

FY 2024 Energy Resilience and Conservation Investment Program (ERCIP)

Project List by State/Country

<u>State / Country</u>	<u>Component</u>	<u>Project Title</u>	<u>Project Type</u>	<u>Authorization (\$000)</u>	<u>Page</u>
California					
Marine Corps Air Station Miramar	Marine Corps	Electrical Infrastructure, On-Site Generation, and Microgrid Improvements	ER	\$30,550	157
Naval Base San Diego	Navy	Power Microgrid and Backup	ER	\$6,300	159
Vandenberg Space Force Base	Space Force	Power Microgrid with Backup	ER	\$57,000	161
CA Totals		3 Projects		\$93,850	
Colorado					
Buckley Space Force Base	Space Force	Replacement Water Well	ER/WR	\$5,700	163
Buckley Space Force Base	Space Force	Redundant Electrical Supply	ER	\$9,000	165
CO Totals		2 Projects		\$14,700	
Georgia					
Naval Submarine Base Kings Bay	Navy	Electrical Transmission and Distribution Improvements Ph 2	ER	\$49,500	167
GA Totals		1 Project		\$49,500	
Kansas					
Forbes Field	Army	Microgrid and Backup Power	ER	\$5,850	170
KS Totals		1 Project		\$5,850	
Missouri					
Lake City Army Ammunition Plant	Army	Microgrid and Backup Power	ER	\$80,100	172
MO Totals		1 Project		\$80,100	
Nebraska					
Offutt Air Force Base	Air Force	Microgrid and Backup Power	ER	\$41,000	175
NE Totals		1 Project		\$41,000	
North Carolina					
Fort Bragg (Camp Mackall)	Army	Microgrid and Backup Power	ER	\$10,500	177
NC Totals		1 Project		\$10,500	

<u>State / Country</u>	<u>Component</u>	<u>Project Title</u>	<u>Project Type</u>	<u>Authorization (\$000)</u>	<u>Page</u>
Oklahoma					
Fort Sill	Army	Microgrid and Backup Power	ER	\$76,650	179
OK Totals		1 Project		\$76,650	
Texas					
Fort Hood	Army	Microgrid and Backup Power	ER	\$18,250	181
TX Totals		1 Project		\$18,250	
Virginia					
Pentagon	WHS	HVAC Efficiency Upgrades	EC	\$2,250	183
VA Totals		1 Project		\$2,250	
Washington					
Joint Base Lewis-McChord	Army	Power Generation and Microgrid	ER	\$49,850	185
WA Totals		1 Project		\$49,850	
Wyoming					
FE Warren Air Force Base	Air Force	Microgrid and Battery Storage	ER	\$25,000	188
WY Totals		1 Project		\$25,000	
Overseas Projects					
Korea					
K-16 Air Base	DIA	K-16 Emergency Backup Power	ER	\$5,650	190
Korea Totals		1 Project		\$5,650	
Kuwait					
Camp Buehring	Army	Microgrid and Backup Power	ER	\$18,850	192
Kuwait Totals		1 Project		\$18,850	
Puerto Rico					
Fort Buchanan	Army	Microgrid and Backup Power	ER	\$56,000	194
Puerto Rico Totals		1 Project		\$56,000	

CONUS ERCIP Construction Project Totals (15)	\$467,500
OCONUS ERCIP Construction Project Totals (3)	\$80,500
ERCIP Construction Project Totals (18 Projects)	\$548,000
ERCIP P&D Funds Total	86,250
ERCIP Program Total	\$634,250

ER and WR is for Energy/Water Resilience projects; EC and WC is for Energy/Water Conservation projects

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<u>Component</u>	<u>Location</u>	<u>State/ Country</u>	<u>Project Title</u>	<u>Project Type</u>	<u>Cost</u>
<u>Army</u>					
98632	Forbes Field	KS	Microgrid and Backup Power	ER	\$5,850
99147	Lake City Army Ammunition Plant	MO	Microgrid and Backup Power	ER	\$80,100
98901	Fort Bragg (Camp Mackall)	NC	Microgrid and Backup Power	ER	\$10,500
101861	Fort Sill	OK	Microgrid and Backup Power	ER	\$76,650
99288	Fort Hood	TX	Microgrid and Backup Power	ER	\$18,250
99146	Joint Base Lewis-McChord	WA	Power Generation and Microgrid	ER	\$49,850
94933	Camp Buehring, Kuwait	Kuwait	Microgrid and Backup Power	ER	\$18,850
99144	Fort Buchanan	Puerto Rico	Microgrid and Backup Power	ER	\$56,000
Army Project Totals			8 Projects		\$316,050
<u>Navy</u>					
P1301	Naval Base San Diego	CA	Microgrid and Backup Power	ER	\$6,300
P695	Naval Submarine Base Kings Bay	GA	Electrical Transmission and Distribution Improvements Ph 2	ER	\$49,500
Navy Projects Total			2 Projects		\$55,800
<u>USMC</u>					
P283	Marine Corps Air Station Miramar	CA	Electrical Improvements	ER	\$30,550
USMC Project Total			1 Project		\$30,550

<u>Component</u>	<u>Location</u>	<u>State/ Country</u>	<u>Project Title</u>	<u>Project Type</u>	<u>Cost</u>
<u>DAF - Air Force</u>					
GLHN1072404	FE Warren Air Force Base	WY	Microgrid and Battery Storage	ER	\$25,000
SGBP212906P1	Offutt Air Force Base	NE	Microgrid and Backup Power	ER	\$41,000
Air Force Project Totals			2 Projects		\$66,000
<u>DAF - Space Force</u>					
XUMU212934	Vandenberg Space Force Base	CA	Microgrid with Backup Power	ER	\$57,000
CRWU203003	Buckley Space Force Base	CO	Replacement Water Well	ER/WR	\$5,700
CRWU203004	Buckley Space Force Base	CO	Redundant Electrical Supply	ER	\$9,000
Space Force Total			3 Projects		\$71,700
<u>WHS</u>					
WHS24-01	Pentagon	VA	HVAC Efficiency Upgrades	EC	\$2,250
WHS Project Total			1 Project		\$2,250
<u>DIA</u>					
DIA2024-001	K-16 Air Base	Korea	K-16 Emergency Backup Power	ER	\$5,650
DIA Project Total			1 Project		\$5,650
ERCIP Construction Project Totals			18 Projects		\$548,000
Energy/Water Resilience Projects (17)					\$545,750
Energy/Water Conservation Projects (1)					\$2,250
ERCIP Construction Projects Total (18)					\$548,000
ERCIP P&D Funds Total					\$86,250
ERCIP Program Total					\$634,250

ER and WR is for Energy/Water Resilience projects; EC and WC is for Energy/Water Conservation projects

1. COMPONENT Defense Wide – USMC	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Marine Corps Air Station Miramar (MCASM) California			4. PROJECT TITLE: Electrical Infrastructure, On-Site Generation, and Microgrid Improvements	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81150	7. PROJECT NUMBER P-283	8. PROJECT COST (\$000) 30,550	
<p><u>IMPACT IF NOT PROVIDED:</u> MCASM’s known microgrid deficiencies will remain unresolved. Electrical outages on the internal electrical distribution system are increasing in frequency and will continue to cause disruptions to mission operations, requiring an increasing need for reactive maintenance.</p>				
12. SUPPLEMENTAL DATA: a. Other Appropriations or Funding Sources (\$000): b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: This project enhances mission assurance and aviation readiness at MCASM by closing resilience gaps related to aging infrastructure, inadequate onsite generation, and cybersecurity so that the Station can reliably provide power to aviation missions regardless of the state of the commercial power supply. It also addresses known vulnerabilities in the diversity of power resources with new generation assets and supports mission critical functions. <hr/> Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159				0

