

36th Annual Secretary of the Army Energy and Water Management Award Summaries

Type Award – Small Group

Fort Hood, Texas – Energy Efficiency / Energy Management

(Mr. Bobby Lynn, Ms. Africa Welch-Castle, Mr. Edwin Frazier and Mr. Huey Keaton)

Annual Cost Avoidance: \$172,000

Energy Saved: 9 billion btu per year

Fort Hood used \$1.8 million of Energy Conservation and Investment Program (ECIP) funding to replace over 3,600 permanent split capacitor motors (PSC) with electronically commutated motors (ECM) for a projected lifetime savings of over \$2.5 million. The ECM motors have a brushless permanent magnet design that is more efficient than the PSC motors commonly found in air handlers, furnaces, heat pumps, air conditioners and refrigerating applications. Various benefits include greater efficiency, less heat generation, less noise, soft ramp up, less power factor penalties and a longer lifespan.

Picatinny Arsenal, New Jersey – Energy Efficiency / Energy Management

(Mr. Gary Pacella, Mr. James Douglas and Ms. Grisel Robles)

Annual Cost Avoidance: \$8,300

Energy Saved: - (negative) 117 million btu per year (first year energy measurement)

Focusing on one building, Picatinny Arsenal implemented human behavior modification plus replacement of low efficiency lamps with high efficiency ones, installation of occupancy controls on light switches, removal of unnecessary electrical heating and retro-commissioning on HVAC systems. These energy conservation measures were accomplished through service orders at a cost of about \$10,000 and resulted in Building 65 being earning Second Place in the FEMP FY13 Federal Better Building Competition while also becoming Picatinny Arsenal's first ever Energy Star Certified Building in July 2013. During the FY12 to FY13 period of measuring energy consumption for the competition, Picatinny Arsenal experienced 16% more heating degree days than the FY12 baseline, accounting for their slight increase in total energy consumption for Building 65, although a cost avoidance was still achieved due to the cost of electricity per btu being 3 times greater than the cost of natural gas per btu during this period.

White Sands Missile Range, New Mexico – Renewable / Alternatives

(Mr. Craig Collins, Ms. Irene Beck, Mr. George Dill and Mr. Jose Gallegos)

Annual Cost Avoidance: \$698,000

Energy Saved: 30 billion btu per year

White Sands Missile Range constructed a \$16.8 million, 4.5 MW ground mounted solar photovoltaic power plant system spread over 42 acres. Construction was funded through an Energy Savings Performance Contract and completed in December 2012. Included is a system which tracks the sun across the sky and a solar carport with a two car charging system for charging GSA electric vehicles and providing power for the headquarters building, making it a net zero energy building. Power not consumed by the headquarters building is redirected to the government owned distribution system for use by other facilities. All energy generated is consumed by the installation.

US Army Engineering and Support Center, Huntsville, AL – Renewable / Alternatives

(Mr. Lawrence Michael Norton, Mr. William Irby, Mr. Robert Mackey, Mr. Wesley Malone, Ms. Lisa Harris, Mr. Jason Bray, Mr. Earl Johnson, Ms. Barbara Osterkamp, Mr. Bruce Forsberg, Mr. Andy Long and Ms. Margaret Simmons)

Annual Cost Avoidance: \$6,700,000

Energy Saved: 386 billion btu per year

The US Army Corps of Engineers Energy Savings Performance Contract (ESPC) team at Huntsville, Alabama awarded 16 ESCP projects in 2013 with a combined capital investment of \$188.6 million. The US Army Corps of Engineers, Huntsville Center (CEHNC) is uniquely positioned to support the Army and DoD, using a large Multiple Task Order Contract (MATOC) valued at \$900 million to execute ESPC projects. Their product delivery team approach incorporates multiple disciplines that are co-located to facilitate an effective, efficient and quicker award process. In recent years, CEHNC has reduced their ESPC award cycle time from 24 months to a range between 12 and 15 months, eliminating delays that result in loss of savings that average about \$3,000 per day, while striving to obtain the competitive pricing and appropriate life cycle cost effectiveness needed to ensure best value to the Army.

