

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 1: Basic Research					R-1 ITEM NOMENCLATURE PE 0601108F: High Energy Laser Research Initiatives							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	13.819	13.094	13.286	-	13.286	13.275	13.545	13.946	14.196	Continuing	Continuing
615097: High Energy Laser Research Initiatives	-	13.819	13.094	13.286	-	13.286	13.275	13.545	13.946	14.196	Continuing	Continuing
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
A. Mission Description and Budget Item Justification												
This program funds basic research aimed at developing fundamental scientific knowledge to support future Department of Defense (DoD) high energy laser (HEL) systems. This programs funds multi-disciplinary research institutes to conduct research on laser and beam control technologies. In addition, this program supports educational grants to stimulate interest in HELs. These educational grants are used for educational tools, scholarships, and summer intern employees in military laboratories. Efforts in this program have been coordinated through the DoD Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication. This program is in Budget Activity 1, Basic Research, because it funds scientific study and experimentation.												
B. Program Change Summary (\$ in Millions)				FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total				
Previous President's Budget				14.258	13.094	13.326	-	13.326				
Current President's Budget				13.819	13.094	13.286	-	13.286				
Total Adjustments				-0.439	0.000	-0.040	-	-0.040				
• Congressional General Reductions				-	0.000							
• Congressional Directed Reductions				-	0.000							
• Congressional Rescissions				0.000	0.000							
• Congressional Adds				-	0.000							
• Congressional Directed Transfers				-	0.000							
• Reprogrammings				0.000	0.000							
• SBIR/STTR Transfer				-0.439	0.000							
• Other Adjustments				0.000	0.000	-0.040	-	-0.040				
C. Accomplishments/Planned Programs (\$ in Millions)								FY 2012	FY 2013	FY 2014		
Title: HEL Devices								9.031	8.494	8.406		
Description: Improve the fundamental understanding of HEL sources, to include solid state, free electron, and gas laser technologies.												
FY 2012 Accomplishments:												

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
Initiated a new call for innovative laser technologies. Awarded 10 new university grants in diode-pumped alkali, short-pulse, free electron, fiber, and solid state laser technologies. Continued overseas efforts to leverage international technology advancements. <b>FY 2013 Plans:</b> Continue development of innovative laser technologies including diode-pumped alkali, short-pulse, free electron, fiber and solid state laser technologies. Continue overseas efforts to leverage international technology advancements. <b>FY 2014 Plans:</b> Continue development of innovative laser technologies including diode-pumped alkali, short-pulse, free electron, fiber, and solid state laser technologies. Continue overseas efforts to leverage international technology advancements.				
<b>Title:</b> HEL Beam Control <b>Description:</b> Improve the fundamental understanding of beam control technologies, as they relate to HEL applications. Conduct research in atmospheric characterization, metrology, control systems, algorithms, and beam control component technology. <b>FY 2012 Accomplishments:</b> Initiated a new call for innovative beam control architectures and then awarded three grants for transonic aero-optics research, laser propagation in deep turbulence, and optical coatings on large area optics. Continued overseas efforts to leverage international technology advancements. <b>FY 2013 Plans:</b> Continue research on innovative beam control architectures. Continue overseas efforts to leverage international technology advancements. <b>FY 2014 Plans:</b> Continue research on innovative beam control architectures. Continue overseas efforts to leverage international technology advancements.		4.038	3.850	4.130
<b>Title:</b> HEL Education <b>Description:</b> Fund educational grants intended to stimulate interest in HELs among students. <b>FY 2012 Accomplishments:</b> Provided scholarships and internships to support college students studying HEL degrees. Provided grants to Service Academies to stimulate HEL studies among military cadets. Funded publication of journals and continuing education for professionals in the HEL field. <b>FY 2013 Plans:</b>		0.750	0.750	0.750

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
Provide scholarships and internships to support college students studying HEL degrees. Provide grants to Service Academies to stimulate HEL studies among military cadets. Fund publication of journals and continuing education for professionals in the HEL field.				
<b>FY 2014 Plans:</b> Provide scholarships and internships to support to college students studying HEL degrees. Provide grants to Service Academies to stimulate HEL studies among military cadets. Fund publication of journals and continuing education for professionals in the HEL field.				
<b>Accomplishments/Planned Programs Subtotals</b>		13.819	13.094	13.286
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> N/A				
<b>F. Performance Metrics</b> 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.				