1. COMPONENT Defense Wide – Navy	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION NAVBASE San Diego San Diego, California		4. PROJECT TITLE: Microgrid and Backup Power			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 61010	7. PROJECT NUMBER P-1301	8. PROJECT COST (\$000) 6,300		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					4,950
Microgrid and Operations Center Modernization (CC61010)		LS	300	12,473.33	(3,742)
Solar Photovoltaic (PV) Carports (CC81150)		Kw	500		(56)
Emergency Generator (81160)		EA	1		(77)
Microgrid Controller & Battery Storage System		LS		1,075,200.00	(1,075)
<u>SUPPORTING FACILITIES</u>					
None					
SUBTOTAL					4,950
CONTINGENCY					743
TOTAL CONTRACT COST					5,693
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					370
SUBTOTAL					6,063
DESIGN/BUILD – DESIGN COST (4%)					224
TOTAL REQUEST					6,287
TOTAL REQUEST (ROUNDED)					6,300
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: The project will install carport solar photovoltaic (PV) electrical generation, battery energy storage system (BESS), emergency generator with fuel efficiency/air quality features to augment the current generator, Microgrid controller and (2) bi-directional level 3 Electric Vehicle (EV) charging stations for the Operations Center. This project also includes energy efficiency components such as heating ventilation and air-conditioning (HVAC), lighting retrofits, and transformer replacements in the Operations Center.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A					
<u>PROJECT:</u> Construct a microgrid with PV, battery storage, and generator to ensure an electrically resilient Operations Center.					
<u>REQUIREMENT:</u> Resilience standards set by Department of Defense Instruction (DoDI) 4170.11 require alignment with critical mission operations and allows for expanding solutions beyond standby generators. Solar PV provides support of daytime electrical needs and battery recharge for nighttime operations and provide load shaving during peak demand to avoid high time-of-use fees.					

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5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 61010	7. PROJECT NUMBER P-1301	8. PROJECT COST (\$000) 6,300	
<p><u>CURRENT SITUATION:</u> The building is operationally critical and is occupied year-round, 24 hours/day. It has an emergency generator and an uninterruptable power supply (UPS) for short term power switching, but the emergency diesel generator is fully loaded and rated for less than what may be needed during peak periods.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The operations center will continue to only have one backup power option and will be at risk during a peak usage event.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000): 0</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: Resiliency and Infrastructure: B150 – Port Operations and Emergency Operations Center requires N+1 electrical redundancy per the Naval Facilities Engineering Systems Command (NAVFAC) P-602. Enhances ability of Naval Base San Diego security to react to casualty or emergency ensuring long term, quality power supply at the Emergency Operations Center (EOC). Ensures continuous power supply to Port Operations for Navy’s largest West Coast installation. Microgrid integrates multiple distributed generation sources.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				

1. COMPONENT Defense Wide – USSF		FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA		2. Date March 2023	
3. INSTALLATION AND LOCATION Vandenberg Space Force Base Vandenberg Main Base Site #1 California			4. PROJECT TITLE: Microgrid with Backup Power		
5. PROGRAM ELEMENT 0904903D		6. CATEGORY CODE 813231	7. PROJECT NUMBER XUMU212934	8. PROJECT COST (\$000) 57,000	
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
PRIMARY FACILITIES					43,440
Electric Substation (CC 813231)		KV	12	314,167	(3,770)
Battery Energy Storage System (BESS)		KWH	52,000	575	(29,900)
Microgrid Control System (MCS)		LS	-	-	(9,270)
Cybersecurity		LS	-	-	(500)
SUPPORTING FACILITIES					1,410
Site Improvements		LS	-	-	(1,410)
SUBTOTAL					44,850
CONTINGENCY					6,728
TOTAL CONTRACT COST					51,578
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					3,353
DESIGN/BUILD – DESIGN COST (4%)					2,063
TOTAL REQUEST					56,993
TOTAL REQUEST (ROUNDED)					57,000
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: The battery energy storage system (BESS) and microgrid control system (MCS) at Vandenberg Space Force Base (VSFB) will be located next to multiple electrical substations and integrated with the Base’s electrical distribution system. The BESS modules will be in fully enclosed containers, and each BESS module will include electrical equipment for charging and discharging the batteries, a fire-suppression system, and temperature controls. New transformers will be installed next to the BESS modules on concrete foundations to step-up power at the BESS modules for medium voltage distribution. An advanced microprocessor based MCS with built-in redundant architecture will provide operational control and monitoring of the BESS. The project will include additional electrical equipment needed to connect the BESS modules to VSFB’s electrical system and load interrupter switches on electric distribution circuits to allow incremental loading and isolation of non-mission-critical buildings. The project will also include additional communication lines and equipment for a fully operable MCS.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A					
<u>PROJECT:</u> This project installs a Battery Energy Storage System with Microgrid Control System.					
<u>REQUIREMENT:</u> Provide a battery energy storage system with a microgrid control system (BESS/MCS) capable of paralleling operations with the					

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5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 813231	7. PROJECT NUMBER XUMU212934	8. PROJECT COST (\$000) 57,000
<p>utility grid and islanding from the utility grid. The BESS/MCS will energize buildings within a defined mission critical “microgrid boundary.”</p> <p><u>CURRENT SITUATION:</u> VSFB’s electricity is provided by the local utility and through a solar photovoltaic (PV) farm that is owned and operated by a third party. The solar PV farm must shut down during a utility power outage and is currently unavailable for islanding operations. The solar PV farm is disallowed from exporting electric power to the utility grid, and the PV system operator must curtail output when total system output is higher than the Base’s load. The existing Power Purchase Agreement requires that VSFB purchase a minimum amount of electricity annually from the solar PV farm.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Potential launch delays during power disruptions; generators operate continuously during long-term utility outages.</p>			
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000):</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: This is a key step in VSFB’s energy resilience strategy, supporting the Installation Energy Plan’s (IEP) Course of Action (COA) 1 strategy of installing district microgrids, and COA3 strategy of adding energy storage to the existing solar power plant to enable operation during grid outages. This project will increase installation resilience to lengthy grid outages that are a result of increased wildland fire danger in Northern California and Public Safety Power Shutoff (PSPS) events.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>			0

1. COMPONENT Defense Wide – USSF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Buckley Space Force Base Buckley Space Force Base Site #1 Colorado		4. PROJECT TITLE: Replacement Water Well		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 841166	7. PROJECT NUMBER CRWU203003	8. PROJECT COST (\$000) 5,700	
9. COST ESTIMATES				
Item	U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>				
Water Well (CC841166)	KG	15	130.5	3,714 (1,958)
Water Supply Non-Potable Building (CC841169)	SM	93	13.5	(1,256)
Cybersecurity	LS	-	-	(500)
<u>SUPPORTING FACILITIES</u>				
Utilities	LS	-	-	953 (384)
Pavements	LS	-	-	(240)
Site Improvements	LS	-	-	(9)
Demolition	LS	-	-	(225)
Exterior Communications	LS	-	-	(95)
SUBTOTAL				4,667
CONTINGENCY				700
TOTAL CONTRACT COST				5,367
SUPERVISION, INSPECTION & OVERHEAD (6.5%)				349
TOTAL REQUEST				5,716
TOTAL REQUEST (ROUNDED)				5,700
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)				0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct a water well and delivery system to feed a Heating, Ventilation, and Air Conditioning (HVAC) cooling tower which supports mission critical infrastructure. This project will construct a shielded pump house with controls, piping, hydro-pneumatic tanks, control system and other components to support the water distribution system. The piping will be tied into the cooling tower sump along with automatic control for switching water sources between well and base water supplies. This project also includes abandonment of an existing defunct well, removal of an existing underground storage tank and existing pump house, and piping and distribution.				
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A				
<u>PROJECT:</u> This project constructs a resilient cooling water supply.				
<u>REQUIREMENT:</u> The mission requires multiple sources of cooling water supply to extend post-incident endurance.				
<u>CURRENT SITUATION:</u> The existing non-operational well requires replacement.				

