

FY 2020 Energy Resilience and Conservation Investment Program, Congressional Notification

FY 2020 ERCIP Project List

10 U.S.C. 2914. Energy resilience and conservation construction projects

Project Number	Installation / Location	State	Project Description	Project Cost (\$000)	SIR <sup>1</sup>	Payback	Project Type	Project Justification	M&V <sup>2</sup> Cost (\$000)
<b>Army</b>									
91188	Fort Leonard Wood	MO	Install Cogen System Central Plant 1021	\$3,100	1.2	11.0	Energy Resilience	This project provides resilient power on-site to mitigate supply availability and cost issues, and provides emergency generation capability. A 1.2 MW combined heat and power (CHP) plant will be installed next to the existing energy plant - Building 1021 - and integrates the existing hot water distribution system, boilers, and electrical infrastructure. Stack gas waste heat will be used to heat high temperature hot water serving 18 buildings.	\$4
92870	Anniston Army Depot	AL	Construct 7.5 MW Generator Plant and Microgrid Controls	\$20,000	1.9	9.2	Energy Resilience	This project supports near-term energy resilience requirements to support production and maintenance of combat vehicles, artillery systems, and bridge systems at the Nichols Industrial Complex. It includes 7.5 MW reciprocating internal combustion engine generators, switchgear, and a microgrid control system.	\$25
92623	Fort Jackson	SC	Install Combined Heat and Power Systems	\$8,100	1.4	12.5	Energy Resilience	This project installs two CHP systems providing 1.0 MW of electrical power and 3,760 MBTU/hr of thermal power on-site. It provides emergency generation capability to the electrical and medium temperature water distribution systems for basic training barracks and support facilities. The system utilizes waste heat to efficiently provide hot water.	\$5
88821	Fort indiantown Gap	PA	Install Geothermal & 413 kW Solar Photovoltaic (PV) Array	\$3,950	1.3	13.7	Energy Resilience	This project reduces the critical load of a mission critical facility, roughly doubling the amount of time the facility can operate on backup generation in the event of a grid outage. Ground source heat pumps will reduce the entire critical load of the facility by 56%, and the 400 kW PV solar array will offset a significant portion of the facility's energy consumption.	\$5
92042	Puerto Nuevo (PR012) - 81st Readiness Division	Puerto Rico	Install Microgrid, 550 kW PV Solar Array, 750 kWh Battery, and 750 kW Diesel Gen	\$9,200	0.8	22.5	Energy Resilience	This project installs a microgrid system that will have full islanding capability, enabling the Army Reserve Center to disconnect from the Puerto Rico grid during outages, including hurricane and other weather-related outages.	\$25
80874	Fort Hood	TX	Install a Central Energy Plant	\$16,500	0.7	24.5	Energy Resilience	This project supports III Corps Infantry facilities performing critical Power Projection and Mobilization mission functions at Fort Hood including multiple Battalion and Company Headquarters buildings, and barracks facilities. The project replaces multiple separate aging systems with a centralized efficient solution maintained by the installation. It would result in significant energy savings and help alleviate the reliability and assured access challenges of maintaining 24 separate mechanical systems.	\$10
78642	White Sands Missile Range	NM	Install Microgrid, 700 kW Solar Photovoltaic (PV) Array, 150 kW Gas Generator, and Batteries	\$5,800	0.5	33.6	Energy Resilience	This project will provide power to energize the water wells in the event of a power outage. The water wells can then supply 14 days of water to the entire installation including critical missions in the Army Research Laboratory, Materiel Test Directorate, fire department, and a Fort Bliss power projection platform. This project implements multiple technologies that allow a diverse solution to energy and water resilience without reliance on a single source of power.	\$10
