"Make Energy a Consideration in All We Do"

ENERGY express

The Air Force Facility Energy Center Newsletter May 2012

AFSPC to install thousands of LED fixtures

Ms. Jennifer Elmore
AFCESA/CEBH

A 2007 suggestion to convert existing high intensity discharge (HID) lighting to new technology light emitting diode lights along roadways and in parking lots will soon become a reality across Air Force Space Command (AFSPC) and the Air Force Academy. "It's been a long time coming," said Mr. Fox Theriault, Command Energy Analyst and LED Project Manager, "but we wanted to do it right."

Preliminary testing of several manufacturers LED fixture types, sizes and styles began at Vandenberg Air Force Base, Calif. and Peterson Air Force Base, Colo. as a pilot study with the approval from the Air Force Civil Engineer Support Agency (AFCESA). Early performance results for parking light applications revealed a greater than 50 percent reduction in energy usages as compared to HID lighting fixtures.

A cross-functional AFSPC team was put together to conduct market research, identify requirements, and develop an implementation strategy while subject matter experts from AFCESA and the Air Force Institute of Technology (AFIT) developed the technical specifications for the fixtures. The AFSPC team's overall goal was to reduce energy, while matching or improving existing illumination.

The new LED fixtures being tested for installation at Air Force Space Command installations have a minimum 50,000 to 60,000-hour life expectancy which is 2.5 to 3 times the life of the current HID fixtures. The new LED fixtures are also expected to significantly improve lighting quality, and standardize street and parking lot lighting across the installations. (Photo by Mr. Rob Bussard)

"The estimated savings were so impressive that the AFSPC commander at that time was ready to give us $10M to replace all street and parking lot lights on all AFSPC bases with LED fixtures," said Mr. Tim Pugh, Command Energy/

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LED streetlights like the one pictured here will soon be in parking lots and along roadways across bases in Air Force Space Command. It's estimated the project will save 25,559 MBTUs annually and $1.15 million a year in energy and maintenance costs. (Photo by Mr. Rob Bussard)

Top 15 chosen to compete for FEMP award

In 2011, the Air Force won seven Federal Energy Management Program awards across three categories: Programs, Projects, and Individuals. This month AFCESA reviewed more than 50 nomination packages from bases and MAJCOMs to be considered for a 2012 FEMP award. The Air Force can submit 15 nominations. Here's a look at who will compete for the honor in 2012:

Programs			
	21 Space Wing Energy Program	Cape Cod	AFSPC
	AFGSC Energy Office	Barksdale	AFGSC
	Robins Energy Miser Team	Robins	AFMC
	Seymour Johnson Energy Mgmt. Program	Seymour Johnson	ACC
Projects			
	Building System Energy Conservation Project	JB Langley-Eustis	ACC
	Dyess AFB FY11 Initiatives	Dyess	ACC
	Hill AFB Medical Group	Hill	AFMC
	Minn-St Paul Steam Decentralization Project	Minn-St Paul	AFRC
	Steam Dream Team	Hill	AFMC
Individual			
	Jeffrey Morgan – Exceptional Service	JB Charleston	AMC
	Larry Johnson – Career Achievement	Minot	AFGSC
	Liz Toftemark – Exceptional Service	Scott	AMC
	Reid Touchberry – Exceptional Service	Misawa	PACAF
Fuels			
	75th Logistics Fuels	Hill	AFMC
	HQ AMC Fuels	Scott	AMC

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Utility Manager. After consultation with Dr. Daryl Hammond, AFCESA Subject Matter Expert, in 2009, AFSPC engineers decided to allow the rapidly developing technology more time to mature and ensure that design criteria and process were in place. The delay also gave the growing list of manufacturers time to establish markets and develop competitive edges. "Testing, market research, and industry clearly indicate that this new technology is ready for full implementation with great benefits," said Mr. Theriault.

"The projected energy savings equates to nearly one percent of AFSPC's energy consumption," said Mr. Pugh. The new LED fixtures advertise 50,000 to 60,000-hour life expectancy, which is 2.5 to 3 times the life of the current HID fixtures, and improved lighting distribution. AFSPC plans to work together with base civil engineers to develop an effective installation plan to optimize installation timelines consistent with AFIT research so energy and maintenance savings can be realized. Lessons learned to decrease level of effort for related opportunities will be shared with other Air Force organizations.

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Energy survey finds millions in potential savings

Ms. Amy Ausley
AFCESA/CEBH

When you're paying up to 49 cents per kWh for electricity, it's a good idea to find ways to cut back. An energy survey team from AFCESA is doing just that for the 379th Expeditionary Wing at an undisclosed base in Southwest Asia.