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3. INSTALLATION AND LOCATION Buckley Space Force Base Buckley Space Force Base Site #1 Colorado			4. PROJECT TITLE: Replacement Water Well	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 841166	7. PROJECT NUMBER CRWU203003	8. PROJECT COST (\$000) 5,700	
<p><u>IMPACT IF NOT PROVIDED:</u> Mission failure is possible. The current commercial or emergency services back up plan is subject to mission assurance vulnerabilities and unnecessary risk.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <ul style="list-style-type: none"> a. Other Appropriations or Funding Sources (\$000): b. Project Type: Water Resilience c. Rationale IAW 10 USC 2914: Water supply redundancy is necessary to ensure mission continuity. <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide - USSF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Buckley Space Force Base Buckley Space Force Base Site #1 Colorado			4. PROJECT TITLE: Redundant Electrical Energy Supply		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 812225	7. PROJECT NUMBER CRWU203004	8. PROJECT COST (\$000) 9,000		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					
Primary Distribution Line (CC812225)		LF	4,291	1,209	7,050 (5,190)
Electric Switching Station (CC 813228)		KV	15	90,667	(1,360)
Cybersecurity		LS	-	-	(500)
<u>SUPPORTING FACILITIES</u>					
Site Preparation		LS	-	-	251 (41)
Pavements		LS	-	-	(45)
Site Improvements		LS	-	-	(39)
Demolition		LS	-	-	(126)
SUBTOTAL					7,301
CONTINGENCY					1,095
TOTAL CONTRACT COST					8,396
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					546
TOTAL REQUEST					8,942
TOTAL REQUEST (ROUNDED)					9,000
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:					
This project will replace cable and switchgear considered to be at end-of-life and install a redundant, backup commercial power feed of capacity matching critical operation requirements by replacing the existing power feed that includes more applicable electrical switches and feeders. Communications systems for the components will also be installed as part of the project.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A					
<u>PROJECT:</u>					
This project constructs an electrical power supply for secure areas that provides energy resilience and redundancy to support essential and critical space missions.					
<u>REQUIREMENT:</u>					
The mission requires adequate electrical circuits and alternative power supply paths. The requirement is for an alternate substation connection and redundant electrical feeder to support uninterrupted power supply.					
<u>CURRENT SITUATION:</u>					
The critical installation facilities are fed by a single commercial power source which is beyond its useful life and presents a failure risk. The existing long-term power supply is at the end of its life and repairs are not possible without impacting the mission, and a redundant commercial feed is not present.					

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3. INSTALLATION AND LOCATION Buckley Space Force Base Buckley Space Force Base Site #1 Colorado			4. PROJECT TITLE: Redundant Electrical Energy Supply	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 812225	7. PROJECT NUMBER CRWU203004	8. PROJECT COST (\$000) 9,000	
<u>IMPACT IF NOT PROVIDED:</u> Failure to improve the main source of power supply and to identify and configure a resilient and redundant secondary power source capable of supporting the full load of the critical mission areas to avoid risk that would impede concurrent maintenance. This project corrects these deficiencies and provides mitigation of utility system vulnerabilities and failure risks.				
12. SUPPLEMENTAL DATA: a. Other Appropriations or Funding Sources: b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: This project will replace cable and switchgear considered to be at the end of their useful life and install a redundant, new backup commercial power feed of same capacity, which will improve resiliency by creating redundancy mandated by Uptime Institute (UTI). This project will eliminate existing potential points of failure that place mission reliability at risk. <hr/> Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159				0

1. COMPONENT Defense Wide – Navy	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023																																																																																					
3. INSTALLATION AND LOCATION Navy Submarine Base (SUBASE) Kings Bay GA Kings Bay, Georgia		4. PROJECT TITLE: Electrical Transmission and Distribution Improvements Ph 2																																																																																							
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81231	7. PROJECT NUMBER P695	8. PROJECT COST (\$000) 49,500																																																																																						
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Item</th> <th style="width: 5%;">U/M</th> <th style="width: 10%;">Quantity</th> <th style="width: 15%;">Unit Cost</th> <th style="width: 20%;">Cost (\$000)</th> </tr> </thead> <tbody> <tr> <td colspan="5"><u>PRIMARY FACILITIES</u></td> </tr> <tr> <td>Switches Underground Distribution (CC81330)</td> <td>EA</td> <td>28</td> <td>862,071.42</td> <td>(24,138)</td> </tr> <tr> <td>Refit 3 Substation (5166) (CC81320)</td> <td>EA</td> <td>1</td> <td>5,826,934.77</td> <td>(5,827)</td> </tr> <tr> <td>Refit 2 Substation (5092) (CC81320)</td> <td>EA</td> <td>1</td> <td>5,826,934.77</td> <td>(5,827)</td> </tr> <tr> <td>Switches Underground Distribution Family Housing (CC81330)</td> <td>EA</td> <td>6</td> <td>715,333.33</td> <td>(4,292)</td> </tr> <tr> <td>Information Systems</td> <td>LS</td> <td></td> <td></td> <td>(320)</td> </tr> <tr> <td colspan="5"><u>SUPPORTING FACILITIES</u></td> </tr> <tr> <td colspan="5">None</td> </tr> <tr> <td colspan="5">SUBTOTAL</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right;">40,410</td> </tr> <tr> <td colspan="4">CONTINGENCY</td> <td style="text-align: right;">6,061</td> </tr> <tr> <td colspan="4">TOTAL CONTRACT COST</td> <td style="text-align: right;">46,465</td> </tr> <tr> <td colspan="4">SUPERVISION, INSPECTION & OVERHEAD (6.5%)</td> <td style="text-align: right;">3,020</td> </tr> <tr> <td colspan="4">TOTAL REQUEST</td> <td style="text-align: right;">49,485</td> </tr> <tr> <td colspan="4">TOTAL REQUEST (ROUNDED)</td> <td style="text-align: right;">49,500</td> </tr> <tr> <td colspan="4">OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)</td> <td style="text-align: right;">0</td> </tr> </tbody> </table>					Item	U/M	Quantity	Unit Cost	Cost (\$000)	<u>PRIMARY FACILITIES</u>					Switches Underground Distribution (CC81330)	EA	28	862,071.42	(24,138)	Refit 3 Substation (5166) (CC81320)	EA	1	5,826,934.77	(5,827)	Refit 2 Substation (5092) (CC81320)	EA	1	5,826,934.77	(5,827)	Switches Underground Distribution Family Housing (CC81330)	EA	6	715,333.33	(4,292)	Information Systems	LS			(320)	<u>SUPPORTING FACILITIES</u>					None					SUBTOTAL									40,410	CONTINGENCY				6,061	TOTAL CONTRACT COST				46,465	SUPERVISION, INSPECTION & OVERHEAD (6.5%)				3,020	TOTAL REQUEST				49,485	TOTAL REQUEST (ROUNDED)				49,500	OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)				0
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Refit 3 Substation (5166) (CC81320)	EA	1	5,826,934.77	(5,827)																																																																																					
Refit 2 Substation (5092) (CC81320)	EA	1	5,826,934.77	(5,827)																																																																																					
Switches Underground Distribution Family Housing (CC81330)	EA	6	715,333.33	(4,292)																																																																																					
Information Systems	LS			(320)																																																																																					
<u>SUPPORTING FACILITIES</u>																																																																																									
None																																																																																									
SUBTOTAL																																																																																									
				40,410																																																																																					
CONTINGENCY				6,061																																																																																					
TOTAL CONTRACT COST				46,465																																																																																					
SUPERVISION, INSPECTION & OVERHEAD (6.5%)				3,020																																																																																					
TOTAL REQUEST				49,485																																																																																					
TOTAL REQUEST (ROUNDED)				49,500																																																																																					
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)				0																																																																																					
10. DESCRIPTION OF PROPOSED CONSTRUCTION:																																																																																									
<p>The project will replace high voltage switches, breakers, and other electrical distribution components. Project includes provision for temporary power required for mission continuity during construction. All new equipment shall be connected and integrated into the Kings Bay utility Supervisory Control and Data Acquisition (SCADA) system.</p>																																																																																									
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A																																																																																									
<u>PROJECT:</u> The project will make necessary repairs to multiple assets on the Kings Bay utility transmission and distribution electrical grid by replacing vacuum switches throughout the Kings Bay Submarine Base and shore power station replacement.																																																																																									
<u>REQUIREMENT:</u> Provision of reliable shore power is critical to supporting the mission at Kings Bay. The switches are essential when switching, isolating, and providing electrical protection. A newer and more robust breaker is required to reduce future mission impacts. The shore power station replacement will provide remote monitoring and operating necessary to protect the connected vessels during an emergency to alleviate the possibility of shipboard and shore power systems failure.																																																																																									

