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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 1206853F I Evolved Expendable Launch Vehicle Program (SPACE) - EMD							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	484.520	381.360	297.572	245.447	0.000	245.447	196.409	197.163	201.258	100.656	103.500	2,207.885
650006: Next Generation Launch System Investment	484.520	381.360	297.572	245.447	0.000	245.447	196.409	197.163	201.258	100.656	103.500	2,207.885
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 176												
<p><b>Note</b></p> <p>Prior year funding shown in Cost Table are FY 2014 - FY 2016 and was executed in PE 0604853F</p> <p><b>A. Mission Description and Budget Item Justification</b></p> <p>The Evolved Expendable Launch Vehicle (EELV) program is a space launch system that satisfies the government's National Launch Forecast (NLF) requirements to place National Security Space (NSS) space vehicles on orbit. EELV is a launch service, not a weapon system, which is primarily funded with production funds.</p> <p>This program, started late FY2014, funds research and development activities and related studies support to invest in new and/or upgraded launch systems to meet NSS launch needs leveraging two or more domestic commercial providers.</p> <p>The Air Force is investing in public-private partnerships for the development of new and/or upgraded domestic launch systems with commercial launch providers. The end goal is two or more domestic, commercial launch providers that meet all national security launch needs. In addition, the Air Force is continuing a technical maturation program to address the highest risks for rocket propulsion system (RPS) development. Development of the required RPSs will continue under the Launch Service Agreement public-private partnerships.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver EELV system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.</p> <p>This program element is in Budget Activity 5, System Development and Demonstration, because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.</p>												

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)		PE 1206853F I Evolved Expendable Launch Vehicle Program (SPACE) - EMD				
B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget		296.572	297.572	247.294	0.000	247.294
Current President's Budget		381.360	297.572	245.447	0.000	245.447
Total Adjustments		84.788	0.000	-1.847	0.000	-1.847
• Congressional General Reductions		-1.399	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		100.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		-13.813	0.000			
• Other Adjustments		0.000	0.000	-1.847	0.000	-1.847
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 650006: Next Generation Launch System Investment						
Congressional Add: Rocket Propulsion System Development						
Congressional Add Subtotals for Project: 650006						
Congressional Add Totals for all Projects						
Change Summary Explanation						
FY2019: -\$1.847M inflation adjustment						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019
Title: Rocket Propulsion System Development (1)				251.086	0.000	0.000
Description: Continued to invest in providers of domestic rocket propulsion systems (RPS) under the Launch Service Agreement Other Transaction Authority (OTA) agreements. This investment enables the transition from the use of non-Allied space launch engines to domestic rocket propulsion systems. Continued to execute OTA agreements and various industry solutions utilizing public-private partnerships. Continued the technical maturation and risk reduction activities started in FY14.						
FY 2018 Plans:						
N/A						
FY 2019 Plans:						

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 5: System Development &amp; Demonstration (SDD)</i>		<b>R-1 Program Element (Number/Name)</b> PE 1206853F <i>I Evolved Expendable Launch Vehicle Program (SPACE) - EMD</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
RPS will continue under the Launch Service Agreement (LSA) OTA.				
<b>Title:</b> Launch Service Agreement  <b>Description:</b> Invest in providers of domestic Launch Services. This investment enables the transition from the use of non-Allied space launch engines to commercial launch services that also meet NSS needs. Award Other Transaction Authority (OTA) agreements to develop various industry solutions utilizing public-private partnerships. Continued the technical maturation and risk reduction activities started in FY14.  <b>FY 2018 Plans:</b> Continued investments with public-private partnerships with domestic launch providers for the development of new launch systems or upgrades to existing launch systems with the goal of two or more domestic, commercial launch providers that also meets NSS requirements. Included Rocket Propulsion System Investment and associated technical maturation and risk reduction activities. Continued program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.  <b>FY 2019 Plans:</b> Continue investments with public-private partnerships with domestic launch providers for the development of new launch systems or upgrades to existing launch systems with the goal of two or more domestic, commercial launch providers that also meet NSS requirements. Includes Rocket Propulsion System Investment and associated technical maturation and risk reduction activities. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.  <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b> FY 2019 decrease compared to FY 2018 by \$52.125M. Justification for this decrease is described in plans above.		30.274	297.572	245.447
<b>Accomplishments/Planned Programs Subtotals</b>		281.360	297.572	245.447
		<b>FY 2017</b>	<b>FY 2018</b>	
<b>Congressional Add:</b> Rocket Propulsion System Development  <b>FY 2017 Accomplishments:</b> Continued to invest in providers of domestic rocket propulsion systems (RPS) under the Launch Service Agreement Other Transaction Authority (OTA) agreements. This investment enables the transition from the use of non-Allied space launch engines to domestic rocket propulsion systems. Continued		100.000	0.000	