The base receives power from three different electrical utility providers ranging in price from 7 cents per kWh to 49 cents per kWh. As an enduring base with a large population and a mix of expeditionary tents, modular trailer facilities and permanent structures, the peak electrical load in the summer at the base can be as high as 30 MW.

After reviewing utility bills and base plans, site visits, conducting interviews with base personnel, and temperature and meter readings, the AFCESA team developed a list of suggestions aimed at significantly reducing energy and fuel use. According to team member Mr. Rich Peck, AFCESA/CEXX, "We were there to assess expeditionary energy efficiency opportunities, including energy demand reduction, and to assess the feasibility of renewable energy use such as solar water heating and photovoltaic energy production."

One suggestion from the energy survey team is to add a layer of foam to the outside of these tensioned fabric shelters to provide a heat barrier and make the shelters much easier to cool. Another suggestion is to then coat the foam with a Thermal Control coating and a UV coating to further increase the energy efficiency of the shelters. (Photo by Mr. Rich Peck)

Replacing more than 4000 individual window air conditioning units (window shakers) with 1 Ton split ductless units reduces demand by 1kW per unit, which could ultimately save more than $5 million a year. (Photo by Mr. Rich Peck)

One of the biggest energy consumers is in an area called the Coalition Compound. This billeting area has a total of 4,080 "window shaker" air conditioning units. The team recommended replacing the current energy-inefficient units with energy-efficient split ductless units which could save up to $5 million a year.

A base as large as this one requires an enormous amount of area lighting and most of those lights are running at the higher 49 cents per kWh rate. The base currently has a successful solar LED lighting project installed on a pedestrian sidewalk that has successfully operated for three years. The AFCESA survey team suggested expanding the concept to additional areas of the base, particularly new construction. This move could save around $715 per light a year for a 400 W light.

In some areas of the base supplemental lighting is provided by over 75 diesel powered light carts. The light carts use approximately seven and a half gallons of fuel per night each for a total cost of more than $1 million per year. Procurement is currently underway to purchase 25 replacement solar LED light carts, with a recommendation from the energy survey team to increase that number to 50 if funding is available. These solar powered LED light carts will also reduce the manpower requirement needed to refuel the 75 diesel powered light carts every other day.

The team also suggested foaming and thermal coating the outside of the large tensioned-fabric shelters on base which are used for environmentally controlled storage, shop work and BX facilities. Each shelter currently uses three 10-ton air-conditioning units which don't adequately cool the shelters during the summer. With the foaming and coating, a single 10-ton unit will suffice with improved cooling capability. Potential energy savings are over $3 million per year, plus it eliminates the cost of re-skinning the shelters.

There were several other recommendations for further study at the base such as electrical metering of shower/shave facilities with the possible future installation of solar hot water heaters; data collection and analysis of thermal coatings on roofs of warehouses and billeting common areas; and engineer review of HVAC systems on the roofs of BPC billeting, the BX Mall and the base gym.

Survey team member, Mr. Rod Fisher, AFCESA/CEX, said, "We feel confident if the base implements the suggestions we made as a result of our survey, they could reduce energy demand by at least 10 percent, probably more, which would equate to millions of dollars every year in savings for the Air Force."

Facility Energy Program earns new CDC playground for Tyndall kids

Senior Airman Rachelle Elsea
325th Civil Engineer Squadron

Energy reduction efforts at Tyndall Air Force Base, Fla., have translated into a cash award from Headquarters Air Education and Training Command.

The command's annual Energy Incentive Award recognizes the top three performers in energy and water intensity reduction.

For fiscal year 2011, Tyndall finished third in the command by reducing energy intensity by 8.2 percent compared to the average of the three prior years, which earned the base $500,000. Base-wide efforts to conserve energy and water have yielded substantial savings in FY11. Tyndall saw a drop of 7.6 percent in electricity and 16 percent in natural gas consumption.

This is due in large part to capital investments in infrastructure and efficiency improvements. Tyndall Airmen have also played a large contribution in the reductions.

Tyndall invested the Energy Incentive Award money into a Child Development Center playground renovation project that provides play areas specifically designed for children ranging from infants to 5 years old. (Photo by Mr. Chris Cokeing)

"Although difficult to measure, we think there has been some culture change toward energy," said Mr. Jon Caldwell, 325th Civil Engineer Squadron energy manager. Airmen are seeing that it is a priority at all levels."