1. COMPONENT Defense Wide – Navy	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Navy Submarine Base (SUBASE) Kings Bay GA Kings Bay, Georgia			4. PROJECT TITLE: Electrical Transmission and Distribution Improvements Ph 2	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81231	7. PROJECT NUMBER P695	8. PROJECT COST (\$000) 49,500	
<p><u>CURRENT SITUATION:</u> Antiquated mechanical relays have limited functionality causing inability to be coordinated with upstream and downstream circuit breakers. The integrity of electrical equipment insulation deteriorates over time and based on visual inspections; it is apparent that regular preventative maintenance has been insufficient. The existing medium voltage and low voltage breakers are old, unreliable, and difficult to repair and maintain. Delays to submarine movements have occurred due to breaker failure or mis-operation. All shore power breakers are over excited per manufacturers, and as a result require additional maintenance and out of cycle repair work. The inability to support power to in-port submarines often inhibit the submarines' abilities to meet scheduled missions by causing repair or asset loading delays.</p> <p><u>IMPACT IF NOT PROVIDED:</u> A failed vacuum switch can cause major equipment damage effecting the mission of the base and even result in serious injury or loss of life to personnel working on or around the equipment. The continued use of aged, unmaintained equipment threatens to impair the overall use of the system, strain maintenance capabilities and budgets, and jeopardizes personnel and mission requirements. The shore power station breakers and shore power reliability will continue to degrade further jeopardizing SUBASE Kings Bay to meet all mission requirements. Rebuilding/repairing breakers are becoming more frequent and will continue to plague shore readiness to the fleet.</p>				

1. COMPONENT Defense Wide – Navy	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Navy Submarine Base (SUBASE) Kings Bay GA Kings Bay, Georgia			4. PROJECT TITLE: Electrical Transmission and Distribution Improvements Ph 2	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81231	7. PROJECT NUMBER P695	8. PROJECT COST (\$000) 49,500	
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources:</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: The proposed improvements will greatly improve distribution reliability and transmission resiliency directly enhancing the readiness of our critical mission operations. As indicated in previous Energy Mission Integration Group data gap analysis, Submarine Base has 99.9% reliability from our local utility provider. However, local distribution degradation has increased the rate of facility level outages. Due to the outdated relays and monitoring equipment, operators must coordinate circuit wide outages to locate failure and perform maintenance. When this downtime affects strategic deterrent tenants, work stoppages occur, and the labor cost is significant. The labor cost due to unplanned outages are estimated by Strategic Weapons Facility, Atlantic, to be approximately \$17K for each hour of workforce downtime.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide - Army/National Guard	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Forbes Field Kansas		4. PROJECT TITLE: Microgrid and Backup Power		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81122	7. PROJECT NUMBER 98632	8. PROJECT COST (\$000) 5,850	
9. COST ESTIMATES				
Item	U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>				4,540
Primary Power Generation, Natural Gas, (CC-81117)	KW	500	2,000	(1,000)
Primary Power Generation, Photovoltaic (PV) (CC-81122)	KW	500	2,900	(1,450)
Battery Energy Storage System (BESS)	KW	1,000	880	(880)
Microgrid Control, Electrical Distribution	LS	--	--	(810)
Low Flow Water Fixtures	LS	--	--	(150)
Cybersecurity	LS	--	--	(250)
<u>SUPPORTING FACILITIES</u>				240
Site Improvements	LS	--	--	(120)
Commissioning	LS	--	--	(120)
SUBTOTAL				4,780
CONTINGENCY				717
TOTAL CONTRACT COST				5497
SUPERVISION, INSPECTION & OVERHEAD (6.5%)				357
TOTAL REQUEST				5,854
TOTAL REQUEST (ROUNDED)				5,850
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON ADD)				0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct a solar photovoltaic (PV) array on parking canopy structures, install natural gas generators, and install a battery energy storage system (BESS) to provide building-level microgrids capable of islanding mission critical buildings from the local utility. The BESS and microgrids project will install all necessary components to provide an islanding-capable and resilient system. Potable water consumption-reducing measures will also be installed.				
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A				
<u>PROJECT:</u> Construct three separate building-level microgrids tied to multiple canopy mounted PV solar arrays, construct a BESS, and install water use reduction measures in support of identified mission critical facilities.				
<u>REQUIREMENT:</u> Construct a PV solar array, BESS, and generators, to reduce the risk of an electrical power outage resulting in a loss of continuity of mission critical operations and force effectiveness. The solar PV array, BESS, and generators comprise a coordinated and				

1. COMPONENT Defense Wide - Army/National Guard	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Forbes Field Kansas			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81122	7. PROJECT NUMBER 98632	8. PROJECT COST (\$000) 5,850	
<p>redundant electrical distribution system to satisfy mission-critical building electrical requirements. Potable water measures will decrease resource demand.</p> <p><u>CURRENT SITUATION:</u> The site of this project on Forbes Field is owned by the Department of Army and operated by the Kansas Army National Guard and is critical to the Kansas Army National Guard mission readiness requirements. At present there are no renewable energy generation facilities on Forbes Field; all electrical service is purchased from local utilities. Existing emergency backup generators are undersized to support all mission essential services and several critical facilities lack sufficient energy resilience capabilities.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The Kansas Army National Guard will continue to operate with insufficient generation resources and without renewable energy generation resources. Critical missions and continuity of operations during assembly, preparation, and deployment of soldiers in support of federal or state missions during emergencies will remain vulnerable to utility outages. Potable water and sewer usage will continue at current levels.</p>				
12. SUPPLEMENTAL DATA: a. Other Appropriations or Funding Sources (\$000): b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: Project will provide emergency operations and multiple alternative/renewable/backup power sources and storage with water efficiencies for multiple mission critical facilities. This project will directly and positively impact energy resilience and mission assurance.				0
<hr/> Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159				

1. COMPONENT Defense Wide – Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Lake City Army Ammunition Plant Missouri		4. PROJECT TITLE: Microgrid and Backup Power		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99147	8. PROJECT COST (\$000) 80,100	
9. COST ESTIMATES				
Item	U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>				57,845
Two Combined Heat and Power (CHP) Gas Turbines (CC81117)	KW	15,000	1,857	(27,855)
Electrical Components and System	LS	--	--	(7,920)
CHP / Balance of Plant (BOP) / Mechanical	LS	--	--	(20,800)
Cybersecurity	LS	--	--	(250)
Environmental and Air Permitting	LS	--	--	(480)
Commissioning	LS	--	--	(510)
Building Information Systems	LS	--	--	(30)
<u>SUPPORTING FACILITIES</u>				7,530
Interconnection Agreement	LS	--	--	(280)
Electric Service	LS	--	--	(2,700)
Water, Sewer, Gas	LS	--	--	(3,440)
Site Improvements	LS	--	--	(530)
Demolition	LS	--	--	(320)
Information Systems	LS	--	--	(260)
SUBTOTAL				65,375
CONTINGENCY				9,806
TOTAL CONTRACT COST				75,181
SUPERVISION, INSPECTION & OVERHEAD (6.5%)				4,887
TOTAL REQUEST				80,068
TOTAL REQUEST (ROUNDED)				80,100
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON ADD)				0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct a microgrid system powered by a new, black-start capable, combined heat and power (CHP) plant. The project will include all electrical distribution equipment and electrical service needed to connect to the existing electrical infrastructure. Microgrid controls will be installed to manage islanding during a utility grid outage, load shedding, and re-synchronization with the grid upon service restoration. The project will install all piping and equipment needed to connect the CHP to the installation's existing natural gas, fuel oil, steam, and water infrastructure and will incorporate environmental controls and a continuous emissions monitoring system. The project also includes site improvements, demolition, environmental, permitting, and commissioning.				
11. REQUIREMENT: N/A		ADQT: N/A		SUBSTD: N/A

1. COMPONENT Defense Wide – Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Lake City Army Ammunition Plant Missouri			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99147	8. PROJECT COST (\$000) 80,100	

PROJECT:

Construct a CHP and microgrid system to supply electricity and steam for continued operation of critical mission loads during a grid outage.

REQUIREMENT:

An appropriately sized cogeneration system with redundant fuel capabilities would improve the site's energy security and resilience by providing the ability to run manufacturing processes without reliance on the utility company. All critical loads relate to sustaining the ammunition production lines with required steam and power.

CURRENT SITUATION:

The current lack of backup heat and electricity energy supplies, coupled with dependence on the local electricity and natural gas utility companies, leaves Lake City Army Ammunition Plant with insufficient energy resilience in the case of a grid outage.

IMPACT IF NOT PROVIDED:

The lack of an independent means to provide sufficient heat and electricity will continue to jeopardize production at Lake City Army Ammunition Plan.

