"Make Energy a Consideration in All We Do"

The Air Force Facility Energy Center Newsletter

January 2012

# Air Force renewable energy projects on the rise

*Ms. Amy Ausley AFCESA/CEBH* 

The Air Force has more than doubled its number of renewable energy projects in just one year. Data from the Annual Energy Management Report compiled by AFCESA shows there are approximately 194 projects installed or under construction at 71 Air Force locations. That number is up from 85 projects in 2010.

The increase in projects can be attributed to several factors including better reporting by installations and a raised awareness of what projects are considered renewable. Another key tool to help bases coordinate growing renewable energy efforts is the Renewable Energy Project Development Subpanel. The group makes it easier and faster for bases to get renewable energy projects up and running by providing leadership and coordination on each project. This includes giving guidance on everything from feasibility, the approval process, and methods of execution.

The REPD brings all the renewable energy project players together including the field operating agencies, (AFCESA, Air Force Real Property Agency, Air Force Center for Engineering and the Environment), MAJCOM energy staffs, installation energy staffs, and Headquarters Air Force energy staff. Previously, installations, MAJCOMs, and support agencies were navigating the process on their own, without a uniform system for sharing and reporting information Air Force wide. This sometimes resulted in duplicated, flawed efforts and lack of communication.

REPD members look at each renewable energy project individually to ensure as each one is developed it provides the greatest benefits for the installation and the Air Force. The goal is to balance compliance with energy goals, asset management goals, and economic feasibility. Projects that require REPD review include any using third-party financing or those that include a lease of Air Force property. AFCESA's Rates and Renewables Branch Chief Ken Gray, says, "The REPD helps to coordinate and navigate through the increasingly complex Air Force and Department of Defense review and approval process."

The process begins with a MAJCOM or base identifying a renewable project. The project concept and plan for execution is presented to the REPD. The REPD considers factors for authority to use, determines execution methods, and assists the project team in understanding additional issues. Once

Sidebar photo: A research and development grant provided funding for this 1.3MW solar array, a dual-axis tracking ground-mounted array, and a roof-mounted array on the fire station at Burlington ANGB, Vermont. All three projects combined produce 40 percent of the installation's needs. (photo by Mr. Eddie Green)



## **Renewable Energy Projects On The Rise**

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the subpanel agrees it is a viable project, the project development process begins. The Encroachment Working Group looks at the impact of the project on the base mission and other nearby Department of Defense facilities. Next is the unit beddown or Strategic Basing Process, controlled by AFI 10-503, which looks at long-term land usage, considering many of the current renewable projects involve 20- to 30-year leases. Then there are land valuations, lease documents and a look at how the project will affect the commercial grid. The Office of the Assistant Secretary of the Air Force for Installations, Environment, and Logistics reviews the project and retains final approval authority. There are at least eight different groups and agencies involved, and there could be

even more depending on the size and environmental impacts of the project.

According to Mr. Gray, the REPD can be a useful tool for getting through the process. "We've developed initial formats and points of contact and we can say, 'You've got to take this document and prepare it for this group, and here's where you send it.' That way nothing is missed and the project has a much better chance at success."

The subpanel has evaluated more than 30 projects since March including solar, wind, biomass, and waste-to-energy. The subpanel is monitoring several "net zero energy" buildings being developed under the MILCON program at AFCEE. One is located at Hurlburt Field, Fla. The AFSOC Source Selection Facility is designed to produce as much energy as it consumes through a combination of solar hot water, photovoltaic panels, ground source heat pumps, and gray water/rainwater harvesting. Completion is expected in 2012. (See page 6 for more information)

The future for Air Force renewable energy projects is bright with several major projects planned to begin construction in 2012 including 14MW solar arrays at Davis-Monthan AFB and Luke AFB, both in Ariz.; a 17MW solar array at Nellis AFB, Nev.; three 1MW solar arrays at Edwards AFB, Calif.; and two wind turbines at Cape Cod AFS, Mass.

The REPD meets every two weeks. To submit a project for evaluation, contact the Air Force Facility Energy Center; Ms. Gale Onorato at (850) 283-6213 or Mr. Gray at (850) 283-6357.

