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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Office of the Secretary Of Defense **Date:** May 2021

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					PE 0603851D8Z I <i>Environmental Security Technology Certification Program (ESTCP)</i>							
COST (\$ in Millions)	Prior Years (+)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	461.244	65.016	73.307	71.429	-	71.429	-	-	-	-	-	-
514: <i>Environmental Security Technology Certification Program</i>	455.244	65.016	73.307	71.429	-	71.429	-	-	-	-	-	-

(+) The sum of all Prior Years is \$6.000 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

The Environmental Security Technology Certification Program (ESTCP) demonstrates and validates promising and innovative environmental and energy technologies that targets the Department of Defense (DoD) most urgent needs. Technologies selected are projected to provide a return on the investment through cost savings and improved efficiencies. The program responds to: (1) Congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) Congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations is given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD requirements.

B. Program Change Summary (\$ in Millions)

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	68.572	61.345	57.178	-	57.178
Current President's Budget	65.016	73.307	71.429	-	71.429
Total Adjustments	-3.556	11.962	14.251	-	14.251
• Congressional General Reductions	-	-0.038			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	2.000	12.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.503	-			
• Program Adjustments	-3.053	-			
• Climate Adaptation Enhancements	-	-	14.251	-	14.251

Change Summary Explanation

The Congressional adds in FY 2021 are for Aqueous Film Forming Foam (AFFF) alternatives shore-based aircraft, PFAS remediation and disposal technology, and sustainable technologies evaluation and demonstration program.

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603851D8Z / <i>Environmental Security Technology Certification Program (ESTCP)</i>	

Realigned funds to meet National Defense Strategy priorities.

Increase in FY2022 is for climate adaptation enhancements.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Office of the Secretary Of Defense										Date: May 2021		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603851D8Z / Environmental Security Technology Certification Program (ESTCP)				Project (Number/Name) 514 / Environmental Security Technology Certification Program			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
514: Environmental Security Technology Certification Program	455.244	65.016	73.307	71.429	-	71.429	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Environmental Security Technology Certification Program (ESTCP) demonstrates and validates promising and innovative environmental and energy technologies that target DoD's most urgent needs. Technologies selected are projected to provide a return on the investment through cost savings and improved efficiencies. The program responds to: (1) Congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) Congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations is given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD requirements.