1. COMPONENT Defense Wide – Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Lake City Army Ammunition Plant Missouri			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99147	8. PROJECT COST (\$000) 80,100	
12. SUPPLEMENTAL DATA: a. Other Appropriations or Funding Sources (\$000): b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: The proposed microgrid will allow islanding of Lake City Army Ammunition Plan’s entire Army-owned electrical distribution system, including all mission critical loads to support continued ammunition manufacturing operations for a minimum of 14 days.				0
Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159				

1. COMPONENT Defense Wide - USAF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Offutt Air Force Base Offutt Air Force Base Site #1 Nebraska		4. PROJECT TITLE: Microgrid and Backup Power			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 811147	7. PROJECT NUMBER SGBP212906P1	8. PROJECT COST (\$000) 41,000		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					27,290
Emergency Electric Power Generation Plant (CC811147)		KW	22,000	905.45	(19,920)
Electric Substation (CC811149)		KV	13.8	135,507	(1,870)
Microgrid Control System		LS	-	-	(4,500)
Cybersecurity		LS	-	-	(500)
Gas Pipeline		LS	-	-	(500)
<u>SUPPORTING FACILITIES</u>					4,920
Site Preparations		LS	-	-	(2,010)
Electric Utilities		LS	-	-	(1,900)
Natural Gas Utilities		LS	-	-	(1,010)
PRIVATIZED UTILITY CONNECTION AND SERVICE FEE					1,250
SUBTOTAL					33,460
CONTINGENCY					5,019
TOTAL CONTRACT COST					38,479
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					2,501
TOTAL REQUEST					40,980
TOTAL REQUEST (ROUNDED)					41,000
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:					
Construct an electric power generation plant with natural gas reciprocating internal combustion engines natural gas line to connect to off-base provider's system, and an Energy Control Center to house the generators and the microgrid power management system. The enclosed facility includes switchgear, all associated electrical cables, communications fiber optic cables, duct banks, transformers, metering, and equipment for generator, substation, and load management functions.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A					
<u>PROJECT:</u>					
This project installs a microgrid control system with of on-site primary natural gas spinning generation to replace an existing generator plant to cover immediate critical mission gaps.					

1. COMPONENT Defense Wide - USAF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Offutt Air Force Base Offutt Air Force Base Site #1 Nebraska			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 811147	7. PROJECT NUMBER SGBP212906P1	8. PROJECT COST (\$000) 41,000	
<p>REQUIREMENT: This project is the first of two phases to establish a microgrid control system with on-site primary natural gas spinning generation to replace B518 and cover immediate critical mission gaps. The microgrid will serve critical facilities and meet the requirements of missions that require islanding capabilities, and 24/7 power availability. Further, the project will address resilience gaps identified in the Installation Energy Plan (IEP) including protecting underground electrical distribution and transformers in the south part of the base, a radial commercial feed to substation 6874, natural gas pressure limitations for an important generator plant, and fuel storage for certain critical missions at the installation.</p> <p>CURRENT SITUATION: The current capacity is not adequate to meet the current load for critical missions. None of the existing four operable power plant engines meet current environmental exhaust emission standards.</p> <p>IMPACT IF NOT PROVIDED: Current load shedding procedures were developed to avert total outage driven by overload that will leave one of Offutt's global impact missions in total darkness.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000):</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: The IEP recommends a resiliency strategy to implement a central microgrid generation plant to support critical loads and those that need support during the re-build of Offutt Air Force Base. The microgrid will provide uninterrupted electrical power to support critical missions. As the installation completes the rebuild, critical elements of south-side critical circuits will be connected to the generation plant. The generation plant will meet the requirements of these mission sets that require islanding capabilities and 24/7 power availability. Further, the project will address resilience gaps to protect underground electrical distribution and transformers in the south part of the base, a radial commercial feed to substation 6874, natural gas pressure limitations at an important generator plant, and fuel storage for certain critical missions at the installation.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Camp Mackall, Fort Bragg North Carolina			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81160	7. PROJECT NUMBER 98901	8. PROJECT COST (\$000) 10,500	
9. COST ESTIMATES				
Item	U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>				8,281
Standby Generator 3000 kilowatt (CC81160)	KW	3,000	1,187	(3,561)
Microgrid Control System	LS	--	--	(2,600)
Cybersecurity	LS	--	--	(250)
Above Ground Storage Tank, With Initial Diesel Fuel Fill (CC12471)	GA	80,000	21	(1,680)
System Commissioning	LS	--	--	(190)
<u>SUPPORTING FACILITIES</u>				230
Water, Sewer, and Gas	LS	--	--	(230)
SUBTOTAL				8,511
CONTINGENCY				1,277
TOTAL CONTRACT COST				9,788
SUPERVISION, INSPECTION & OVERHEAD (6.50%)				636
TOTAL REQUEST				10,424
TOTAL REQUEST (ROUNDED)				10,500
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON ADD)				0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Install a cybersecure microgrid system capable of supporting Camp Mackall's electrical distribution system from the point of delivery at the substation. During operation, the microgrid will support all loads on the Camp Mackall electrical distribution system. The microgrid will include diesel generators and incorporate existing solar and battery energy storage systems. The generation resources provided by this project will monitor the commercial utility feed for an outage and come online automatically to stand-in for the grid. Camp Mackall's distribution system will be islanded from the main utility during the outage and entirely powered by this project's generators and other generation assets. Due to the remote location, diesel fuel storage tanks with fuel polishing equipment are also included. Project will include an initial fuel fill of the diesel storage tanks.				
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A				
<u>PROJECT:</u> Construct a diesel-powered microgrid with on-site fuel storage and smart grid control technology to aggregate and supplement existing PV solar and battery storage systems.				

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Camp Mackall, Fort Bragg North Carolina			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81160	7. PROJECT NUMBER 98901	8. PROJECT COST (\$000) 10,500	
<p><u>REQUIREMENT:</u> Provide emergency backup power to half of the critical facilities at a remote area of Fort Bragg.</p> <p><u>CURRENT SITUATION:</u> In April 2019, Fort Bragg conducted an Energy Resilience Readiness Exercise. The exercise concluded that gaps exist between the resilience requirement and our existing situation.</p> <p>The electrical distribution system on Fort Bragg is privatized and owned by Sandhills Utility Services. Fort Bragg plans to convey the new property to Sandhills Utility Services for ownership and operation and is the only source that can complete the construction on the system. Army will transfer the assets in accordance with 10 USC 2688 and receive proper compensation or receive utility services in accordance with 10 USC §2688 and the utility services contract.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This project is critical for mission assurance. Power interruptions disrupt training exercises that have been scheduled years in advance. Due to the operations tempo, interrupted or canceled training cannot be rescheduled, which results in lower course completion rates directly affecting Army Readiness. Power outages directly affect air operations and course completions, negatively impacting the ratio Camp Mackall must maintain to overcome military attrition and retirement.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <ul style="list-style-type: none"> a. Other Appropriations or Funding Sources (\$000): b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: This project will provide 14 days of uninterruptible emergency power. It will ensure all operations can be executed. <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Fort Sill Oklahoma		4. PROJECT TITLE: Microgrid and Backup Power			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 101861	8. PROJECT COST (\$000) 76,650		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					55,470
Natural Gas Reciprocating Internal Combustion Engine Generators (CC81117)		KW	18,000	2,291	(41,240)
Electrical Distribution Equipment		LS	--	--	(3,900)
Energy Storage System		KWH	4,000	857	(3,430)
Microgrid Controls		LS	--	--	(2,500)
Utility Interconnection		LS	--	--	(1,400)
Interconnection Service Fees (water/gas)		LS	--	--	(290)
Cybersecurity		LS	--	--	(250)
Environmental and Air Permitting		LS	--	--	(420)
Commissioning		LS	--	--	(1,160)
Building Information Systems		LS	--	--	(280)
Weather-Protective Equipment Shelter		LS	--	--	(600)
<u>SUPPORTING FACILITIES</u>					7,090
Water, Sewer, Gas		LS	--	--	(3,980)
Site Improvements		LS	--	--	(2,860)
Information Systems		LS	--	--	(250)
SUBTOTAL					62,560
CONTINGENCY					9,384
TOTAL CONTRACT COST					71,944
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					4,676
TOTAL REQUEST					76,620
TOTAL REQUEST (ROUNDED)					76,650
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:					
Construct a microgrid on Fort Sill that includes a new, black-start capable 18MW Reciprocating Internal Combustion (RICE) power plant. The microgrid will include switchgear and microgrid controls to interconnect with the Public Service Company of Oklahoma owned solar photovoltaic array on Fort Sill during islanded microgrid operation. The microgrid project will include an energy storage system to store energy generated by the solar PV and used during islanded microgrid operation. The energy storage system will also be used for peak shaving during normal grid connected operations which will provide utility bill savings. The RICE plant will be located within a new weather-protective shelter and will use rich-burn natural gas engines with post-combustion controls and operating hour limitations to limit potential emissions and maintain the installation's existing synthetic minor air permit. This project includes the natural gas pipeline to connect the RICE plant to the natural gas infrastructure;					

