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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Missile - Dem/Val</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	73.897	46.100	45.319	0.000	45.319	56.756	0.000	0.000	0.000	0.000	222.072
641020: <i>ICBM Guidance Applications</i>	-	8.213	4.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.350
641022: <i>ICBM Reentry Vehicle Applications</i>	-	27.679	13.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.721
644209: <i>Long Range Planning (LRP)</i>	-	38.005	28.921	45.319	0.000	45.319	56.756	0.000	0.000	0.000	0.000	169.001

**A. Mission Description and Budget Item Justification**

The Intercontinental Ballistic Missile (ICBM) Demonstration/Validation (Dem/Val) program provides responsive solutions to address emerging threats and issues through technology insertion/technology application for legacy and future ICBM systems, and other common strategic deterrent mission areas. The ICBM Dem/Val program conducts technology maturation and risk reduction activities for new capabilities to support Minuteman (MM) III sustainment, MM III to Sentinel (GBSD) weapon system transition, and future ICBM systems development. ICBM Dem/Val conducts advanced component development and prototyping to validate emerging strategic technologies and future upgrades to the ICBM enterprise. Efforts will identify methods to improve system performance, develop potential future Reentry Vehicle (RV) designs, mitigate evolving threats, reduce life cycle costs, and develop/expand modeling and simulation. Additionally, ICBM Dem/Val will provide experimental platforms for weapon qualification activities, improve nuclear safety and surety, ensure both viability and durability of strategic missile systems.

The ICBM Dem/Val program will develop key enabling engineering tools for the ICBM mission to include Models Based Systems Engineering (MBSE), test software, and modernization of existing analytical tools. This program will leverage modular system, open architecture, and agile software development to build key enabling engineering tools and future upgrades to ICBMs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, 0.000M was expended for civilian pay expenses in this program element, and in FY 2023, 0.000M is forecasted for civilian pay expenses in this program element.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Air Force	<b>Date:</b> March 2023
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Missile - Dem/Val</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	76.621	46.432	16.717	0.000	16.717
Current President's Budget	73.897	46.100	45.319	0.000	45.319
Total Adjustments	-2.724	-0.332	28.602	0.000	28.602
• Congressional General Reductions	0.000	-0.332			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.724	0.000			
• Other Adjustments	0.000	0.000	28.602	0.000	28.602

**Change Summary Explanation**

FY2022 funding reflects an adjustment for Small Business Innovation Research (SBIR) of \$2.724M.

FY2024 funding reflects a realignment of \$28M from ICBM Reentry Vehicles (PE 0101328F) to address shortfall.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 3600 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>				<b>Project (Number/Name)</b> 641020 / <i>ICBM Guidance Applications</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
641020: <i>ICBM Guidance Applications</i>	-	8.213	4.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.350
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Guidance Applications Program (GAP) ensures the development of strategic capability in response to the Nuclear Posture Review, recommendations of the United States Strategic Command (USSTRATCOM) Strategic Advisory Group, USSTRATCOM Commander Guidance, and the Defense Science Board Task Force on Nuclear Deterrence. The program conducts any necessary studies and assesses both legacy and future ICBM Guidance System technology applications. Efforts are focused on current and future requirements and technologies, reduced life cycle costs, and increased nuclear safety and surety. Activities leverage the efforts of the Science and Technology community and are coordinated with the Navy strategic applications program to enhance synergy and avoid duplication. Key elements include developing responsive technologies with common applications for future strategic guidance capabilities. This program also includes any needed nuclear surety, certification and system vulnerability assessments.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, 0.000M was expended for civilian pay expenses in this program element, and in FY 2023, 0.000M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Guidance Applications Program	8.213	4.137	0.000
<b>Description:</b> Develop and mature advanced technologies and concepts to support future requirements.			
<b>FY 2023 Plans:</b>			
<ul style="list-style-type: none"> <li>• Continue development of a Micro-Electro Mechanical System for potential insertion into the Path Length Module.</li> <li>• Continue evaluating emerging strategic instrument technologies for future strategic grade gyros and accelerometers to ensure appropriate test capability development, to include gyrometer and nested IMU development.</li> <li>• Continue to assess and rapidly respond to evolving warfighter priorities and emerging requirements.</li> </ul>			
<b>FY 2024 Plans:</b>			
No FY24 funding. Efforts transition to AFRL			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641020 / <i>ICBM Guidance Applications</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
• Emerging Strategic Instrument Technology (Sparrow) will transition to AFRL beginning in FY24			
<b>Accomplishments/Planned Programs Subtotals</b>	8.213	4.137	0.000