93414	Camp Swift	TX	Install Microgrid, 650 kW PV Array, and 500 kW Generator	\$4,500	0.4	40.9	Energy Resilience	This project provides energy security, resilience, and added distributed generation to mitigate known vulnerabilities and ensure mission critical functions can be performed during utility outages at Camp Swift. Increased utility outages due to severe weather, increased local utility demand, and increased operational tempo inhibits critical mission operations. The project will provide diverse, assured, and islandable energy access to support and sustain mission critical operations.	\$9
82001	Mountain View	CA	Install Microgrid, 750kW PV, 750kWh BESS, & 800kW Generator System	\$9,700	1.1	15.2	Energy Resilience	Currently, there is no backup power supply on base. This project provides on-site renewable (solar) and fossil fuel energy storage/production for 14+ days. PV power generation offsets over \$200,000 annually in electrical utility costs, as well as peak shaving cost savings. Additionally, energy resilience improvements are needed to mitigate disruptions from "planned grid outages" or "public safety shutoffs," which are intended to mitigate wild-fire damage to the electrical grid.	\$25
85882	USAG Bavaria (Hohenfels)	Germany	Install 1.5 MW PV system	\$3,250	1.7	10.9	Energy Conservation	This project installs 1.5 MW PV rooftop solar arrays to support mission facilities and provide a buffer to escalating utility costs. The project increases the US Army Garrison's (USAG) on-site energy generation and adds diversity to its electric supply. USAG Bavaria will progressively benefit from cost savings and improved energy resilience.	\$4
<b>Army Program Totals</b>				<b>10 Projects</b>	<b>\$84,100</b>	<b>1.2</b>	<b>18.4</b>		<b>\$122</b>
<b>USAF</b>									
BAEY253000	Beale AFB	CA	230/60kV Interconnection and Transmission System	\$40,482	2.4	8.9	Energy Resilience	The addition of the substation and transmission system will provide the necessary grid capacity to supply adequate, dedicated, and dependable power to critical base intelligence facilities, as well as provide isolation capability for the performance of safe maintenance and repairs. The redundant power sourced from the WAPA system provides resilience in the event of an outage on the other commercial system.	\$15
JMAX199070	Greeley ANG5	CO	Construct Hardened Secondary Distribution Microgrid System	\$11,200	0.0	0.0	Energy Resilience	A resilient electrical power system is required to adequately power critical facilities to support a one-of-a-kind weapon system, as directed in Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6811.01C, CJCSI 3296.01, and Strategic Command Instruction (SI) 534-16 for extended periods of time in the event of a utility outage, high-altitude EMP (HEMP), source region EMP (SREMP), or geomagnetic disturbance (GMD). This project will enable uninterrupted monitoring of space based missile launch, nuclear detonation detection, and data transfer to the National Command Authority.	\$15
HTUV189002	General Mitchell AIP	WI	Construct Basewide Microgrid with Battery Storage	\$3,750	0.3	59.4	Energy Resilience	This project will enable the 128 ARW KC-135 mission to provide uninterrupted fuel delivery to aircraft and ground support equipment by utilizing a base electrical microgrid allowing the entire base to function at or near 100% of normal capacity during a utility outage. The 128 ARW plays a key role in Operations Plan 801X, requiring assigned KC-135 aircraft to respond within stringent prescribed timelines providing national defense through aviation fuel support.	\$15
SZCQ199700	Pease International Tradeport	NH	Construct 300 kW PV Plant with Integral Battery Energy Storage System (BESS) for Squadron Ops	\$2,000	0.6	31.6	Energy Resilience	The Squadron Operations Facility directly supports the ability to generate air refueling missions. This project will provide supplemental backup, and therefore resilience, to this facility to ensure mission planning, intelligence, crew communication, and the wing command post are provided with reliable power in the event of a loss of commercial power.	\$15
PSXE172003	McGhee Tyson IA	TN	Construct Ground Base PV Array	\$4,312	1.3	14.6	Energy Conservation	The solar arrays will diversify the ANG's electric supply. In an emergency situation, the PV array can maintain the daytime load and thereby extend the generator load for longer periods by reducing refueling requirements.	\$15