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Fort Hood Texas		4. PROJECT TITLE: Microgrid and Backup Power			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81122	7. PROJECT NUMBER 99288	8. PROJECT COST (\$000) 18,250		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					12,500
Natural Gas Reciprocating Internal Combustion Engine (RICE) Generators (CC81117)		KW	500	1,820	(910)
Solar Photovoltaic Array (CC81122)		KW	150	11,867	(1,780)
Energy Storage System (ESS) (CC81150)		KW	4,000	805	(3,220)
Microgrid Controller/Supervisory control and data acquisition (SCADA)		LS	--	--	(500)
Cybersecurity		LS	--	--	(250)
Environmental and Air Permitting		LS	--	--	(230)
Commissioning		LS	--	--	(3,400)
Switchgear		LS	--	--	(1,000)
Energy Storage System Switchgear		LS	--	--	(690)
Conductors		LS	--	--	(400)
Interconnection Agreement Fee		LS	--	--	(110)
Building Information Systems		LS	--	--	(10)
<u>SUPPORTING FACILITIES</u>					2,230
Electric Service		LS	--	--	(1,030)
Water, Sewer, Gas		LS	--	--	(210)
Site Improvements		LS	--	--	(790)
Information Systems		LS	--	--	(100)
Sound Reduction		LS	--	--	(100)
PRIVATIZED UTILITY CONNECTION AND SERVICE FEE					160
SUBTOTAL					14,890
CONTINGENCY					2,234
TOTAL CONTRACT COST					17,124
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					1,113
TOTAL REQUEST					18,237
TOTAL REQUEST (ROUNDED)					18,250
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct a microgrid consisting of a natural gas Reciprocating Internal Combustion Engine (RICE) generating plant, Energy Storage System (ESS), photovoltaic (PV) array, microgrid controller, switchgear, and conductors. Project will also include cybersecurity, environmental permitting, building information systems, commissioning, and an interconnection agreement with the utility provider. The generating plant will consist of new generators and add existing generators. The microgrid/SCADA will include all electrical distribution equipment and controls needed to operate the system as an autonomous electrical power system.					

1. COMPONENT Defense Wide - WHS	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Pentagon Arlington, Virginia		4. PROJECT TITLE: HVAC Efficiency Upgrades			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 82720	7. PROJECT NUMBER WHS24-01	8. PROJECT COST (\$000) 2,250		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u> Heating, Ventilation and Air Conditioning (HVAC) Upgrades (CC 82720)		LS	--	--	1,830 (1,830)
<u>SUPPORTING FACILITIES</u> None					
SUBTOTAL CONTINGENCY TOTAL CONTRACT COST SUPERVISION, INSPECTION & OVERHEAD (6.5%) TOTAL REQUEST TOTAL REQUEST (ROUNDED) OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					1,830 275 2,105 137 2,242 2,250 0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Perform heating, ventilation, and air conditioning (HVAC) efficiency upgrades (to include upgrading motors, Variable Frequency Drives (VFDs), pumps, meters, valves, actuators, dampers), replace outdated Computer Room Air Conditioning units and retrofit Air Handling Units to decrease facility energy consumption and increase energy resilience.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A <u>PROJECT:</u> HVAC upgrades that will improve capital assets by enhancing energy efficiency, modernizing equipment, and extending useful life of existing HVAC systems and built-in equipment. <u>REQUIREMENT:</u> The Pentagon is a large energy consumer with requirements to support critical mission operations. An increased energy load can impact the reliability of backup energy and utility systems. Pursuing energy resilience and mission assurance through energy					

1. COMPONENT Defense Wide - WHS	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Pentagon Arlington, Virginia			4. PROJECT TITLE: HVAC Efficiency Upgrades	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 82720	7. PROJECT NUMBER WHS24-01	8. PROJECT COST (\$000) 2,250	
<p>reductions allows existing onsite backup power generation resources to support critical mission operations for longer durations in the event of a prolonged power outage by reducing the energy needed to maintain critical operations.</p> <p><u>CURRENT SITUATION:</u> An automated fault detection and diagnostic system is in place to identify equipment that is functioning in a suboptimal condition and consequently increasing energy use and/or at greater risk of failure. Without this system, faults in the mechanical hardware and controls sequences are often only corrected if they affect tenant comfort. In addition to mechanical and programming inefficiencies, there are currently several outdated Computer Room Air Conditioners (CRAC) and AHUs with some units being over 20 years old. CRAC units serve mission critical environments such as computer server rooms, while AHUs serve general spaces occupied by tenants. The age of the units result in failures and less efficiency and an increased maintenance demand.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Existing Pentagon HVAC systems and equipment will continue to operate sub-optimally, using excess energy and causing increased wear on systems. The current protocol entails replacing in kind rather than replacing with energy efficient upgrades. As a result, existing mission critical backup power generation resources will sustain building operations for fewer hours. These conditions will increase facility energy consumption and reduce energy resilience.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000):</p> <p>b. Project Type: Energy Conservation</p> <p>c. Required IAW 10 USC 2914:</p> <p>(1) Original Expected Savings-to-Investment Ratio:</p> <p>(2) Simple Payback Estimate:</p> <p>(3) Measurement & Verification (M&V) Cost (\$000):</p> <p>(4) Brief Description of the M&V Plan: M&V of this project will be achieved through a combination of automation and International Performance Measurement & Verification Protocol (IPMVP) Option A (partially measured retrofit isolation), which will combine engineering algorithms from an integrated fault detection system with in-field spot measurements for a sample of measures. The baseline will be established as the mechanical system conditions at fault detection and will be compared to the performance after each service order is complete. Energy reduction and savings will be calculated manually and via the fault detection system's programmed computations. The measurements are consequently cross-referenced with the Pentagon's building automation system and onsite metering, where required.</p> <p>(5) M&V Planned Funding Source: Separate energy/environmental support services contract</p> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				<p>0</p> <p>1.49</p> <p>5.5 years</p> <p>10</p>

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Joint Base Lewis-McChord Washington		4. PROJECT TITLE: Power Generation and Microgrid			
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99146	8. PROJECT COST (\$000) 49,850		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					28,842
Natural Gas Reciprocating Internal Combustion Engine (RICE)		KW	6,000	1,870	(11,220)
Generators (CC81117)		EA	4	40,000	(160)
Disconnect Switches		EA	2	2,055,000	(4,110)
Paralleling Switchgear		EA	2	365,000	(730)
Transformer, 3 Phase, 3 Mega Volt-Amp, 13.8kV to 480V		EA	2	250,000	(500)
Switchgear Cabinets for Solar and Energy Storage System		KW	3,000	260	(780)
Load Bank for Generators (shared)		KW	150	10,200	(1,530)
Solar Photovoltaic Array (CC81122)		KW	6,000	922	(5,532)
Energy Storage System (CC81150)		LS	--	--	(800)
Metering Instrumentation and Meters		LS	--	--	(1,410)
Supervisory control and data acquisition (SCADA) within Microgrid		LS	--	--	(250)
Cybersecurity		LS	--	--	(300)
Environmental Permitting		LS	--	--	(1,520)
Commissioning					
<u>SUPPORTING FACILITIES</u>					11,760
Electric Service		LS	--	--	(9,000)
Water, Sewer, Gas		LS	--	--	(930)
Site Improvements		LS	--	--	(810)
Sound Reduction		LS	--	--	(1,020)
PRIVATIZED UTILITY CONNECTION AND SERVICE FEE					100
SUBTOTAL					40,702
CONTINGENCY					6,105
TOTAL CONTRACT COST					46,807
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					3,042
TOTAL REQUEST					49,849
TOTAL REQUEST (ROUNDED)					49,850
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:					
Construct a microgrid system at Joint Base Lewis-McChord (JBLM) powered by two natural gas reciprocating internal combustion engine (RICE) generators, an Energy Storage System (ESS), and a solar array. This microgrid, provides continuous power to the electrical distribution system when islanded from the grid to support JBLM's readiness operations during an electric utility grid outage. A portion of the area is designated as an historic district and any construction must comply with the National Historic Preservation Act. The RICE generators, energy storage system, microgrid controls and automatic switching, will be					