Mr. Caldwell's "One Percent Change" energy awareness campaign centers on the Air Force's requirement to cut energy intensity by three percent per year.

"Tyndall needs to reduce energy intensity by three percent per year. Two percent will come from our investment in efficient technologies and one percent will come from your actions," said Mr. Caldwell.

Although the installation is graded annually on progress toward reduction goals, the main objective is to reduce energy intensity 30 percent (compared to a 2003 baseline) by 2015. "We need to remain focused on long-term energy conservation efforts and continue to consider energy in all we do," said Lt Col Douglas Gilpin, 325th CES commander.

Tyndall invested the award into a Child Development Center playground renovation project that provides play areas specifically designed for children ranging from infants to 5 years old. Not only do the kids and staff greatly enjoy the new playground, but the project also provided the opportunity to level the ground to eliminate drainage and storm water issues.

Spotlight on Success

Reservation Letters for NRG Projects

HAF released the second Authority to Advertise (ATA) letter reserving $36,843,567 for NRG projects. HAF also requested development of a third ATA list of projects to serve as a straddle project list for end of year funds. The target dollar amount for the third ATA is undetermined. (Mr. McLellan, HQ AFCESA/CENI, DSN 523-6453)

Energy Program Management Review

AFFEC conducted the energy PMR in Atlanta GA., 3-5 Apr 12. Fifty participants represented twelve MAJCOMs plus AFCEE and AFRPA. During the 3-day event, a total of 14 Action Items from the previous PMR were closed, and discussions stimulated an additional 20 new Action Items. Two items were sent for action to the Energy Program Group: (1) AF energy manpower requirements review and (2) use of common factors to set utilities privatization priorities. (Ms. Doornik-Surber, HQ AFCESA/CENI, DSN 523-6546)

FY13 NRG Data Pull

AFCESA/CENI accomplished the 2 Apr 12 FY13 NRG data pull covering FY13 NRG candidate construction projects and design candidate projects for FY14 construction. AFCESA/CENI has begun the preliminary review and selection of projects for validation. The validation process is anticipated to be complete on 15 May 12. (Mr. Stokes, HQ AFCESA/CENI, DSN 523-6394)

FY14-17 ECIP Projects

AFCESA/CENI sent the FY14-17 ECIP project lists to A7CPP for review. A7CPP will forward the lists to OSD. The FY14 list has 17 projects for $60M; FY15 has 9 projects for $42M; FY16 has 10 projects

for $26M; and FY17 has 9 projects for $24M. (Mr. Byrnes, HQ AFCESA/CENI, DSN523-6464)

Utility Energy Service Contracts

ETL 12-10 was signed on 3 Apr 12 and presents guidelines to implement a Utility Energy Service Contract. This ETL is the first Air Force document with the step-by-step process to execute UESCs. (Mr. Martin, HQ AFCESA/CENI, DSN 523-6475)

Briefing to SAF/IE on Renewable Energy Execution Methods

AFCESA/CEN and AFRPA/SAU briefed The Honorable Terry Yonkers and SAF/IE DASAFs on renewable energy project execution methods and selection factors. Other participants included Ms. Tune (IE-2), Lt Gen Fedder (A4/7), Maj Gen Byers (A7C), Ms. Ferguson (IEI), Dr. Geiss (IEN), and Mr. Correll (A7C-2). Public private ventures such as Power Purchase Agreements (PPA) or Enhanced Use Leases were confirmed as the preferred method for RE development. Project development and execution improvements were also discussed and identified. (Mr. Gray, HQ AFCESA/CENR, DSN 523-6357)

From the desk of the AFCESA Commander:

Base Civil Engineer Leaders,

To assist facility managers across the installation as well as your staffs, AFCESA has developed several video products available on the AFCESA YouTube Channel (http://www.youtube.com/AFCESA). I'd like to bring your attention to two videos in particular:

1) The video, "Facility Managers: Sealing in the Savings" is designed to complement your monthly or quarterly facility managers meetings and provide both energy and facility management recommendations.

2) The video entitled, "Energy Awareness" is geared toward the general base populace and could be used for commander's calls, newcomer's orientation or other similar gatherings.

As budgets tighten it is more important than ever to take care of facilities and focus on energy use. In addition to the above videos, there are a number of other videos on the AFCESA YouTube Channel that highlight what individual bases are doing to promote energy savings. Please take a look and share with your staffs.

Finally, if you have not seen the CE Heritage video on the site, please take a look at this snapshot of our proud heritage.

If you need further information or copies of the videos on DVD, please contact Ms Jennifer Elmore, DSN 523-6572.

Regards,

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