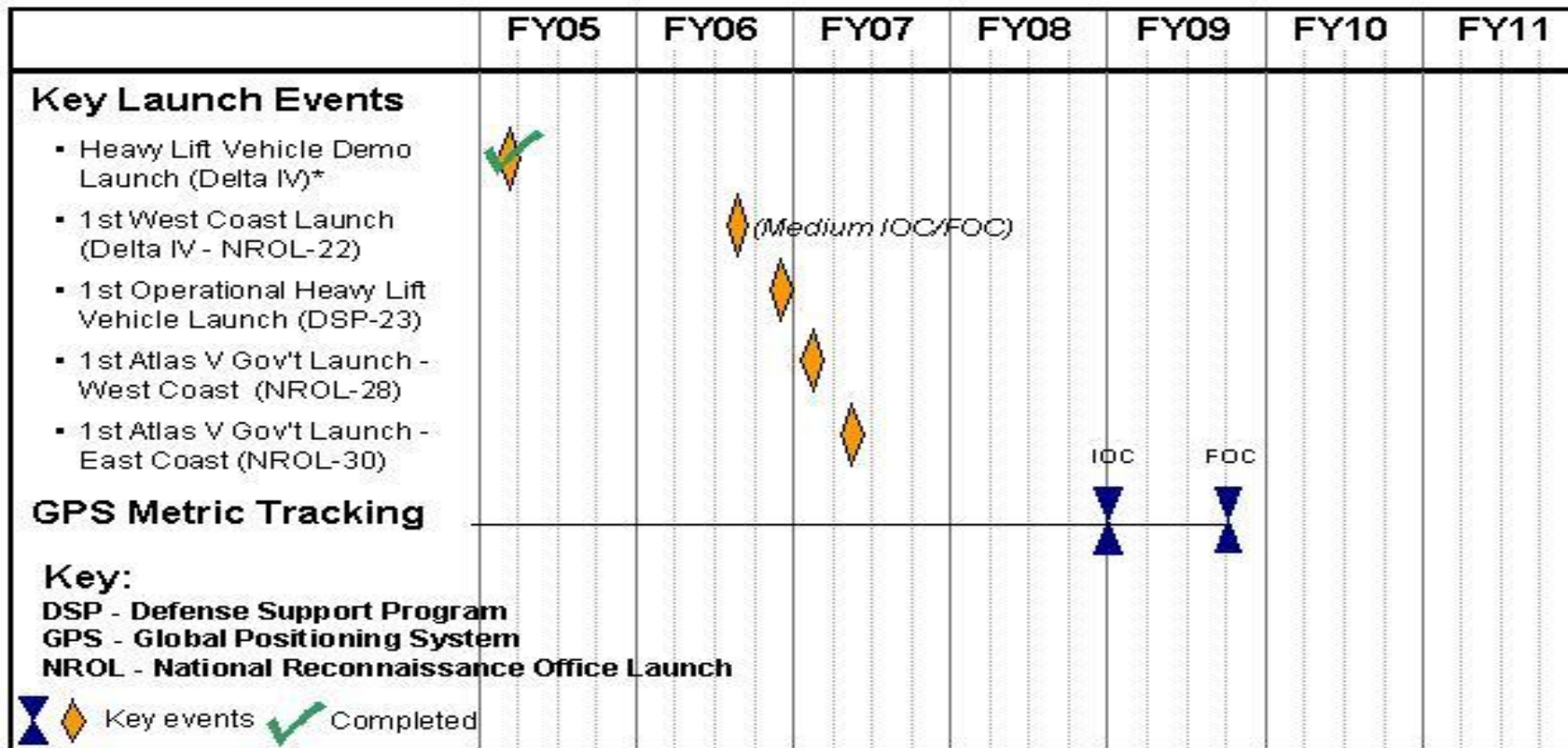
PE NUMBER AND TITLE

0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch
Vehicle

EELV Program - Key Events



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Exhibit R-4a, RDT&E Schedule Detail

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0604853F Evolved Expendable
Launch Vehicle - EMD

PROJECT NUMBER AND TITLE

0004 Evolved Expendable Launch
Vehicle(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) GPS Metric Tracking Project Planning & Requirements Integration

1-4Q

1-4Q

1-4Q

(U) HLV Demonstration Launch

1Q

(U) 1st West Coast Launch of Delta IV

3Q

(U) 1st Government Operational HLV Launch

4Q

(U) 1st West Coast Launch of Atlas V

1Q

(U) 1st Government East Coast Launch of Atlas V

2Q