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Joint Base Lewis-McChord Washington			4. PROJECT TITLE: Power Generation and Microgrid	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99146	8. PROJECT COST (\$000) 49,850	
located just outside the historic district. In addition to the generating equipment, the system will consist of automated isolating switchgear to form the microgrid system, and a paralleling switchgear for the generators and other controls.				
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A				
<p><u>PROJECT:</u> Construct a microgrid powered by RICE generators, an ESS and solar array.</p> <p><u>REQUIREMENT:</u> The project will construct a microgrid so JBLM can sustain its critical facilities. It is a continuing need that JBLM has transportation and communications infrastructure that is functional and secure. Furthermore, this system is critical to the recovery and restoration of JBLM's infrastructure should it become compromised by a natural or manmade event.</p> <p>The 2019 Installation Energy and Water Plan lists multiple buildings that would highly benefit from a critical facilities cluster microgrid implementation. All support JBLM's missions and are included in the microgrid. Utility connections are required to a privatized electric distribution, electric generation, natural gas, water, wastewater, central heating and/or cooling system(s).</p> <p><u>CURRENT SITUATION:</u> JBLM remains at risk for insufficient energy supply in cases of catastrophic emergencies. The electrical distribution system on JBLM is privatized and owned by City Light and Power. JBLM plans to convey the new property to City Light and Power for ownership and operation and is the only source that can complete the construction on the system. Army will transfer the assets in accordance with 10 USC 2688 and receive proper compensation or receive utility services in accordance with 10 USC §2688 and the utility services contract.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The islanding microgrid capabilities provided by this project will significantly mitigate the risk of the inability to recover after known natural and man-made vulnerabilities, such as cyber-attacks on the power grid and will ensure sustainment of mission critical deployment for at least 14 days during electrical grid outages.</p>				

1. COMPONENT Defense Wide - Army/Active	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Joint Base Lewis-McChord Washington			4. PROJECT TITLE: Power Generation and Microgrid	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81117	7. PROJECT NUMBER 99146	8. PROJECT COST (\$000) 49,850	
12. SUPPLEMENTAL DATA: a. Other Appropriations or Funding Sources (\$000) b. Project Type: Energy Resilience c. Rationale IAW 10 USC 2914: The proposed microgrid will power 16% of JBLM’s mission critical facilities and 100% of the facilities at the DES/HQ Area. The project addresses Critical Mission Sustainment (CMS) directive and reduces risk by providing electricity to critical loads. <hr/> Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159				0

1. COMPONENT Defense Wide – USAF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION F E Warren AFB F E Warren AFB SITE # 1 Wyoming			4. PROJECT TITLE: Microgrid and Battery Storage		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 811149	7. PROJECT NUMBER GLHN1132910	8. PROJECT COST (\$000) 25,000		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					17,160
Electric Power Station Building (CC 811149)		SF	11,000	342.7	(3,770)
Electrical Switching Station (CC 813228)		KV	13.8	105,072	(1,450)
Battery Energy Storage System		KWH	8,000	870	(6,960)
Microgrid Control System		LS	-	-	(4,110)
Cybersecurity		LS	-	-	(440)
Environmental Permits		LS	-	-	(430)
<u>SUPPORTING FACILITIES</u>					2,000
Site Improvements		LS	-	-	(1,160)
Utilities		LS	-	-	(840)
PRIVATIZED UTILITY CONNECTION AND SERVICE FEE					470
SUBTOTAL					19,630
CONTINGENCY					2,945
TOTAL CONTRACT COST					22,575
SUPERVISION, INSPECTION & OVERHEAD (6.5%)					1,467
DESIGN/BUILD - DESIGN (4.0%)					903
TOTAL REQUEST					24,945
TOTAL REQUEST (ROUNDED)					25,000
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:					
<p>This project will construct a battery energy storage system (BESS) and microgrid control system (MCS) at FE Warren Air Force Base. This project includes upgrades to the switch gear required to install this new system. The BESS will have a capacity to supply energy to the MCS. The MCS will maintain continuous power for all primary facilities with the BESS as the secondary power source when primary power is lost.</p>					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A					
<u>PROJECT:</u>					
This project will construct a microgrid control system with a (BESS). The microgrid control and electrical protection systems will be provided with cybersecure structures to protect against malicious attacks from outside sources or accidental internal errors.					
<u>REQUIREMENT:</u>					
Install a microgrid control system which will integrate, coordinate, and manage the Distributed Energy Resources (DERs), energy storage system, microgrid distribution network and the electrical loads. The microgrid control system will interconnect with utility sources, the DERs, and electrical distribution feeder circuits to allow F.E. Warren Air Force Base to operate in utility grid connected mode, islanded mode, and transition modes between grid connected and islanded modes. The microgrid control system will provide system status monitoring, control and analytics to improve respond time and recovery time after an abnormal electrical event. The project will also construct an microgrid control system Control Facility to house power generation resource					

1. COMPONENT Defense Wide – USAF	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION F E Warren AFB F E Warren AFB SITE # 1 Wyoming			4. PROJECT TITLE: Microgrid and Battery Storage	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 811149	7. PROJECT NUMBER GLHN1132910	8. PROJECT COST (\$000) 25,000	
<p>switchgear to tie-in existing wind generators and a BESS to enable second and third paths that do not exist today. The battery energy storage system will provide a means to store energy, manage electrical demand, and improve system stability. The project will also make available a tie-in for geothermal generation to be installed in a follow-on project.</p> <p><u>CURRENT SITUATION:</u> The Installation Energy Plan identified several resilience gaps, which will be addressed by this project. There are multiple opportunities to improve mission resilience at Main Base by adding backup generation at buildings with essential loads. The Installation Energy Plan recommended installation of a district microgrid to support critical and essential loads on base. 52 facilities have been identified as critical or essential to the mission on the base proper.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Electrical grid disruptions will continue to require use of isolated generator power. The installation currently lacks redundancy and the means to efficiently interconnect distributed energy generation resources and match them with dispersed load centers.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources:</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: The microgrid and associated controls would allow electricity to be supplied from multiple directions and sources at the same time, so that an interruption from one source would not affect other sources or downtime from the loss of one or more power sources. The power to all critical mission functions would continue without disruption. This project will provide multiple levels of redundancy for power supply to all critical mission facilities, as well address weakness in the existing on base power distribution grid and create redundancy in the power supplied. The control system will allow direct monitoring of the system without having to field diagnosis issues.</p> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide – DOD/DIA	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION K-16 Air Base Korea		4. PROJECT TITLE: K-16 Emergency Backup Power		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81160	7. PROJECT NUMBER DIA2024-001	8. PROJECT COST (\$000) 5,650	
9. COST ESTIMATES				
Item	U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>				
Natural Gas Generator (CC81160)	kW	350	6	4,435 (2,100)
Natural Gas Pipeline (CC82140)	LS	1	1,035	(1,035)
Salvage and Delivery of Existing Generator	LS	1	200	(200)
Load Bank and Testing	LS	1	1,100	(1,100)
<u>SUPPORTING FACILITIES</u>				
None				
SUBTOTAL				4,435
CONTINGENCY (15%)				665
TOTAL CONTRACT COST				5,100
SUPERVISION, INSPECTION & OVERHEAD (6.5%)				332
DESIGN/BUILD – DESIGN COST (4%)				204
TOTAL REQUEST				5,636
TOTAL REQUEST (ROUNDED)				5,650
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)				0
10. DESCRIPTION OF PROPOSED CONSTRUCTION:				
This project includes providing all management, plant, labor, materials, and equipment to design and construct repairs necessary for procurement and replacement of the existing Emergency Diesel Generators with new Natural Gas Generators and the design and construction of new Natural Gas lines. This project also includes the addition of a permanent Load Bank to operate, support and supply the new natural gas generator systems and salvage of all existing Emergency Diesel Generator(s) including transport and delivery to a remote off-site location. The repair scope includes, but is not limited to, all necessary environmental, mechanical, and electrical and other accessory and incidental parts as required.				
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A				
<u>PROJECT:</u> This project will install new Natural Gas Generators and natural gas pipeline to provide uninterruptable emergency backup power to select K-16 Air Base Buildings.				