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ZHTV120044	WPAFB	OH	Repair Steam & HTHW Line D (partial) Area A with N.G. Boilers	\$7,900	1.2	13.3	Energy Conservation	This project isolates 20 facilities from a single point of failure for heat supply. Individual disruptions in heat supply will have a greatly decreased impact across the system compared to the current impact of disruptions. Additionally, the project will reduce energy consumption by 84,323 MBtu/year.	\$15
<b>USAF Program Totals</b>				<b>6 Projects</b>	<b>\$69,644</b>	<b>1.7</b>	<b>11.7</b>		<b>\$90</b>
<b>USMC</b>									
P-143	MCAS Camp Pendleton	CA	Advanced Microgrid Infrastructure Improvement	\$7,321	1.8	9.0	Energy Resilience	The two interactive microgrids will enhance resilience and energy security by protecting the mission facility from frequent power outages, which impact the Range Control functions and regional wildfire fighting efforts at MCAS.	\$73
P-266	MCAS Miramar	CA	Additional Water Supply for Resilience	\$4,315	1.3	10.8	Energy Conservation	The alternate main water supply from the County of San Diego will provide water resilience by adding a new redundant secure water supply connection, and mitigate impacts from current water supply issues in East Miramar.	\$43
<b>USMC Program Totals</b>				<b>2 Projects</b>	<b>\$11,636</b>	<b>1.6</b>	<b>9.6</b>		<b>\$116</b>
<b>USN</b>									
P691	Naval Base Guam	Guam	Facility Controls Upgrades, Connectivity, & Cybersecurity for NBG Smart Grid	\$6,280	1.0	17.5	Energy Resilience	This project will enable energy monitoring, control, and management in support of training facilities, missile maintenance and testing, and special operations. It includes integrated energy control systems and modern Direct Digital Controls equipment and software necessary for energy demand responsive operation and efficient HVAC systems.	\$2
P520	JRB OS New Orleans	LA	Distribution Switchgear	\$5,447	0.0	0.0	Energy Resilience	This project will support airfield and communication operations by correcting significant deficiencies in resilience and reliability of the existing electrical distribution system. It will reduce vulnerability to flooding, attacks, or tampering.	\$2
P613	NB Ventura County	CA	SNL Energy Storage System	\$6,530	0.8	0.0	Energy Resilience	This project installs a battery energy storage system with 1,000 KW instantaneous power output and 4 MWH of electric energy storage capacity. It will reduce the continuous dependence on diesel generators and the continuous shipments of diesel fuel as well as reduce wind energy generation curtailments.	\$2
P995	NSA Souda Bay	Greece	Energy Management Control Systems (EMCS)	\$2,340	2.0	6.3	Energy Resilience	This project includes integration of an EMCS at 22 facilities and the construction of an energy operations center for measuring and monitoring energy and water consumption to maximize energy and water savings. The EMCS includes Direct Digital Controls, meters for monitoring building water usage, and a fiber optic cable network linking all building control units to a centralized location. This project will reduce service outages to critical mission facilities, maximize system efficiency through continuous commissioning, conserve energy resources, and reduce overall O&M costs.	\$2
P799	Naval Base Kitsap	WA	Keyport Main Substation Replacement	\$22,880	0.2	0.0	Energy Resilience	This project will improve energy security for facilities identified in DTRA's 2016 Joint Mission Assurance Assessment (JMAA) report. It moves the substation away from the installation fence line, adds a ballistic wall, and substation building. The existing substation has exceeded the 25-year normal service life span and system failures have already been experienced. Further, the project adds a 4 MW backup generator to the substation, which will be able to sustain the mission critical peak load. Modernizing the equipment also reduces the risk of voltage sag and brown outs, which affect critical equipment in the Naval Undersea Warfare Command industrial area.	\$2
P893	Naval Base Kitsap	WA	Energy - Main Steam Line Monitoring	\$1,420	1.5	10.6	Energy Conservation	This project will increase reliability, resilience, and facility life in support of multiple submarine and ship missions. This project will implement new instrumentation on the district steam distribution system in order to optimize operating pressures and temperatures for best steam generation economy.	\$2
P690	Naval Base Guam	Guam	Energy Efficient Lights, HVACs, DHWS and Photovoltaic AT Apra Palms, P-690	\$9,770	1.4	13.5	Energy Conservation	This project will remove and replace existing fluorescent and halogen/incandescent lighting fixtures, HVAC units, and domestic hot water systems at various facilities. Additionally, 5,000 W of PV solar will be mounted on the roof of all detached garages.	\$2
<b>USN Program Totals</b>				<b>7 Projects</b>	<b>\$54,667</b>	<b>0.7</b>	<b>5.0</b>		<b>\$14</b>