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

	FY 2020	FY 2021	FY 2022
Title: Environmental Technology Demonstration/Validation	35.670	48.922	31.532
<p>Description: Funds are programmed for investments in projects that address priority DoD environmental requirements. The focus of the program is on live site unexploded ordnance (UXO) in the underwater environment, addressing emerging and recalcitrant cleanup issues, range sustainment technologies, and reducing life cycle costs of DoD weapon systems by eliminating hazardous materials. Accomplishments/plans are described for each FY below.</p> <p>FY 2021 Plans: Transition of additional projects focused on detection, quantification and remediation of per- and polyfluorinated alkyl substances (PFAS) from Strategic Environmental Research and Development Program (SERDP) development, complete two large-scale demonstrations of low-frequency acoustic systems for underwater UXO detection and classification, and development of an Infrastructure Resiliency Arctic Engineering Design Tool. Expansion of the demonstration efforts for alternative formulations for Aqueous Film Forming Foam (AFFF) as new agents are developed in SERDP.</p> <p>FY 2022 Plans: Completion of data collection to support development of a new Military Specification (MILSPEC) for shore-side fire extinguishment foams for DoD use. Completion of technology demonstration to clean firefighting trucks and hangar systems in anticipation of the change-over to PFAS-free foams as required by FY 2020 NDAA. Completion of projects examine the impact of multiple stressors to marine mammals.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
FY 2021 to FY 2022 decrease due to realignment to projects focusing on climate sustainability of installation energy and water systems.				
<p>Title: Energy Technology Demonstration/Validation</p> <p>Description: Funds are programmed for investments in energy projects that constitute the Installation Energy Test Bed Initiative. This initiative responds to Congressional direction for the Department to increase energy efficiency, reduce installation energy intensity, increase the use of renewable energy, and improve energy security. Emerging energy technologies offer DoD a cost effective opportunity to meet these requirements on its installations while reducing energy and operational costs. The DoD test bed program validates and tests the operational cost and performance of innovative energy technologies in a real-world integrated building environment so as to reduce risk, overcome the barriers to deployment, and facilitate wide-scale deployment. The test bed program exploits the Department's existing built infrastructure to evaluate energy efficiency and renewable energy technologies under the varied climatic conditions and building types DoD manages. The test bed's key elements are: 1) competitive selection of new technologies, 2) systematic and consistent evaluation to determine performance, operational readiness and life cycle costs, and 3) development of guidance and design information for future deployment across installations.</p> <p>FY 2021 Plans: Demonstrations will focus on energy storage within DoD microgrids as one component of increased Installation energy resilience. Continued emphasis on Energy Efficiency Technology Demonstrations Integrated with Utility Energy Services Contracts (UESC) as a way to facilitate tech transfer of previously-demonstrated energy technologies into wide adoption.</p> <p>FY 2022 Plans: Completion of energy storage demonstrations within DoD microgrids as one component of increased installation energy resilience. Broadening of the energy efficiency technology demonstrations integrated with UESC to wider variety of Utility Services Companies as a way to facilitate tech transfer of previously-demonstrated energy technologies into wide adoption.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: FY 2021 to FY 2022 increase will be used for additional projects focusing on climate sustainability of installation infrastructure.</p>		27.346	21.385	39.897
<p>Title: Sustainable Technologies Evaluation and Demonstration Program</p> <p>Description: Congressionally mandated Evaluation and Demonstration Program</p> <p>FY 2021 Plans: None</p> <p>FY 2022 Plans:</p>		2.000	3.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
None				
FY 2021 to FY 2022 Increase/Decrease Statement: Program ends in FY 2022.				
Accomplishments/Planned Programs Subtotals		65.016	73.307	71.429
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
ESTCP solicits proposals from all DoD organizations, other Federal Agencies, and the commercial sector. Projects are selected based on an annual competitive process through reviews by multi-agency panels.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Office of the Secretary Of Defense **Date:** May 2021

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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Support Contract	C/IDDQ	Noblis : Reston, VA	22.731	2.940	Jan 2019	2.940	Jan 2019	2.940		-		2.940	-	-	19.650
Subtotal			22.731	2.940		2.940		2.940		-		2.940	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Installation Energy and Water	C/Various	Various : Various	188.528	25.174		26.128		38.280		-		38.280	-	-	-
Weapons Systems and Platforms	C/Various	Various : Various	70.088	9.337		9.697		8.507		-		8.507	-	-	-
Munitions Response	C/Various	Various : Various	47.825	8.584		5.359		4.908		-		4.908	-	-	-
Environmental Restoration	C/Various	Various : Various	82.966	10.823		21.844		8.943		-		8.943	-	-	-
Resource Conservation and Resiliency	C/Various	Various : Various	43.106	6.158		4.339		7.851		-		7.851	-	-	-
Sustainable Technologies Evaluation and Demonstration Program	C/Various	Various : Various	-	2.000		3.000		0.000		-		0.000	-	-	-
Subtotal			432.513	62.076		70.367		68.489		-		68.489	-	-	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	455.244	65.016	73.307	71.429	-	71.429	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Office of the Secretary Of Defense **Date:** May 2021

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ID	Task Name	Start	Finish	2021				2022				2023	
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
				1	FY-20 In-Progress Reviews	9/1/2021	11/30/2021		█				
2	Develop FY-21 Program	1/1/2021	9/30/2021		█								
3	FY-20 In-Progress Reviews	2/1/2022	11/30/2022					█					
4	Develop FY-22 Program	1/1/2022	9/30/2022					█					

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Office of the Secretary Of Defense		Date: May 2021
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>In Progress Reviews</i>				
FY 2019 In Progress Reviews	2	2020	1	2021
FY 2020 In Progress Reviews	2	2021	1	2022
<i>Develop Program</i>				
Develop FY 2020 Program	2	2020	4	2020
Develop FY 2021 Program	2	2021	4	2021