1. COMPONENT Defense Wide – DOD/DIA	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION K-16 Air Base Korea			4. PROJECT TITLE: K-16 Emergency Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81160	7. PROJECT NUMBER DIA2024-001	8. PROJECT COST (\$000) 5,650	
<p><u>REQUIREMENT:</u> Replace the existing generators with Natural Gas Generators to bolster emergency power. This project is required to ensure resilience and sustainability of emergency backup power.</p> <p><u>CURRENT SITUATION:</u> There are currently two standby Diesel Generators that serve as the emergency power supply for select critical buildings. One utility substation supplies one feed to one building which then supplies the next building. The diesel generators cannot provide sufficient power or time duration.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Defense Intelligence Agency’s K-16 Facilities will continue to operate with a risk to mission performance due to the lack of sustainable and reliable backup electrical power.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>Other Appropriations or Funding Sources (\$000):</p> <p>Project Type: Energy Resilience</p> <p>Rationale IAW 10 USC 2914: Energy Resilience current situation falls short of providing required back up power to the site. This project will bring that level to 100%, eliminate an undesirable electrical series configuration, provide the ability to test backup systems, and provide a more reliable fuel source.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide - ARMY	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023	
3. INSTALLATION AND LOCATION Camp Buehring Kuwait			4. PROJECT TITLE: Microgrid and Backup Power		
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81122	7. PROJECT NUMBER 94933	8. PROJECT COST (\$000) 18,850		
9. COST ESTIMATES					
Item		U/M	Quantity	Unit Cost	Cost (\$000)
<u>PRIMARY FACILITIES</u>					14,830
Electric Power, Oil Fired (CC81115)		KW	2,400	1,446	(3,470)
Electric Power, Photovoltaic, Roof, Carport (CC81122)		KW	700	9,243	(6,470)
Battery Energy Storage System (CC81150)		KW	1,500	1,713	(2,570)
Microgrid Controls		LS	--	--	(2,070)
Cybersecurity		LS	--	--	(250)
<u>SUPPORTING FACILITIES</u>					440
Electric Service		LS	--	--	(400)
Demolition of Existing Generators		LS	--	--	(40)
SUBTOTAL					15,270
CONTINGENCY					2,291
TOTAL CONTRACT COST					17,561
SUPERVISION, INSPECTION & OVERHEAD (7.3%)					1,282
TOTAL REQUEST					18,843
TOTAL REQUEST (ROUNDED)					18,850
OTHER APPROPRIATIONS OR FUNDING SOURCES (NON-ADD)					0
10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct a microgrid with controls to include new solar photovoltaic (PV) arrays, battery energy storage system and synchronized generators. The Microgrid Control System (MCS) will be installed as a stand-alone network with an integral monitoring and control system.					
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A <u>PROJECT:</u> Install a cybersecure and integrated Microgrid Control System, removing existing generators, synchronize two new generators, add new solar and battery storage assets including PV arrays on existing roofs, new carports and a solar PV array mounted on the carports, and a technically proven battery energy storage system to serve the Critical Training Mission at this remote and isolated location. <u>REQUIREMENT:</u> Camp Buehring is an enduring and critical facility in Kuwait that is regularly used to provide required training for all units. The cost avoidance of this system directly supports the USARCENT operational energy goal to reduce the logistical tail and decrease energy costs. In the event of generator failures, installing this hybrid system will add additional resilience and mitigate stress on the current gensets.					

1. COMPONENT Defense Wide - ARMY	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Camp Buehring Kuwait			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81122	7. PROJECT NUMBER 94933	8. PROJECT COST (\$000) 18,850	
<p><u>CURRENT SITUATION:</u> The Camp is not connected to Host Nation power, and a Host Nation grid is not available. It is powered only through onsite prime power generation which require constant truck deliveries of fuel to this remote location. It is susceptible to fuel supply and generator disruptions due to its remote location.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This critical facility will remain totally dependent on truck delivered diesel fuel with energy security and resilience remaining vulnerable to disruptions.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000):</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: With only one spot generator supply per facility currently in the Training Center, outages of unacceptable duration are probable and have occurred on multiple occasions. Most of the mission critical training equipment within the complex cannot easily be relocated to and used within other facilities, thereby increasing the need for better power reliability and availability being provided to this training center. This project provides improved energy security and resilience to this critical facility by removing many poorly loaded spot generators and thus reducing dependency on truck delivered diesel fuel. This remote site will be able to take advantage of the abundant solar resource that is consistently available. With the proposed size of solar and battery storage, the critical loads could be covered for at least 6 hours without diesel or solar, and longer when solar production is available. This desert location has very high solar insolation year-round, and the proposed solar and battery microgrid system will ensure critical system operations during equipment or fuel shortages and/or outages which potentially could last weeks. Power outages that cause training delays, cancellations or rescheduling are unacceptable due to the realities that training is not easily rescheduled, additional costs are incurred, and mission readiness is impacted when training delays or losses occur.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0

1. COMPONENT Defense Wide – Army Reserve	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023																																																																																																									
3. INSTALLATION AND LOCATION Fort Buchanan Puerto Rico		4. PROJECT TITLE: Microgrid and Backup Power																																																																																																											
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81115	7. PROJECT NUMBER 99144	8. PROJECT COST (\$000) 56,000																																																																																																										
9. COST ESTIMATES																																																																																																													
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10. DESCRIPTION OF PROPOSED CONSTRUCTION: Construct an installation-level microgrid consisting of diesel generators and a battery energy storage system with a microgrid control system. The project will install above-ground, ballistic-resistant diesel fuel tanks with a fuel polishing system. Project will include an initial fuel fill of the diesel storage tanks. The microgrid will include integration of existing large-scale onsite generation from solar photovoltaic array and wind turbines.																																																																																																													
11. REQUIREMENT: N/A ADQT: N/A SUBSTD: N/A <u>PROJECT:</u> Construct an installation-level microgrid consisting of solar facilities, diesel generators and Battery Energy Storage System to provide islanding capability during grid outages.																																																																																																													

1. COMPONENT Defense Wide – Army Reserve	FY 2024 ENERGY RESILIENCE AND CONSERVATION MILITARY CONSTRUCTION PROJECT DATA			2. Date March 2023
3. INSTALLATION AND LOCATION Fort Buchanan Puerto Rico			4. PROJECT TITLE: Microgrid and Backup Power	
5. PROGRAM ELEMENT 0904903D	6. CATEGORY CODE 81115	7. PROJECT NUMBER 99144	8. PROJECT COST (\$000) 56,000	
<p><u>REQUIREMENT:</u> The installation-level microgrid project provides continuous duty diesel generators and onsite fuel storage and will significantly mitigate known vulnerabilities. It will ensure sustainment of critical missions.</p> <p><u>CURRENT SITUATION:</u> Because of its strategic location in the Caribbean, this project is scoped to sustain 100% of the power needs for the Fort in times of grid outage, including the mission critical components.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Fort Buchanan, as the center of U.S. military operations in the Caribbean, will continue to rely on PREPA's electrical distribution system. Fort Buchanan's reliance on the local utility power grid will continue to be a significant vulnerability to its critical missions.</p>				
<p>12. SUPPLEMENTAL DATA:</p> <p>a. Other Appropriations or Funding Sources (\$000):</p> <p>b. Project Type: Energy Resilience</p> <p>c. Rationale IAW 10 USC 2914: This project eliminates several critical infrastructure vulnerabilities from inadequate backup generation capacity, insufficient onsite fuel storage, and difficulty sourcing fuel offsite. Fort Buchanan's high reliance on the local utility power grid is a significant vulnerability to its critical missions. This project is critical to mission assurance at Fort Buchanan.</p> <hr/> <p>Office of the Deputy Assistant Secretary of Defense (Environment & Energy Resilience) 703-843-0159</p>				0