Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army	Date: February 2020
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603125A / *Combating Terrorism - Technology Development*

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	43.910	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	43.910
DF5: *Agile Integration & Demonstration*	-	10.910	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.910
DW4: *Energy Technologies (Congressional Adds (CAs))*	-	33.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	33.000

Note

In Fiscal Year 2020 (FY20) this Program Element (PE) was realigned with continuity of effort to the following PE:
* 0602145A Next Generation Combat Vehicle Technology

A. Mission Description and Budget Item Justification

This PE demonstrates and evaluates emerging technologies and systems with high payoff potential to address current technology shortfalls or future capability gaps. Efforts include hybrid electric power technologies to reduce use of fossil fuel in tactical generators; collaboration with the United States (U.S.) Department of Energy (DOE) to demonstrate technologies that provide significant gains in ground vehicle energy efficiency; demonstration of ground platform power management, generation, and distribution technologies that increase energy efficiencies and support the integration of advanced future capabilities; and field demonstrations to stress and assess emerging technologies earlier in the systems development life cycle, thus reducing potential vulnerabilities and providing an improved understanding of employment risks against potential threats.

Work in this Project is complementary to and is fully coordinated with PE 0602618A (Ballistics Technology) / Project H80 (Survivability and Lethality Technology), PE 0602601A (Combat Vehicle and Automotive Technology), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology).

The cited work is consistent with the Under Secretary of Defense, Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy.

This work is performed by the U.S. Army Futures Command.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army	Date: February 2020
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603125A *I Combating Terrorism - Technology Development*

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	36.757	0.000	0.000	-	0.000
Current President's Budget	43.910	0.000	0.000	-	0.000
Total Adjustments	7.153	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.274	-			
• SBIR/STTR Transfer	-0.121	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: DW4: *Energy Technologies (Congressional Adds (CAs))*		
Congressional Add: *Artificial Intelligence Enabled Sensor Networks*	8.000	-
Congressional Add: *Enhanced Propulsion Systems for UAS*	6.000	-
Congressional Add: *Lightweight Low Power Radar System*	8.000	-
Congressional Add: *Long Endurance UAV Research*	7.965	-
Congressional Add: *Open Source ISR Research*	3.000	-
Congressional Add: *FY 2018 NDAA SEC 825 MDAP Cost Overrun*	0.035	-
Congressional Add Subtotals for Project: DW4	33.000	-
Congressional Add Totals for all Projects	33.000	-

Change Summary Explanation

FY2019 reprogramming of $7.274M supports Army Capability Accelerator effort under Project DF5.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603125A / *Combating Terrorism - Technology Development*	Project (Number/Name) DF5 / *Agile Integration & Demonstration*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
DF5: *Agile Integration & Demonstration*	-	10.910	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.910

Note

In Fiscal Year (FY) 2020 this Project is being realigned to:
PE 0602145A Next Generation Combat Vehicle Technology:
* Project BH5 Platform Electrification and Mobility Tech
* Project BI4 Materials Application and Integration Technology

A. Mission Description and Budget Item Justification

This Project demonstrates and evaluates emerging technologies and systems with high payoff potential to address current technology shortfalls or future capability gaps. Efforts include hybrid electric power technologies to reduce use of fossil fuel in tactical generators; collaboration with the United States Department of Energy (DOE) to demonstrate technologies that provide significant gains in ground vehicle energy efficiency; demonstration of ground platform power management, generation, and distribution technologies that increase energy efficiencies and support the integration of advanced future capabilities; and field demonstrations to stress and assess emerging technologies earlier in the systems development life cycle, thus reducing potential vulnerabilities and providing an improved understanding of employment risks against potential threats.

Work in this Project is complementary to and is fully coordinated with PE 0602618A (Ballistics Technology) / Project H80 (Survivability and Lethality Technology), PE 0602601A (Combat Vehicle and Automotive Technology), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology).

The cited work is consistent with the Under Secretary of Defense, Research and Engineering Science and Technology priority focus areas and the Army Modernization Strategy. FY20 realignments are due to financial restructuring in support of Army Modernization Priorities.

This work is performed by the United States Army Futures Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Ground Platform Subsystem Demonstrations	1.073	-	-
Description: This effort contributes to the Army's ground platform risk reduction efforts which seek to address technical and integration challenges in the areas of mobility, survivability, vehicle architecture, and systems integration. Specifically, this effort focuses on maturing and demonstrating integrated vehicle power management, generation and distribution technologies to increase ground vehicle energy efficiencies and ensure ground platforms have enough power to enable future capabilities such as electromagnetic armor, active protection systems, improvised explosive device detect and defeat technologies, advanced			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army		Date: February 2020
Appropriation/Budget Activity 2040 / 3	**R-1 Program Element (Number/Name)** PE 0603125A / *Combating Terrorism - Technology Development*	**Project (Number/Name)** DF5 / *Agile Integration & Demonstration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
situational awareness and future network integration technologies. This effort is coordinated with PE 0603005A (Combat Vehicle and Automotive Advanced Technology).			
Title: Ground Vehicle Power and Energy ***Description:*** This effort matures and demonstrates advanced technologies that enable military ground vehicles to become significantly more energy efficient. It collaborates with the DOE to demonstrate technologies in: advanced combustion engines and transmissions; lightweight structures and materials; energy recovery and thermal management; alternative fuels and lubricants; hybrid propulsion systems; batteries and energy storage; and analytical tools (e.g., modeling and simulation). This effort is coordinated with PE 0602601A (Combat Vehicle and Automotive Technology).	2.563	-	-
Title: Army Capability Accelerator ***Description:*** Effort focuses on applied research where teams of combat soldiers, entrepreneurs, researchers and defense industry veterans collaborate to produce an actual working prototype that real troops can field-test in realistic conditions.	7.274	-	-
Accomplishments/Planned Programs Subtotals	10.910	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Army			Date: February 2020
Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603125A / *Combating Terrorism - Technology Development*	Project (Number/Name) DW4 / *Energy Technologies (Congressional Adds (CAs))*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
DW4: *Energy Technologies (Congressional Adds (CAs))*	-	33.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	33.000

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for technology development and demonstration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020
Congressional Add: Artificial Intelligence Enabled Sensor Networks	8.000	-
FY 2019 Accomplishments: Artificial Intelligence Enabled Sensor Networks		
Congressional Add: Enhanced Propulsion Systems for UAS	6.000	-
FY 2019 Accomplishments: Enhanced Propulsion Systems for UAS		
Congressional Add: Lightweight Low Power Radar System	8.000	-
FY 2019 Accomplishments: Lightweight Low Power Radar System		
Congressional Add: Long Endurance UAV Research	7.965	-
FY 2019 Accomplishments: Long Endurance UAV Research		
Congressional Add: Open Source ISR Research	3.000	-
FY 2019 Accomplishments: Open Source ISR Research		
Congressional Add: FY 2018 NDAA SEC 825 MDAP Cost Overrun	0.035	-
FY 2019 Accomplishments: FY 2018 NDAA SEC 825 MDAP Cost Overrun		
Congressional Adds Subtotals	33.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A