

UNCLASSIFIED

PE NUMBER: 0603924F

PE TITLE: High Energy Laser Advanced Technology Program

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
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BUDGET ACTIVITY 03 Advanced Technology Development (ATD)	PE NUMBER AND TITLE 0603924F High Energy Laser Advanced Technology Program
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	5.559	3.699	3.815	4.152	4.255	4.322	4.407	4.499	Continuing	TBD
5095 High Energy Laser Advanced Technology Program	5.559	3.699	3.815	4.152	4.255	4.322	4.407	4.499	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program funds high energy laser (HEL) advanced technology development through the HEL Joint Technology Office (JTO). HEL weapon systems have many potential advantages, including speed-of-light velocity, high precision, significant magazine depth, low-cost per kill, and reduced logistics requirements. HELs have the potential to perform a wide variety of military missions including interception of ballistic missiles in boost phase; defeat of high-speed, maneuvering anti-ship and anti-aircraft missiles; and the ultra-precision negation of targets in urban environments with no collateral damage. This program is part of an overall Department of Defense (DoD) HEL Science and Technology program. Technology addressed in this area includes the HEL JTO Electric Laser initiative. This program is in Budget Activity 3, Advanced Technology Development, since it enables and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

(U) B. Program Change Summary (\$ in Millions)

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	5.713	3.713	3.781	4.106
(U) Current PBR/President's Budget	5.559	3.699	3.815	4.152
(U) Total Adjustments	-0.154			
(U) Congressional Program Reductions				
Congressional Rescissions		-0.014		
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer	-0.154			
(U) <u>Significant Program Changes:</u>				
Not Applicable.				

C. Performance Metrics
Under Development.

Exhibit R-2a, RDT&E Project Justification

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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5095 High Energy Laser Advanced Technology Program	5.559	3.699	3.815	4.152	4.255	4.322	4.407	4.499	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program funds high energy laser (HEL) advanced technology development through the HEL Joint Technology Office (JTO). HEL weapon systems have many potential advantages, including speed-of-light velocity, high precision, significant magazine depth, low-cost per kill, and reduced logistics requirements. HELs have the potential to perform a wide variety of military missions including interception of ballistic missiles in boost phase; defeat of high-speed, maneuvering anti-ship and anti-aircraft missiles; and the ultra-precision negation of targets in urban environments with no collateral damage. This program is part of an overall Department of Defense (DoD) HEL Science and Technology program. Technology addressed in this area includes the HEL JTO Electric Laser initiative. This program is in Budget Activity 3, Advanced Technology Development, since it enables and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Advance solid state laser development, to include advanced technology demonstrations up to a Technology Readiness Level 6. Develop free electron laser technologies that scale to high power. Develop beam-control technologies for surface and air mission areas.	5.559	3.699	3.815	4.152
(U) In FY 2006: Began the phase III of the Joint High Power Solid State Laser (JHPSSL) project with the Air Force, Army, and Navy, to demonstrate 100 kilowatt laboratory laser devices. Conducted necessary studies to understand and improve fieldability of solid state lasers. Developed technologies leading to a 100 kilowatt class free electron laser demonstration.				
(U) In FY 2007: Continue the development of the 100 kilowatt JHPSSL development. Determine the requirements for other high-value experiments to follow the 100 kilowatt project, and begin planning as appropriate. Investigate advanced beam control architectures and algorithms. Develop technologies leading to a 100 kilowatt class free electron laser (FEL) demonstration.				
(U) In FY 2008: Continue the development of the 100 kilowatt JHPSSL project. Provide for independent government-sponsored measurements of the 100 kilowatt laser(s). Initiate systems level studies for integration onto airborne platforms. Initiate joint high-power beam director development effort, suitable for mating with the JHPSSL phase III laser device. Participate in the Advanced Tactical Laser extended user evaluation.				
(U) In FY 2009: Demonstrate 100 kilowatt solid state laser in laboratory environment. Continue beam director development effort and integrate the joint high-power beam director and 100 kilowatt JHPSSL				

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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
laser, in preparation for a weapon system demonstration. Participate in the Advanced Tactical Laser extended user evaluation.					
(U) Total Cost		5.559	3.699	3.815	4.152
(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>					
		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
				<u>FY 2010</u>	<u>FY 2011</u>
				<u>Estimate</u>	<u>Estimate</u>
				<u>FY 2012</u>	<u>FY 2013</u>
				<u>Estimate</u>	<u>Estimate</u>
				<u>Cost to</u>	<u>Total Cost</u>
				<u>Complete</u>	
(U) PE 0602500F, Multi-Disciplinary Space Technology.					
(U) PE 0602890F, High Energy Laser Research.					
(U) PE 0603444F, Maui Space Surveillance System.					
(U) PE 0603500F, Multi-Disciplinary Advanced Development Space Technology.					
(U) PE 0603605F, Advanced Weapons Technology.					
(U) PE 0601108F, High Energy Laser Research Initiatives.					
(U) PE 0603883C, Ballistic Missile Defense Boost Phase Segment.					
(U) PE 0602605F, Directed Energy Technology.					
(U) PE 0602307A, Advanced Weapons Technology.					
(U) PE 0602114N, Power Projection Applied Research.					
(U) This project has been					

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

coordinated through the
Reliance 21 process to
harmonize efforts and
eliminate duplication.

(U) **D. Acquisition Strategy**

Not Applicable.