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<b>DHA</b>									
P-1703	US Naval Hospital (USNH) Rota / Spain	Spain	Replacement of Fluorescent Lighting with LED Lighting at Building 1802 (Hospital)	\$348	2.1	6.2	Energy Conservation	This project provides safe and well-lit areas within the hospital and contributes to the reduction of energy consumption by using efficient lighting. This project will replace all existing ceiling mounted fluorescent lighting in Building 1802 with energy efficient LED tubes.	\$35
P-1804	USNH Guam / Agana Heights	Guam	Retrofit Lighting System (Exterior and Interior with LED Lamps)	\$354	3.3	3.7	Energy Conservation	Retrofitting the lighting system will assist in reducing O&M costs and will provide an annual energy savings of approximately \$79,275. This measure will result in reduced O&M costs for re-lamping due to the longer lifespan of the LED lamps.	\$35
P-1805	USNH Okinawa / Camp Foster, Zukeran	Japan	Boiler Fuel Use Reduction	\$364	2.4	8.3	Energy Conservation	This project properly matches load and reduces fuel use, and creates annual fuel cost savings of about \$44,000. Reducing fuel and energy consumption increases availability of fuel and continuous operation of critical areas during a prolonged fuel supply shortage.	\$36
<b>DHA Program Totals</b>				<b>3 Projects</b>	<b>\$1,066</b>	<b>2.6</b>	<b>6.1</b>		<b>\$107</b>
<b>DLA</b>									
P.2017.0003	Joint Base Pearl Harbor-Hickam	HI	Install 500KW Covered Parking PV System & Electric Vehicle Charging Stations B479	\$4,000	1.5	13.0	Energy Conservation	The electricity generated will power critical building loads, EV charging stations, and subsequently be routed through B479's electrical substation. This project will help mitigate the impact of escalating utility costs, which have burdened past operating budgets, and are forecasted to continue rising.	\$125
ERCIP2020-01	Naval Base Kitsap, Bremerton	WA	Upgrade 6 facilities heating systems to natural gas	\$5,430	2.6	7.8	Energy Conservation	This project will save approximately 75% in heating costs and reduce heating unit energy consumption by 20%. It installs a natural gas line from the existing service to facilities and converts warehouses and buildings to natural gas. The new gas line will allow for conversion of Navy facilities to natural gas.	\$120
<b>DLA Program Totals</b>				<b>2 Projects</b>	<b>\$9,430</b>	<b>2.1</b>	<b>10.0</b>		<b>\$245</b>
<b>NRO</b>									
ERCIP-NRO-WF-19-02	Headquarters	VA	Lighting/Power Control System	\$505	3.6	3.4	Energy Conservation	The current lighting/power controls are no longer supported by the manufacturer. The new retrofits will improve power system controls and reduce energy consumption.	\$0
<b>NRO Program Totals</b>				<b>1 Project</b>	<b>\$505</b>	<b>3.6</b>	<b>3.4</b>		<b>\$0</b>
<b>WHS</b>									
WHS21-06	Various	VA	Recommissioning of HVAC Systems, Part A	\$1,582	1.3	4.9	Energy Conservation	This project enables WHS facilities to support all in-house missions for longer durations in the event of a prolonged outage. This is accomplished by reducing energy consumption of mission operations and decreasing diesel fuel usage. Savings are estimated to be \$325,000 annually.	\$5
<b>WHS Program Totals</b>				<b>1 Project</b>	<b>\$1,582</b>	<b>1.3</b>	<b>4.9</b>		<b>\$5</b>
<b>ERCIP Program Totals</b>				<b>32 Projects</b>	<b>\$232,630</b>	<b>1.3</b>	<b>12.3</b>		<b>\$699</b>

<sup>1</sup> SIR is Savings to Investment Ratio (\$ est. discounted lifetime savings / \$ invested).

<sup>2</sup> M&V is measurement and verification.

<b>Energy Resilience</b>	<b>\$189,080</b>	<b>1.2</b>	<b>12.4</b>
<b>Energy Conservation</b>	<b>\$43,550</b>	<b>1.6</b>	<b>11.6</b>