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

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• RDTE 04 PE 0605230F: <i>GBSD</i>	2,464.875	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	2,464.875
• RDTE 05 PE 0605238F: <i>Ground Based Strategic Deterrent EMD</i>	0.000	3,614.290	3,746.935	-	3,746.935	3,401.679	3,246.870	2,610.928	1,855.302	2,168.865	20,644.869

**Remarks**

**D. Acquisition Strategy**

Accomplish studies, analyses, concept development and engineering; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive contracts and/or other obligating documentation considered most appropriate by obligating and performing agencies involved. Current effort deliverables to include strategic grade guidance prototypes to support multiple ongoing Air Force initiatives.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641020 / <i>ICBM Guidance Applications</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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>GAP</b>	
GAP Micro-Electronic Module System, Advanced Fuzing	████████████████████
GAP Emerging Strategic Instrument Technology (Sparrow)	████████████████████

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641020 / <i>ICBM Guidance Applications</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>GAP</b>				
GAP Micro-Electronic Module System, Advanced Fuzing	1	2022	4	2023
GAP Emerging Strategic Instrument Technology (Sparrow)	1	2022	4	2023

**Note**  
Micro-Electronic Module System, Advanced Fuzing moved GAP to LRP in FY24.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 3600 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>				<b>Project (Number/Name)</b> 641022 / <i>ICBM Reentry Vehicle Applications</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
641022: <i>ICBM Reentry Vehicle Applications</i>	-	27.679	13.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.721
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Reentry Vehicle Applications Program (RVAP) ensures the ICBM force is equipped with the safest, most reliable, most survivable Reentry Systems, and explores options for common, multi-mission capabilities. The program enables a responsive engineering infrastructure by developing modeling/simulation, ground and flight test platforms to support Reentry System qualifications. The program ensures the availability of long-lead components and materials while identifying life cycle cost reduction methods. In addition, the program matures and tests advanced Reentry System technologies and designs to meet future capability requirements. This includes conducting any necessary studies and assessing technology applications relevant to Mk12A, Mk21, Mk21A and future ICBM Reentry Systems. The program leverages investments by the Science & Technology community and Navy reentry systems applications program. Testing may occur on a space available basis on Air Force and Navy Force Development Evaluation (FDE) flights.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, 0.000M was expended for civilian pay expenses in this program element, and in FY 2023, 0.000M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Reentry Vehicle Applications Program	27.679	13.042	0.000
<b>Description:</b> Mature, evaluate, and test reentry system materials, technologies, and vehicles including modeling/simulation, and ground and flight test platforms for use in current and future strategic applications.			
<b>FY 2023 Plans:</b>			
<ul style="list-style-type: none"> <li>• Continue new modeling/simulation and flight test platforms for future weapon qualification activities.</li> <li>• Continue study for future RV concepts.</li> <li>• Design predictive health management tool based on engineering predictive analysis.</li> <li>• Continue digital engineering research.</li> <li>• Continue the future system demonstrator effort (formerly Joint Technology Demonstrator).</li> <li>• Continue Rad Hard Non-Volatile Memory research</li> <li>• Continue Revolutionary Radar research</li> <li>• Initiate navigation aids/instrumentation &amp; sensor research</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641022 / <i>ICBM Reentry Vehicle Applications</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<ul style="list-style-type: none"> <li>Initiate ground testing &amp; capabilities research</li> <li>Rapidly respond to evolving warfighter priorities and emerging requirements.</li> </ul> <p><b>FY 2024 Plans:</b> No FY24 activity</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p> <ul style="list-style-type: none"> <li>RV Advanced Concept Study concludes end of FY23</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>	27.679	13.042	0.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 04 PE 0605230F: <i>Ground Based Strategic Deterrent</i>	2,464.875	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	2,464.875
• RDTE 05 PE 0605238F: <i>Ground Based Strategic Deterrent EMD</i>	0.000	3,614.290	3,746.935	-	3,746.935	3,401.679	3,246.870	2,610.928	1,855.302	2,168.865	20,644.869
• RDTE 07 PE 0101328F: <i>ICBM Reentry Vehicles</i>	100.463	115.616	459.880	-	459.880	641.529	687.664	642.804	544.771	0.000	3,192.727

