

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604853F Evolved Exp Launch Veh - EMD (Space)				PROJECT 0004		
COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
0004 Evolved Expendable Launch Vehicle	23,252	259,143	324,803	307,502	239,540	14,502	0	0	0	1,168,742
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description:
 The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The mission of the EELV program is to partner with industry to develop a national launch capability that satisfies the government's National Mission Model (NMM) requirements and reduces the cost of space launch by at least 25%. The EELV system includes the launch vehicles, infrastructure, support systems, and interfaces. EELV provides two families of launch vehicles that will launch the government portion of the NMM currently serviced by Titan II, Delta II, Atlas II, and Titan IV. Evolved from current expendable launch systems or components thereof, EELV will support military, intelligence, and civil mission requirements.

(U) FY 1998 (\$ in Thousands):
 - (U) \$20,400 Continued system development/analysis
 - (U) \$2,621 Continued Systems Engineering
 - (U) \$231 Continued program management and other support costs
 - (U) \$23,252 Total

(U) FY 1999 (\$ in Thousands):
 - (U) \$228,400 Continue system development/analysis
 - (U) \$12,485 Systems Engineering
 - (U) \$10,559 Program management and other support costs
 - (U) \$7,699 Identified as a source for SBIR
 - (U) \$259,143 Total

(U) FY 2000 (\$ in Thousands):
 - (U) \$298,600 Continue system development/analysis
 - (U) \$12,870 Systems Engineering

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BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

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- (U) \$13,333 Program management and other support costs
- (U) \$324,803 Total

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<p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$280,089 Continue system development/analysis - (U) \$12,901 Systems Engineering - (U) \$14,512 Program management and other support costs - (U) \$307,502 Total <p>(U) B. Budget Activity Justification: This program element is in Budget Activity 5, Engineering and Manufacturing Development, because it supports engineering and manufacturing development of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.</p> <p>(U) C. Program Change Summary (\$ in Thousands)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right; width: 10%;"><u>FY 1998</u></th> <th style="text-align: right; width: 10%;"><u>FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 1999 PB)</td> <td style="text-align: right;">26,572</td> <td style="text-align: right;">280,297</td> <td style="text-align: right;">338,319</td> <td style="text-align: right;">305,557</td> <td style="text-align: right;">1,210,017</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">28,376</td> <td style="text-align: right;">260,297</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. 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Rescissions</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY99 PB</td> <td></td> <td></td> <td style="text-align: right;">-13,516</td> <td style="text-align: right;">+1,945</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2000 President's Budget</td> <td style="text-align: right;">23,252</td> <td style="text-align: right;">259,143</td> <td style="text-align: right;">324,803</td> <td style="text-align: right;">307,502</td> <td style="text-align: right;">1,168,742</td> </tr> </tbody> </table> <p>(U) Significant Program Changes: USD (A&T) approved a revised acquisition strategy approach for the development effort in November 1997. The original strategy was to downselect from two contractors to one contractor. The revised strategy allowed for awarding more than one Other Transaction Agreement (OTA) for development and more than one Initial Launch Services (ILS) contract for commercial launch services. The acquisition strategy change delayed contract awards and made \$7.6M available in FY98 to finance FY99 efforts and \$7.6M available in FY99 to finance FY00 efforts. The FY00 program was reduced \$7.6M to consider funds carried forward from FY99. The remaining FY00 adjustments (\$5.9M) were as a result of funds being redirected to finance higher priority Air Force efforts. The FY01 increase continues the development effort. Completion of this national dual-use EELV system will allow the government to competitively procure commercial launch services that successfully deliver National Mission Model (NMM) payloads, validate a reduction of at least 25% in the recurring cost of space launch, and maintain the EELV standard payload interface. This acquisition strategy change resulted in an approximate \$.5B reduction for the government-funded (FY98-FY02) development effort. Development OTAs were awarded on 16 October 1998 to The Boeing Company and Lockheed Martin Astronautics for \$500M each. FY99: \$7.7M identified as a source for SBIR.</p>				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 1999 PB)	26,572	280,297	338,319	305,557	1,210,017	(U) Appropriated Value	28,376	260,297				(U) Adjustments to Appropriated Value						a. Congressional General Reductions	- 1,132	-1,154				b. Small Business Innovative Research	- 676					c. Omnibus or other above threshold reprogramming	-181					d. Below Threshold Reprogramming	- 3,135					e. Rescissions						(U) Adjustments to Budget Years Since FY99 PB			-13,516	+1,945		(U) Current Budget Submit/FY 2000 President's Budget	23,252	259,143	324,803	307,502	1,168,742
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(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Comp</u>	<u>Total</u>
(U) NRO (non-AF budget) *	4,200									95,100
(U) Missile Procurement, AF (PE 0305953F) (BA-5,P-TBD)			70,812	463,766	390,711	494,244	423,327	588,124	Cont.	Cont.
(U) DARPA (Non-AF budget) (PE 0603226E)**										9,845
Related RDT&E:										
(U) EELV Demonstration and Validation (PE 0603853F)***	63,904								0	176,634
(U) EELV Operational System Development (PE 0305953F)		3,305							0	3,305
* Total includes funding in FY96 and FY97.										
** Total includes funding in FY94.										
*** Total includes funding in FY95, FY96 and FY97.										
(U) E. Acquisition Strategy:										
<p>The EELV concept of a family of launch vehicles emphasizes commonality of hardware and infrastructure and economies of scale to enhance production, operations, and support efficiencies. Cost improvements will be achieved through commonality; leveraging the commercial market place; reduction of supporting infrastructure (launch pads, manufacturing facilities, workforce); and optimization of production and launch operations, processes, and rates. EELV is an ongoing competitive program that initially used a rolling downselect acquisition strategy. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors – Lockheed Martin and Boeing (originally McDonnell Douglas) – 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 The Boeing Company and Lockheed Martin Astronautics for the development effort. The contractors will contribute additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor is investing approximately \$1B. During the development effort, each contractor's progress will be measured by the use of discrete contractual Milestone Payments associated with major development accomplishments. When a contractor completes a milestone on time, and the government agrees the milestone accomplishment criteria have been successfully met, the government is obligated to pay in the fiscal year in which the funds were budgeted. Simultaneous with the award of the development effort, an Initial Launch Services (ILS) contract was awarded to Boeing for \$1.38B (19 missions) and an ILS contract was awarded to Lockheed Martin for \$649M (9 missions). The Development/ILS approach maintains competition throughout the life of the program, leverages the growing 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 NMM by at least 25% over existing systems. The EELV system will launch the government portion of the NMM through 2020.</p>										