# AMC invests in power strips

Mr. Thomas G. Kistler AMC/PA

With an annual energy bill of more than \$100M, not including aircraft fuel, Air Mobility Command officials are exploring ways to save energy and the money spent on it. While the most obvious energy savings might come from the flying mission, AMC is working just as hard to save energy on the ground.

One ongoing effort to save energy in the workplace is the use of smart power strips. According to Steve Kalmer, the energy and utilities engineering program manager for AMC, these devices automatically cut power to designated peripherals when the controlling outlet senses a change. For example, when a computer monitor turns off due to inactivity, the task lighting, computer speakers, radio and other peripherals would also turn off if they were plugged into a smart power strip.

Jeanine Dunn, the AMC productivity programs and Air Force Productivity Enhancing Capital Investment (PECI) program manager, said AMC is purchasing \$449,325 worth of smart power strips using PECI funds. PECI officials calculate the lifecycle savings from using smart power strips to be \$990,000 for a 2.2 to 1 return on investment. The smart power strips will be distributed to all AMC installations at no cost to each base. Other energy saving initiatives in AMC include occupancy sensors and dimmer switches for lights. equipment purchases that increase base capabilities. While the details of each PECI project may vary, they all have two key elements in common: measurable benefits and real savings.

If you have a good idea that can help the Air Force improve productivity log onto https://peci.pentagon.af.mil/public/ default.aspx.



The PECI program's mission is "to provide expedited funding for capital acquisition projects which provide measurable benefits and real savings to the Air Force." Each year, PECI invests an average of \$10 to \$11M that will net an average life cycle savings of approximately \$112M. These investments have funded a wide variety of productivity improvements – from technology upgrades that increase administrative speed to major AMC estimates the life cycle cost savings for using smart power strips at nearly \$1M.

You could earn from \$200 up to \$10,000 as a bonus for each approved project. You could save your unit money and get noticed by your command for your great idea.

# **Ceramic coatings:** Energy-saving game changer?

Ms. Amy Ausley AFCESA/CEBH

How much can a new coat of paint help the Air Force toward its energy goals? That's what Air Force engineers and researchers are hoping to find out.

Engineers at AFCESA are getting ready to put a specialized type of ceramic coating or "paint" to the energy-saving test. The Air Force has reduced facility energy use 15 percent since 2003, but federal mandates require government agencies to reduce it even further, cutting energy use 30 percent by 2015.

Tests of the ceramic coating material will start in April at the Silver Flag Exercise Site at Tyndall AFB, Fla., using two nearly identical buildings that serve as barracks to house students.

The two buildings are the same in almost every way, right down to the air conditioning systems which, according to Mr. Steve McLellan, an Energy Program Manager at AFCESA, makes the site a perfect real-world test lab. "It's a very unique situation because they are identical in size, construction and how they're used. We can make sure the number of students assigned to each building is the same, and we can keep everything as similar as possible so the only real difference is the coating."

According to McLellan, this gives AFCESA engineers a chance to see firsthand how the product works on a full-scale building as opposed to just using test panels. One barrack will serve as the test building with the new coating on the roof, while the other will be the control building and will remain "as-is." Energy use in both buildings will be metered for one year. With the soaring temperatures in Florida through the summer months, there may be significant comparison data from the project as early as the fall of 2012.

Phase two of the project will come after the initial year of data is collected. The control building will then get a layer of



non-ceramic material and the metering will continue for another year to see if the ceramic coating outperforms the non-ceramic material.

While the ceramic coating product has been around for 20 years, it was never mass marketed. The Air Force has used a similar product from the same company at Davis-Monthan AFB, Ariz., to protect "mothballed" aircraft from the heat. The formula in that case is slightly different because it needs to be easily removable. In the Tyndall test, engineers are looking for durability and endurance in addition to energy savings.

If the ceramic coating performs well it could have multiple applications in warm climates, possibly even in an expeditionary setting. "Ceramic coating is one of the products being tested as a coating for the flys over the expeditionary tents because it is flexible and can be folded multiple times as they erect and then disassemble the tents," says McLellan.

"Ceramic coating performed well in the lab, and now we're all anxious to see if it can bring those same results to practical applications on bases and on the battlefield," says McLellan.

