"Make energy a consideration in all we do"

# ENERGY express

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## Air Force Energy leadership visit AFCEC energy experts

By Jess Echerri AFCEC Public Affairs

Assistant Secretary of the Air Force for Installations, Environment and Energy Miranda Ballentine and Deputy Assistant Secretary of the Air Force for Environment, Safety and Infrastructure Mark Correll recently visited with subject matter experts at the Air Force Civil Engineer Center at Tyndall Air Force Base, Florida, to discuss the future of Air Force energy.

Ballentine hosted a town hall for AFCEC personnel where she outlined her goals for facility energy in her new program, Mission Assurance through Energy Assurance, which includes continuing to meet federal mandates and bolstering installation resiliency across the Air Force.

"The program has three core principles: driving resilient energy, driving costcompetitive energy and driving cleaner sources of power," Ballentine said. "Those are all three principles we have been talking about for years at the Air Force. Now the evolution is that we are looking to bring those together."

While shifting this focus, roles within AFCEC and the larger Air Force energy enterprise will also change, Correll said. He advised base energy managers and other base civil engineers to start looking for ways to adapt to the changing strategy rather than waiting for direction from senior leadership.

"You see us bringing in some of these things that may be a little uncomfortable to you, things like the Office of Energy Assurance," Correll said. "We need to think about mission from an energy perspective. What are you doing differently?"

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Assistant Secretary of the Air Force for Installations, Environment and Energy Miranda Ballentine addresses AFCEC Airmen and staff during a town hall meeting at Tyndall Air Force Base, Florida. (U.S. Air Force photo/Jess Echerri/Released)

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• ... and more!

## Energy independence

## Otis ANGB wins \$6 million grant for microgrid project

#### By Timothy Sandland 102nd Intelligence Wing

OTIS AIR NATIONAL GUARD BASE, Mass. – Otis Air National Guard Base was recently granted \$6 million from the Defense of Department's Environmental Security Technology Certification Program, a grant that will completely transform how the base manages and uses energy.

ESTCP is the DOD's technology demonstration and validation program established to promote environmentallyfriendly projects that demonstrate the most promising innovative and costeffective technologies and methods addressing high-priority environmental requirements. Projects conduct formal demonstrations at DOD facilities and sites, in operational settings, to document and validate improved performance and cost savings.

The Otis microgrid project, the first of such a broad scope for a DOD installation, will provide for an energy capability almost exclusively based on renewable energy while also ensuring a high level of grid security.

Initially proposed by the Raytheon Corporation in February 2015, the wing won one of only a handful of grants awarded. Together, Raytheon and the 102nd Civil Engineer Squadron at Otis ANGB will serve as lead for the project, seeing it through to completion.

When complete, the microgrid will serve as a showcase for DOD, federal and community experts to learn from, said Maj. Shawn Doyle, project manager at the 102nd CES. The project will give the DOD and Department of Energy a solid test bed to understand what energy resilience and security really means. The microgrid will educate the DOD and other federal agencies through technical and economic studies that will have an impact on capital energy investment strategy for the next 20 years.

"To remain the best Air Force on the planet, we need to use our resources as productively as possible," said Secretary of the Air Force Deborah Lee James in her Air Force energy plan. "With more than 660,000 active-duty, National Guard, Reserve and civilian Airmen, a little bit from each of us can really become something very, very significant."

The microgrid will meld existing and planned power infrastructure, such as a new circuit that will connect the wind turbine located on the base. The project will also connect the soon-tobe-completed solar panel array currently under construction.

The base's existing wind turbine, acquired and managed by the Air Force Civil Engineer Center, has been in operation since 2009 and has been offsetting the energy costs associated with the Installation Restoration Program and its environmental cleanup efforts. The turbine currently functions independent of the base power system but the microgrid will bring the added value of wind power into the mix.

The project will involve the installation *continued on pg. 4* 

Wind turbine powering treatment systems like this one at Otis Air National Guard Base, Massachusetts, are planned to partially power a microgrid that will allow the installation to run off of energy produced on base. (U.S. Air National Guard photo/Released)



#### Ballentine, continued from pg. 1

AFCEC Director Randy Brown, AFCEC Energy Director David Bek and AFCEC Energy Deputy Director Lt. Col. Brian George spoke to Ballentine and Correll about how they have evolved AFCEC's role to achieve Ballentine's vision. Over the past six months, AFCEC has worked with other Air Force organizations to redesign the framework for Air Force facility energy.