Type Award – Installation

Presidio of Monterey, California - Energy Efficiency / Energy Management

(Mr. Jay Tulley)

Annual Cost Avoidance: \$94,000

Energy Saved: 6.5 billion btu per year

By manually reading the advanced electrical and natural gas meters installed in each of the energy intensive barracks buildings through the Army Meter Program, the Presidio of Monterey Directorate of Public Works (DPW) was able to develop an accurate energy distribution profile that revealed energy conservation opportunities. At low cost, over illuminated corridors were partially de-lamped, twist timers for day room thermostats were installed, 80% of laundry machines were limited to cold water use, and signage was posted in barracks living quarters instructing occupants on how and when to operate their heating systems. DPW also installed dryer exhaust fan controls so fans could only operate when the dryers were running, and optimized boiler systems to use incrementally lower water temperatures during hot weather. These low cost actions, coupled with emphasis and coordination by Garrison leadership, enabled the three worst performing barracks to become energy conservation standouts without negatively impacting occupants. Total cost of all energy conservation measures was \$348,871.

Fort Stewart, Georgia – Energy Efficiency / Energy Management

(Mr. Robert Baumgardt, Mr. William Ingram and Mr. Fred Pierre-Louis)

Annual Cost Avoidance: \$242,325

Energy Saved: 12 billion btu per year

Fort Stewart undertook several energy conservation measures during the past two years to replace deteriorating and inefficient infrastructure, reduce energy consumption and improve the quality of life for Soldiers, family members and the Fort Stewart community. Inefficient oil fired boilers were replaced with natural gas fired condensing boilers and hot water heaters to replace a failing high temperature water distribution system; advanced street lighting controls were installed with intelligent photo control sensors to control lighting fixtures; and inefficient HVAC pumps, chillers and cooling towers were replaced with variable frequency drive equipped systems. Much of the actual work on these projects was performed by DPW in-house personnel, which significantly improved the cost effectiveness and return on investment.

Fort Carson, Colorado – Water Conservation

(Mr. Vince Guthrie, Mr. Jim Casey, Mr. Don Phillips, Mr. James Kulbeth and Mr. Scott Clark)

Annual Cost Avoidance: \$285,000

Energy Saved: 8 billion btu per year

Fort Carson used an Energy Savings Performance Contract to fund \$2 million worth of water fixture replacement projects to reduce water consumption. Water conservation efforts were undertaken over the past two years to meet Net Zero reduction goals, mandated water reductions and comply with local restrictions. The reduced water consumption also significantly reduced natural gas consumption due to less hot water passing through showerheads and sinks. Retrofitting included changing 2,292 toilets from 1.6 or greater to 1.28 gallons per flush, upgrading 3,971 aerators from 1.5 or greater to 0.5 gallons per minute, replacing 2,088 showerheads from 2.0 or greater to 1.0 gallons per minute, and replacing 145 urinals from 1.0 or greater to 0.125 gallons per flush. These actions allowed Fort Carson to reduce consumption by about 54 million gallons of water within one year and achieve a 41% water reduction for FY13 compared to the FY07 baseline, far exceeding the established FY13 goal of 26%.

Type Award – Individual

Fort Hunter Liggett, California – Energy Efficiency / Energy Management

(Mr. Todd Dirmeyer)

Annual Cost Avoidance: \$1,686,261

Energy Saved: 38 billion btu per year

While serving as the energy manager for both Fort Hunter Liggett and Parks Reserve Forces Training Area (RFTA), California, Mr. Todd Dirmeyer developed a robust program of energy, water and waste technologies that support Fort Hunter Liggett and Parks RFTA in meeting energy and water conservation mandates, policy and strategies. The most significant accomplishment was the implementation of a long term renewable energy production project with an online dashboard for the Fort Hunter Liggett solar array. The project is phased over several years, with the first 1.1 MW of solar power coming on line in April 2012, the second in August 2013, and the third in July 2014, along with complimenting on-site grid energy storage. He also was instrumental in planning a similar solar project at Parks RFTA which is currently in design and intended to achieve complete independence from the local electrical grid. In addition to these solar power initiatives, Fort Hunter Liggett installed solar street lighting, replaced interior lighting with 15 watt LED lamps, and is participating in three energy demonstration and validation projects through the Energy Security and Technology Certification Program (ESTCP). The projects include a molten carbonate fuel cell that produces 1.1MW of electricity from natural gas, a solar hot water and electricity project underway which will provide enough electricity and hot water to operate a dining facility and barracks, and a waste to energy gasification system being constructed during FY14.