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(U) F. <u>Schedule Profile</u>																
	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<u>Development Module</u>																
(U) Defense Acquisition Board - Milestone II					*											
(U) Development OTAs awarded					*											
(U) Tailored Critical Design Review completed No Later Than Dec 99									X							
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604853F Evolved Exp Launch Veh - EMD (Space)					PROJECT 0004	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U)	System development				20,400	228,400	296,868	280,089			
(U)	Systems Engineering				2,621	12,485	12,870	12,901			
(U)	Program management and other support costs				231	10,559	15,065	14,512			
(U)	Identified as a source for SBIR				0	7,699	0	0			
(U)	Total				23,252	259,143	324,803	307,502			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							\$7,699				
<u>Product Development Organizations</u>											
Prime Contractor	OTA	Oct 98	500,000	500,000	0	10,200	114,200	149,300	140,044	159,950	573,694
Boeing											
Prime Contractor	OTA	Oct 98	500,000	500,000	0	10,200	114,200	149,300	140,045	159,949	573,694
Lockheed Martin											
<u>Support and Management Organizations</u>											
SPO Mission Spt	Various	Various	N/A	N/A	0	231	8,950	11,675	12,520	17,776	51,152
FFRDC	SS/CPAF	Annual	N/A	N/A	0	2,621	12,485	12,870	12,901	13,790	54,667
Other Cntr Spt	Various	Various	N/A	N/A	0	0	1,609	1,658	1,992	2,577	7,836
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
5 - Engineering and Manufacturing Development										February 1999	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604853F Evolved Exp Launch Veh - EMD (Space)					0004	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Test and Evaluation Organizations</u>											
Not Applicable					0	0	0	0	0	0	0
Government Furnished Property: Not Applicable											
Subtotal Product Development					0	20,400	228,400	298,600	280,089	219,899	1,047,388
Subtotal Support and Management Identified as a source for SBIR					0	2,852	23,044	26,203	27,413	34,143	113,655
Identified as a source for SBIR					0	0	7,699	0	0	0	7,699
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					0	23,252	259,143	324,803	307,502	254,042	1,168,742