"It's a journey towards energy resiliency," George said. "She was very enthusiastic to see her vision coming to life and to see the path that we're on."

Ballentine and Correll answered

questions from AFCEC Airmen in attendance and recognized personnel from AFCEC's Energy Directorate for their AFCEC and Air Force energy achievements.

"I really felt there was a genuine effort to address our concerns," said Rafael Márquez, senior AFCEC renewable energy advisor, who asked a question regarding the cost of resiliency. "Right now, we use renewable energy where it is cheaper than the electrical power provided by the grid. This need to integrate resiliency, on the other hand, may very well place the overall

cost of developing these projects above that threshold due to further robustness in design to account for energy storage, smart grids or similar dynamics. Her guidance was fairly clear in that her expectations are for us to propose what that incremental value is, based on the needs of each installation. This is a very interesting concept and a considerable change in the approach we have conventionally employed in developing renewable energy opportunities. I'm excited with this new guidance and I can't wait to see how it will play out."

The answer Marquez received from Ballentine mirrors the vision she and AFCEC leadership share for AFCEC's future energy role.

"We are now in a period of transition where we need a more enterprise approach to problem solving," she said. "AFCEC is going to be a critical organization to look enterprise-wide and to deliver enterprise-wide solutions whether that is in energy efficiency, deploying renewable energy projects or deploying microgrid projects."

### Robins' first Energy Conservation Award

Laura Fuder, a financial analyst at the Air Force Civil Engineer

Center, asks Assistant Secretary of the Air Force for Installations,

Environment and Energy Miranda Ballentine a question during

a town hall meeting hosted by Air Force energy leadership Dec.

17. (U.S. Air Force photo/Jess Echerri/Released)

by Jenny Gordon *Robins Public Affairs* 

ROBINS AIR FORCE BASE, Ga. – The 402nd Electronics Maintenance Group has been awarded the inaugural Team Robins Energy Conservation Award. It was given during a quarterly meeting Tuesday of the Energy Management Steering Group.

Nominations, in what will become an annual award, began last September, and were judged on details, employee engagement, sustainability and transferability. The competition is intended to highlight organizational energy and water conservation achievements.

The group's energy management program includes tracking energy consumption through the use of 67 data logger devices located throughout Bldg. 640 and 645. This provides a detailed view of where and how energy is consumed. Other efforts included turning off lighting and production equipment when not required for use; routine messages and reminders displayed through an extensive network of computer monitors; and dedicated personnel for managing and adjusting HVAC systems and turning off equipment loads.

Overall savings included an average weeknight reduction



Rodney Selman, 402nd Electronics Maintenance Group facilities electrical engineer, downloads data from a circuit monitor. Data analysis has shown that the efforts of the shop level workforce resulted in about 750,000 kilowatt hours in savings last year. (U.S. Air Force photo/Tommie Horton/Released)

of 13.88 percent from average daytime usage; 25.69 percent reduction on the average weekend; and 31.62 percent reduction on the average holiday. This resulted in 750,000 kilowatt hours in savings during the last year.

Accepting the award was Col. Robert Neal, 402nd EMXG commander; Todd Sappe, Engineering Branch director; and Shelby Jennings, general engineer.



#### Otis, continued from pg. 2

of a solar array that will be purchased built, and maintained at no cost to the government. A thirdparty developer will assume all costs and the base will purchase the inexpensive electricity the array produces. When the project is completed, the array will also be tied into it.

The third piece of the project is the installation of a high-capacity storage battery. The massive battery will provide the capability to store power for use on still or cloudy days when the turbine or solar array are not as effective. The battery will enhance the strength of the system, providing a stable power source.

A consistent and stable power supply is vitally important for supporting mission requirements at the wing. Exisiting backup generators located at separate buildings throughout the base will be integrated into the system to protect from outages. These generator only requires some modifications to be incorporated into the system and, when integrated, will also be capable of charging the microgrid's storage battery.

A control system will integrate all of the assets and allow for smart and automatic switching and routing of energy. When all segments of the microgrid are tied in, it will be able to intelligently switch between the power sources to provide stable energy in the most efficient way possible.