**Remarks**

**D. Acquisition Strategy**

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive contracts and/or other obligating documentation considered most appropriate by obligating and performing agencies involved. Current effort deliverables include various technologies for ICBM re-entry vehicles including modeling and simulation software, alternate high temperature materials, advanced concepts, and radiation-hardened microelectronics.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 4				PE 0603851F / Intercontinental Ballistic Missile - Dem/Val				641022 / ICBM Reentry Vehicle Applications							
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
RVAP Support 1.0	C/FFP	BAE Systems : Clearfield, UT	-	4.330	Jan 2022	-		-		-		-	0.000	4.330	-
RVAP Support 2.0	C/FFP	TBD : TBD	-	-		1.400	Nov 2022	-		-		-	0.000	1.400	-
RVAP Study Support	C/FFP	Aerospace : Various	-	0.950	Aug 2022	-		-		-		-	0.000	0.950	-
RVAP Engineering Support	C/FP	JHU/APL : Various	-	0.100	Jul 2022	0.500	Dec 2022	-		-		-	0.000	0.600	-
<b>Subtotal</b>			-	5.380		1.900		-		-		-	0.000	7.280	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
RVAP Future System Demonstrator	MIPR	Various : Various	-	2.982	May 2022	3.000	Nov 2022	-		-		-	0.000	5.982	-
RVAP Modeling and Simulation Programs	Various	Various : Various	-	0.000	Aug 2022	0.500	Nov 2022	-		-		-	0.000	0.500	-
RVAP Advanced Concept Studies	Various	Various : Various	-	3.415	Apr 2022	1.500	Nov 2022	-		-		-	0.000	4.915	-
RVAP Radiation-Hardened Advanced Microelectronics	Various	Various : Various	-	11.791	Jan 2022	2.841	Nov 2022	-		-		-	0.000	14.632	-
RVAP Revolutionary Radar	Various	Various : Various	-	-		0.500	Nov 2022	-		-		-	0.000	0.500	-
RVAP Rad Hard Non-Volatile Memory	Various	Various : Various	-	2.450	Apr 2022	1.500	Nov 2022	-		-		-	0.000	3.950	-
RVAP Navigation Aids/Instrumentation	TBD	Not specified. : TBD	-	-		1.301	Nov 2022	-		-		-	0.000	1.301	-
<b>Subtotal</b>			-	20.638		11.142		-		-		-	0.000	31.780	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641022 / <i>ICBM Reentry Vehicle Applications</i>
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<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RVAP Program Management Administration	Various	Various : Various	-	0.938	May 2022	-		-		-		-	0.000	0.938	-
Travel	Various	Various : Various	-	0.723	May 2022	-		-		-		-	0.000	0.723	-
<b>Subtotal</b>			-	1.661		-		-		-		-	0.000	1.661	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>		-	27.679	13.042	-	-	-	0.000	40.721	N/A

**Remarks**

Revolutionary Radar moved from LRP to RVAP in FY23

Future System Demonstrator moved from RVAP to LRP in FY24

Modeling and Simulation Programs moved from RVAP to LRP in FY24

Radiation-Hardened Advanced Microelectronics moved from RVAP to LRP in FY24

Revolutionary Radar moved from RVAP to LRP in FY24



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 641022 / <i>ICBM Reentry Vehicle Applications</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>RVAP</b>				
RVAP Future System Demonstrator	1	2022	4	2023
RVAP Modeling and Simulation Programs	1	2022	4	2023
RVAP Advanced Concept Studies	1	2022	4	2023
RVAP Rad Hard Advanced Microelectronics	1	2022	4	2023
RVAP Revolutionary Radar	1	2023	4	2023
RVAP Rad Hard Non-Volatile Memory	1	2022	4	2023
RVAP Navigation Aids/Instrumentation	3	2022	4	2023