(above) The interior of a barracks being used for a ceramic coatings test at the Silver Flag Exercise Site at Tyndall AFB, Fla. (below) Engineers and researchers intend to use these two buildings located at the Silver Flag Exercise Site at Tyndall AFB, Fla. in a test to determine the heat reflectivity value of a ceramic coating. The building on the right will receive the ceramic coating on its roof while the building on the left will remain "as-is". (Photos by Mr. Eddie Green)



## New training module provides energy awareness tool for Airmen

Ms. Margaret Breihan SAF/PA

A new voluntary energy awareness module is now available to all Air Force.

"The module provides an overview of energy strategies of the Air Force, what actions the Air Force is taking to build energy security, and how Airmen play a significant role in energy conservation at home, at work and while conducting the Air Force mission in support of national energy goals," said Terry Yonkers, the assistant secretary of the Air Force for installations, environment and logistics. Providing Airmen energy awareness and conservation tools is a crucial way to save energy, he said.

The module will be located on the Advanced Distributed Learning Service Gateway's AFCESA site, and is accessible only to Common Access Card (CAC) users. The module contains seven parts. The first part provides an overview of the Air Force's strategy on energy security and conservation, along with why the Air Force wants every Airman to be concerned about energy. Toward that end, the remaining six sections are specific to individual interests and have tips on how Airmen can incorporate energy awareness in the performance of their duties as well as their off-duty time.

These tips will encompass areas such as optimizing aviation energy; purchasing green products, from GPC products to major weapon system acquisitions; making cross-functional governing decisions that facilitate going-green goals; and choosing the most energy and environmental conservation vehicles for ground missions.

CAC users can access the Advanced Distributed Learning Service Gateway's



An Airman takes an Energy Awareness Training course online at Hurlburt Field, Fla. (Photo by Eddie Green)

AFCESA site at: https://afcesa.csd. disa.mil/kc/login/login.asp?kc\_ ident=kc0005&blnAccess=TRUE

If you only have an ADLS account, you can add your profile to the AFCESA/ VLC site. Go to the main page of the Go Learn site and click on the ADLS Gateway on the bottom left. Then find AFCESA on the bottom list and click on the icon (not the course list). Then select "Click Ok to become a member of the AFCESA site." Click continue. You will be on the main page of the AFCESA VLC. After the account is created, you will be able to log directly into the site.

### Seminar date: February 2, 2012 1:30p.m. - 3:00p.m. Eastern

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## **NEW LIGHTING TECHNOLOGIES**

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Understand the uses and benefits of spectrally enhanced lighting (SEL) and solidstate lighting (SSL). Learn the best deployment opportunities, correct applications, project examples, and measurement and verification protocols.

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- Calculate life-cycle costs and determine design and installation feasibility options
- Measure lighting project savings and verify the benefits of your decisions
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www.femp.energy.gov/firstthursday



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### Progress for Davis-Monthan AFB 14MW Solar Array

AFCESA coordinated calls with OSD IE staff for SAF/IEN and other key parties to resolve pending issues with 10 USC 2922a, Authority Approval package provided to OSD on 12 Dec 11. Specific questions from OSD Comptroller and IE staff have been addressed. SAF/ GCN is working with OSD OGC to clear remaining legal concerns. POC: Mr. Gray, HQ AFCESA/CENR, DSN 523-6357.

#### **Revised ECIP Guidance**

OSD issued official guidance for submission of FY12 ECIP projects for Congressional Notification and the call for FY13-17 ECIP projects. The signed memorandum differs from the early December draft guidance in that it does not supersede all previous guidance, extends the suspense for FY12 and FY13 project submissions by one week to 13 Jan 12 and extends the performance data input by three months to April 2012. Also, OSD changed one of the project narrative inputs from "Strategic Planning" to "Synergistic Effect." POC: Mr. Byrnes, HQ AFCESA/CENI, DSN 523-6464.

#### New Building Life Cycle Cost Program

The Federal Energy Management Program has released the latest version of BLCC 5.3.11. The BLCC is free and required for use with all energy and water conservations and renewable energy projects. Use Version 5.3.11 for new energy and water projects and economic analyses older than 18 months. Register and download the program at: http://www1.eere.energy. gov/femp/information/cfm/register\_blcc. cfm. The BLCC software certification letter is available on the Energy CoP: https://afkm.wpafb.af.mil/DocView. asp?DocID=11016820. POC: Ms. Doornik-Surber, HQ AFCESA/CENI, DSN 523-6546.

