Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603924D8Z / *High Energy Laser Advanced Development*

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	-	0.000	0.000	69.533	-	69.533	75.438	81.399	84.340	84.289	Continuing	Continuing
924: *High Energy Laser Initiative*	-	0.000	0.000	69.533	-	69.533	75.438	81.399	84.340	84.289	Continuing	Continuing

Note

This is not a new start. This work continues/expands on research initiated by the Missile Defense Agency in PE 0603178C (Weapons Technology) with the goal of focusing on common non-Service/Agency specific improvements in High Energy Laser (HEL) components/systems.

A. Mission Description and Budget Item Justification

This program element funds HEL advanced technology development aimed at translating technology solutions for broadly defined military problems into demonstrated performance pay-offs, increased capabilities, increased supportability, and/or increased affordability. HEL weapons systems have many potential advantages, including speed-of-light time-to-target, high precision, nearly unlimited magazine depth, low cost per kill, and reduced logistics requirements because of no need for stocks of munitions or warheads. As a result, HELs have the potential to perform a wide variety of military missions. Activities conducted under this program element will develop and demonstrate the technology necessary to enable HEL missions across the Department of Defense (DoD).

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	69.533	-	69.533
Total Adjustments	0.000	0.000	69.533	-	69.533
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FY 2019 Program Start	-	-	70.000	-	70.000
• Economic Assumption	-	-	-0.467	-	-0.467

Change Summary Explanation

This funding will support the broad area of improved HEL capability, focusing on increased output power, improved beam quality, efficient power and thermal management schemes, and other common component activities that will benefit HEL programs across the DoD Enterprise. Similar research and developmental work is currently being undertaken by the Services/Agencies; therefore, activities within this PE will support and be closely coordinated with other DoD HEL efforts directed at specific Service and Agency missions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603924D8Z / *High Energy Laser Advanced Development*	Project (Number/Name) 924 / *High Energy Laser Initiative*	

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
924: *High Energy Laser Initiative*	-	0.000	0.000	69.533	-	69.533	75.438	81.399	84.340	84.289	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of an overall Department of Defense (DoD) strategy in High Energy Laser (HEL) science and technology development focused on scaling the output power of HELs to reach operationally effective power levels applicable to broad mission areas across the DoD. Efforts will also pursue improvements in common HEL system components such as efficient power and/or thermal management approaches, effective power supplies, and beam combining/beam director designs. This program element complements, and will be closely coordinated with, other DoD HEL efforts directed at specific Service and Agency missions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: High Energy Laser Power Scaling	0.000	-	69.533
Description: This effort is focused on scaling HEL power levels important to mission areas across the DoD, and will leverage and/or build upon other investments in HEL development. ***FY 2019 Plans:*** Implement a research strategy to scale the output power of HEL to meet Department-wide mission area needs based on findings from the DoD HEL Roadmap Assessment and other technical sources. Establish key performance metrics based on power, power-in-the-bucket (beam quality), electrical-optical efficiency, including size and weight constraints. Determine appropriate technologies and initiate the development efforts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This funding will support the broad area of improved HEL capability, focusing on increased output power, improved beam quality, efficient power and thermal management schemes, and other common component activities that will benefit HEL programs across the DoD Enterprise. Similar research and developmental work is currently being undertaken by the Services/Agencies; therefore, activities within this PE will support and be closely coordinated with other DoD HEL efforts directed at specific Service and Agency missions.			
Accomplishments/Planned Programs Subtotals	0.000	-	69.533

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603924D8Z / *High Energy Laser Advanced Development*	**Project (Number/Name)** 924 / *High Energy Laser Initiative*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A