**Note**

Revolutionary Radar moved from LRP to RVAP in FY23

Future System Demonstrator moved from RVAP to LRP in FY24

Modeling and Simulation Programs moved from RVAP to LRP in FY24

Radiation-Hardened Advanced Microelectronics moved from RVAP to LRP in FY24

Revolutionary Radar moved from RVAP to LRP in FY24

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 3600 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Missile - Dem/Val</i>				<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
644209: <i>Long Range Planning (LRP)</i>	-	38.005	28.921	45.319	0.000	45.319	56.756	0.000	0.000	0.000	0.000	169.001
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Long Range Planning (LRP) effort identifies, analyzes, and evaluates potential modifications to current and future ICBM Weapon Systems required to meet warfighter objectives related to executing flight tests, long-term sustainment, technology insertion, battle space awareness, employment, force structure, and future systems. The studies will focus on system supportability, operability, reliability, innovation, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost. LRP supports and conducts testing in support of future weapon system development and deployment. Pre-milestone activities may be conducted for current and/or future ICBM weapon systems, which may include entry criteria for milestone activities enabling a rapid response to evolving warfighter priorities and emerging requirements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, 0.000M was expended for civilian pay expenses in this program element, and in FY 2023, 0.000M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Long Range Planning	38.005	28.921	45.319
<b>Description:</b> Analyze, study and plan current and future ICBM activities to meet requirements for long-term sustainment, novel technology insertion, employment force structure, and future systems.			
<b>FY 2023 Plans:</b>			
<ul style="list-style-type: none"> <li>• Continue Experimental Flight Test efforts</li> <li>• Initiate Terminal Tracking and Scoring research</li> <li>• Rapidly respond to evolving warfighter priorities and emerging requirements.</li> <li>• Conduct any necessary roadmap studies</li> </ul>			
<b>FY 2024 Plans:</b>			
<ul style="list-style-type: none"> <li>• Continue Experimental Flight Test efforts</li> </ul>			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
• Experimental Flight Test efforts increase			
<b>Accomplishments/Planned Programs Subtotals</b>	38.005	28.921	45.319

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
										Complete	Total Cost
• RDTE 04 PE 0605230F: <i>GBSD</i>	2,464.875	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	2,464.875
• RDTE 05 PE 0605238F: <i>Ground Based Strategic Deterrent EMD</i>	-	3,614.290	3,746.935	-	3,746.935	3,401.679	3,246.870	2,610.928	1,855.302	2,168.865	20,644.869
• RDTE 07 0101328F: <i>ICBM Reentry Vehicles</i>	100.463	115.616	459.880	-	459.880	641.492	687.664	642.804	544.771	0.000	3,192.690

**Remarks**

**D. Acquisition Strategy**

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive contracts and/or other obligating documentation considered most appropriate by obligating and performing agencies involved.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>
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<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LRP Support	C/CPFF	BAE : Various	-	0.756	Sep 2022	1.893	Nov 2022	3.500	Feb 2024	-		3.500	Continuing	Continuing	-
LRP Study Support	C/CPFF	Aerospace : Various	-	-		0.450	Nov 2022	-		-		-	0.000	0.450	-
LRP Engineering Support	C/CPFF	JHU/APL : Various	-	-		1.015	Nov 2022	1.000	Feb 2024	-		1.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.756		3.358		4.500		-		4.500	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LRP Experimental Flight Test 1	C/CPIF	Northrup Grumman : Various	-	12.271	Apr 2022	13.000	Nov 2022	-		-		-	0.000	25.271	-
LRP Experimental Flight Test 2	TBD	TBD : TBD	-	-		10.000	Feb 2023	28.500	Feb 2024	-		28.500	Continuing	Continuing	-
LRP Virtual Environment Trainer Launch Facility Prototype Development	C/CPAF	Various : Various	-	0.089	May 2022	-		-		-		-	0.000	0.089	-
LRP Revolutionary Radar	C/CPAF	Sandia : Various	-	2.689	Jul 2022	1.000	Jan 2023	2.000	Feb 2024	-		2.000	Continuing	Continuing	-
LRP Terminal Tracking & Scoring	TBD	TBD : TBD	-	-		0.461	Feb 2023	1.245	Feb 2024	-		1.245	Continuing	Continuing	-
LRP Future System Demonstrator	MIPR	Various : Various	-	-		-		1.000	Feb 2024	-		1.000	Continuing	Continuing	-
LRP Radiation-Hardened Advanced Microelectronics 2.0	Various	Various : Various	-	-		-		4.717	Feb 2024	-		4.717	Continuing	Continuing	-
LRP Modeling and Simulation Programs	Various	Various : Various	-	-		-		0.500	Jan 2024	-		0.500	Continuing	Continuing	-
LRP Micro-Electronic Module System, Advanced Fuzing	Various	Various : Various	-	-		-		1.500	Jan 2024	-		1.500	Continuing	Continuing	-
AFGSC Innovation Hub Apps	Various	Various : Various	-	22.200	Aug 2022	-		-		-		-	0.000	22.200	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Missile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	37.249		24.461		39.462		-		39.462	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LRP Program Management	Various	Various : Various	-	-		1.102	Nov 2022	1.357	Jan 2024	-		1.357	Continuing	Continuing	-
<b>Subtotal</b>			-	-		1.102		1.357		-		1.357	Continuing	Continuing	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	38.005	28.921	45.319	-	45.319	Continuing	Continuing	N/A