"With renewable energy you get many peaks and troughs," Doyle said. "There are times when it is not too windy or the sun is not shining quite enough – accommodating the variable renewable input is what the control system is for."

Now that the grant has been awarded, planning can proceed. Electrical engineers and other experts from the 102nd CES and Raytheon will join with their counterparts from the U.S. Army Corps of Engineers and others through ESTCP to design and implement the project over the coming months.

When functioning at full capacity, the microgrid will allow the base to be self-sufficient in terms of power – a capability that represents a high-degree of security accomplished with 100-percent renewable energy. Cutting energy costs during a time when limited resources demand the military spend its dollars more efficiently and effectively.

There are environmental benefits in addition to cost savings. Reducing reliance on fossil fuels by utilizing renewable energy sources such as the sun and wind will ensure the stress on the earth's finite resources are minimized.

Earlier this year, the President signed an executive order mandating that all federal departments and agencies ensure that 25 percent of electric energy consumed comes from renewable sources. The microgrid will ensure that goal is not only met at Otis ANGB, but exceeded well before the required year of 2025.

The project is slated to start construction in 2017.

and save about \$1

million annually.

funded through a power

purchase agreement.

# Air Force, Navy enhance grid's energy resiliency



By Breanne Smith AFCEC Public Affairs

JOINT BASE SAN ANTONIO-LACKLAND, Texas — The Departments of the Navy and Air Force marked the beginning of construction for three large, utilityscale, solar electric generating facilities in Florida during a joint-groundbreaking ceremony at Naval Air Station Pensacola, Florida, Dec. 16.

The projects, which are planned for NAS Pensacola, NAS Whiting Field and Eglin Air Force Base, are a result of public/privatesector collaboration between the services and energy developer Gulf Power.

"Industry is a powerful tool," said Col. Anthony Higdon, deputy director for the Air Force Civil Engineer Center. "Leveraging our assets against industry needs is a collaborative approach that's crucial to mission readiness."

AFCEC is leasing 240 acres of underutilized, non-excess land at Eglin using an enhanced use lease. In return for use of the land, Gulf Power will complete a number of infrastructure upgrades for the base.

The solar EUL project at Eglin is the

installation's fifth revenue-generating lease executed by AFCEC.

"We have brought in millions of dollars through the EUL program that have funded about 60 pay-in-kind projects around the installation that would not have occurred otherwise," said Glenn Wagner, a realty specialist at Eglin.

To date, the Air Force has received \$79.7 million from AFCEC's value-based real estate transactions and expects to earn an estimated \$258 million throughout the life of each project, based on net present value.

In addition to offsetting budget constraints, the EUL program has the potential to fill an emerging need as the Air Force intensifies its focus on improving energy assurance.

"Resilient, cost-effective, cleaner power is more important than ever for the Air Force," said Miranda Ballentine, assistant secretary of the Air Force for installations, environment and energy. "By ensuring the resiliency and adaptability of our energy resources, by developing flexible approaches to funding, by increasing our inclusivity through strategic partnerships

- we can develop innovative solutions

that provide mission assurance through energy assurance."

While the in-kind return for Eglin's solar EUL includes infrastructure upgrades to enhance energy resiliency, as well as replacement of a substation switcher and transformer, AFCEC's real estate team is further grooming the EUL program to serve as another platform to improve energy security for critical Air Force missions.

"The needs of each installation are unique," Higdon said. "By combining the expertise of our energy and real estate professionals, we can evaluate energy opportunities across the service and determine the best method to boost base resiliency through energy security."

Left: Airmen, Sailors and Gulf Power associates involved with the joint-service enhanced use lease pose for a picture at the groundbreaking ceremony at Naval Air Station Pensacola, Florida, Dec. 16. Center: Cmdr. Steven Oren salutes an ensign during the presentation of the colors. Right: Col. Matthew W. Higer, vice commander of the 96th Test Wing at Eglin Air Force Base, Florida, addresses the audience at the groundbreaking ceremony. (U.S. Air Force photos/Jessica Echerri/Released)



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Please send your comments, story ideas and photos to afcec.pa@us.af.mil.



AFCEC Director Mr. Randy Brown
AFCEC Deputy Director Col. Anthony A. Higdon
Director of Energy Mr. David Bek
Public Affairs Mr. Mark Kinkade
Editor Ms. Jessica Echerri
Graphic Designer Ms. Jessica Echerri