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Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)						R-1 Program Element (Number/Name) PE 1206853F I Evolved Expendable Launch Vehicle Program (SPACE) - EMD					
									FY 2017	FY 2018	
to execute OTA agreements and various industry solutions utilizing public-private partnerships. Continued the technical maturation and risk reduction activities started in FY14.											
FY 2018 Plans: N/A											
Congressional Adds Subtotals									100.000	0.000	
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• SPAF 01 Line Item MSEELV: Evolved Expendable Launch Veh (Space)	536.853	606.488	994.555	-	994.555	1,177.664	778.542	1,146.882	1,305.955	15,198.469	21,745.408
• SPAF 01 Line Item MSEELC: Evolved Expendable Launch Capability	716.586	957.420	709.981	-	709.981	0.000	0.000	0.000	0.000	0.000	2,383.987
Remarks											
E. Acquisition Strategy											
The Department intends to pursue a strategy to competitively invest in two or more domestic launch providers' development of new launch systems or upgrades to existing systems for future NSS launch services. This shared investment approach may also leverage commitments to a portion of the planned launch services (between FY2020 and FY2025) to decrease the required up front Government investment.											
F. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 1206853F / Evolved Expendable Launch Vehicle Program (SPACE) - EMD				Project (Number/Name) 650006 / Next Generation Launch System Investment					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aerojet Rocketdyne OTA	C/Various	Aerojet Rocketdyne : Canoga Park, CA	141.837	127.723	Jul 2017	-		-		-		-	0.000	269.560	-
United Launch Service OTA	C/Various	United Launch Service : Centennial, CO	45.888	85.367	Jul 2017	-		-		-		-	0.000	131.255	-
Orbital ATK OTA	C/Various	Orbital ATK : Magna, UT	121.523	28.957	Jul 2017	-		-		-		-	0.000	150.480	-
Space X OTA	C/Various	Space X : Hawthorne, CA	33.660	57.639	Jun 2017	-		-		-		-	0.000	91.299	-
Rocket Propulsion System Development	C/TBD	Various : Various	-	-		-		-		-		-	0.000	0.000	-
Broad Agency Announcement Technical Maturation Studies	C/Various	Various : Various	34.619	2.650	Dec 2017	-		-		-		-	0.000	37.269	-
NASA Advance Booster Engine Demonstration Risk Reduction (ABEDRR)	SS/ Various	Various : Various	35.127	5.247	Jul 2017	0.890	Oct 2018	-		-		-	0.000	41.264	-
Georgia Tech Combustion Stability Technical Maturation UARC	SS/ Various	Various : Various	7.740	0.208	Jul 2017	-		-		-		-	0.000	7.948	-
NASA Combustion Stability Technical Maturation Study	SS/ Various	Various : Various	6.800	-		-		-		-		-	0.000	6.800	-
AFRL Combustion Stability Technical Maturation Study	SS/ Various	Various : Various	2.699	0.479	Dec 2017	-		-		-		-	0.000	3.178	-
AFRL Hydrocarbon Boost Technical Maturation Demonstration	SS/ Various	Various : Various	10.691	26.463	Jul 2017	-		-		-		-	0.000	37.154	-
FFRDC Mission Assurance	SS/CPAF	Aerospace : El Segundo, CA	20.141	-		6.840	Nov 2017	6.065	Nov 2018	-		6.065	20.031	53.077	-

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Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 1206853F / Evolved Expendable Launch Vehicle Program (SPACE) - EMD				Project (Number/Name) 650006 / Next Generation Launch System Investment					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Launch Enterprise System Engineering and Integration	C/FP	Various : Various	5.573	-		4.039	Mar 2018	1.869	Mar 2019	-		1.869	10.700	22.181	-
Launch Service Agreement (Including the Rocket Propulsion System)	C/TBD	TBD : TBD	-	30.274	Jul 2018	272.350	Jul 2018	219.365	Jan 2018	-		219.365	702.872	1,224.861	-
Subtotal			466.298	365.007		284.119		227.299		-		227.299	733.603	2,076.326	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Organic Civilian Support	Reqn	DOD : El Segundo, CA	0.952	0.480	Jul 2017	1.876	Oct 2017	1.918	Oct 2018	-		1.918	10.406	15.632	9.723
Subtotal			0.952	0.480		1.876		1.918		-		1.918	10.406	15.632	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	SS/CPAF	Aerospace : El Segundo, CA	4.700	-		2.014	Oct 2017	2.498	Nov 2018	-		2.498	5.007	14.219	5.263
Advisory and Assistance Services	Various	Various : Various	9.185	3.273	Aug 2017	3.479	Dec 2017	8.636	Dec 2018	-		8.636	33.137	57.710	15.258
Other Support	Various	Various : Various	3.385	12.600	Apr 2017	6.084	Nov 2017	5.096	Nov 2018	-		5.096	16.832	43.997	1.254
Subtotal			17.270	15.873		11.577		16.230		-		16.230	54.976	115.926	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			484.520	381.360		297.572		245.447		-		245.447	798.985	2,207.884	N/A

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	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Air Force			<b>Date:</b> February 2018		
<b>Appropriation/Budget Activity</b> 3600 / 5		<b>R-1 Program Element (Number/Name)</b> PE 1206853F / <i>Evolved Expendable Launch Vehicle Program (SPACE) - EMD</i>		<b>Project (Number/Name)</b> 650006 / <i>Next Generation Launch System Investment</i>	

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b><i>Rocket Propulsion System Development</i></b>																												
Advanced Booster Engine Demonstration Risk Reduction (ABEDRR)																												
AFRL Combustion Stability																												
AFRL Hydrocarbon Boost Technology Demonstration (HCB)																												
Rocket Propulsion System Development (RPS OTAs)																												
<b><i>Launch Service Agreement (LSA)</i></b>																												
Launch Service Agreement (Including Rocket Propulsion System)																												



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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206853F / Evolved Expendable Launch Vehicle Program (SPACE) - EMD	Project (Number/Name) 650006 / Next Generation Launch System Investment	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Rocket Propulsion System Development</i></b>				
Advanced Booster Engine Demonstration Risk Reduction (ABEDRR)	1	2017	3	2020
AFRL Combustion Stability	1	2017	4	2018
AFRL Hydrocarbon Boost Technology Demonstration (HCB)	1	2017	4	2018
Rocket Propulsion System Development (RPS OTAs)	1	2017	4	2018
<b><i>Launch Service Agreement (LSA)</i></b>				
Launch Service Agreement (Including Rocket Propulsion System)	4	2018	4	2023