**Remarks**  
 FY23 DFT and FY25 DFT were renamed to EFT 1 and EFT 2, respectively, during the FY24PB budget cycle.

Experimental Flight Tests require two years of funding prior to the test to support planning/execution activities. Experimental Flight Tests enable us to demonstrate developing technologies in relevant ICBM environments.

Experimental Flight Test 1 funding started in FY21 under RVAP and PAP and will meet combined technology demonstration needs between the Dem/Val and Mk21A programs.

Revolutionary Radar moved from LRP to RVAP in FY23

Future System Demonstrator moved from RVAP to LRP in FY24

Modeling and Simulation Programs moved from RVAP to LRP in FY24

Radiation-Hardened Advanced Microelectronics moved from RVAP to LRP in FY24

Revolutionary Radar moved from RVAP to LRP in FY24

LRP Micro-Electronic Module System, Advanced Fuzing moved from GAP to LRP in FY24

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2024 Air Force	<b>Date:</b> March 2023
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<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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AFGSC Innovation Hub Apps was a Congressional add in FY22 and was executed in LRP BPAC. Please note, however, that the FY23PB categorized this Congressional add under the RVAP BPAC.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Air Force</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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>LRP</b>	
LRP Experimental Flight Test (EFT) 1	
LRP EFT 1 Launch (Nov 23)	
LRP Experimental Flight Test (EFT) 2	
LRP EFT 2 Launch (Feb 26)	
LRP Revolutionary Radar	
LRP VET-LF	
LRP Terminal Tracking & Scoring	
LRP Future System Demonstrator	
LRP Radiation-Hardened Advanced Microelectronics 2.0	
LRP Modeling and Simulation Programs	
LRP Micro-Electronic Module System, Advanced Fuzing	
AFGSC Innovation Hub Apps	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>LRP</b>				
LRP Experimental Flight Test (EFT) 1	1	2022	2	2024
LRP EFT 1 Launch (Nov 23)	1	2024	1	2024
LRP Experimental Flight Test (EFT) 2	3	2023	2	2026
LRP EFT 2 Launch (Feb 26)	2	2026	2	2026
LRP Revolutionary Radar	1	2022	4	2025
LRP VET-LF	1	2022	4	2022
LRP Terminal Tracking & Scoring	2	2023	4	2025
LRP Future System Demonstrator	1	2024	4	2025
LRP Radiation-Hardened Advanced Microelectronics 2.0	1	2024	4	2025
LRP Modeling and Simulation Programs	1	2024	4	2025
LRP Micro-Electronic Module System, Advanced Fuzing	1	2024	4	2025
AFGSC Innovation Hub Apps	4	2022	4	2023

**Note**

- FY23 DFT and FY25 DFT were renamed to EFT 1 and EFT 2, respectively, during the FY24PB budget cycle
- Experimental flight tests require two years of funding prior to the test to support planning/execution activities. Experimental Flight Tests enable us to demonstrate developing technologies in relevant ICBM environments.
- Experimental Flight Test 1 funding started in FY21 under RVAP and PAP and will meet combined technology demonstration needs between the Dem/Val and Mk21A programs.
- Revolutionary Radar moved from LRP to RVAP in FY23
- Future System Demonstrator moved from RVAP to LRP in FY24
- Modeling and Simulation Programs moved from RVAP to LRP in FY24
- Radiation-Hardened Advanced Microelectronics moved from RVAP to LRP in FY24

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603851F / <i>Intercontinental Ballistic Mis sile - Dem/Val</i>	<b>Project (Number/Name)</b> 644209 / <i>Long Range Planning (LRP)</i>

-Revolutionary Radar moved from RVAP to LRP in FY24  
-LRP Micro-Electronic Module System, Advanced Fuzing moved from GAP to LRP in FY24  
- AFGSC Innovation Hub Apps was a Congressional add in FY22 and was executed in LRP BPAC. Please note, however, that the FY23PB categorized this Congressional add under the RVAP BPAC.