### New Utilities Privatization RFP Template

A revised UP RFP template better describes base conditions regarding previous environmental conditions and potential for encountering unexploded ordnance during digging operations. The new template is posted on the UP Community of Practice and has been distributed to the UP Technical Support Team. POC: Mr. Soto, HQ AFCESA/CENU, DSN 523-6655.

### Utilities Privatization FY12 Defense Authorization Act

The NDAA was signed into law on 31 Dec 11. AFCESA/CENU is supporting OSD, HAF, and other Services in evaluating the changes to 10 USC, Sec 2688 (UP enabling legislation). At first glance, this NDAA does not appear to place any major restrictions or further encumbrances on the UP program. Expect more details as contracting agents at DLA Energy and 772ESS/PKH complete their assessments. POC: Mr. Soto, AFCESA/CENU, DSN 523-6655)

### Revised Water Meter Specs

AFCESA has new specifications for water utility meters. The revision details the correct communications processes and format to be compatible to Air Force meter policies. The revision is posted on Whole Building Design Guide web site http://www.wbdg.org/ccb/browse\_cat. php?c=3. POC: Mrs. Larson, HQ AFCESA/ CEOA, DSN 532-6437.

### Edwards AFB Hydropower Contract Signed

AFCESA's Utility Rate Management Team renegotiated Edwards Power Displacement Agreement with Southern California Edison (SCE) to ensure continued delivery of low cost electricity (both Western Area Power Authority (WAPA) hydropower and renewable power) to the base for ten more years. The team of AFCESA, EXETER, Edwards, SCE and WAPA worked for six months to develop the new terms of the contract, resulting in energy cost avoidance of about \$3.2M in the final agreement. POC: Ms. Coleal, HQ AFCESA/CENR, DSN 523-6295.

#### **Energy Baseline Revision**

AFCESA has been advised that the Air Force facility energy "re-baselining" package will not be submitted to OSD for FY11. We will try again in FY12. POC: Ms. Stone, HQ AFCESA/CENE, DSN 523-6556.

#### Texas base utility acquisition assessment visit

AFCESA and utility consultant, Exeter Assoc., visited Texas bases during the week of 9 Jan 12 assessing the status of utility service agreements and billing payment actions. Following bill analysis and results of the site visits, a report will be issued by April with any recommendations for improvement in utility agreements. POC: Mr. Gray, HQ AFCESA/CENR, DSN 523-6357. The Air Force Facility Energy Center Newsletter

# Net zero energy buildir makes history at Hurlburt

Ms. Amy Ausley AFCESA/CEBH

A building that generates its own energy sounds like something out of the future. But imagine, no monthly electric bills and no utility rate hikes, because the building is doing all the work on its own.

At Hurlburt Field, Fla., it's not science fiction but a reality as the new AFSOC Source Selection Facility nears completion. It's called a "net zero energy" building, and according to Base Energy Manager Chris Hood, it's the next step

in making energy a consideration in everything we do. "Energy wise, this is taking our standard construction on Hurlburt and modifying it with minor modifications to get it to a point where we get near a net zero type of energy condition."

As one of the first "net zero energy" buildings in the Air Force, it takes the Air Force's energy motto "make energy a consideration in all we do" and puts it into action through the use of modern technology and good old common sense. There is extra insulation, high efficiency heat pumps, energy efficient



The AFSOC Source Selection Facility at Hurlburt Field, Fla. is one of the Air Force's first net zero energy buildings. (Photo by Mr. Eddie Green)

windows and doors, as well as rooftop solar panels.

But officials know it takes more than just an energy efficient building to make a difference in energy intensity. All base personnel must change their habits. The goal is that people will be inspired by what they see in the new building. Mr. Hood says, "The building is designed around hosting some cultural change, so the base personnel can see how the building is performing and can use that awareness in their day-to-day operation in other buildings."

The AFSOC Source Selection Facility at Hurlburt Field is expected to be completed and in use in early 2012.



High efficiency heat pumps are just one feature used to achieve a net zero energy goal. (Photo by Mr. Eddie Green)

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The Energy Express is a publication of the Air Force Facility Energy Center, Air Force Civil Engineer Support Agency, Tyndall AFB, Fla. Please send your comments, story ideas, and photos to amy.ausley@tyndall.af.mil, DSN 523-6492.