

"Make Energy a Consideration in All We Do"

ENERGY express

The Air Force Facility Energy Center Newsletter

July/August 2011

Strengthening Partnerships with the Renewable Energy Industry

*Ms. Jennifer Elmore
AFCESA/CEBH*

The Air Force Renewable Energy Symposium held the end of June in Tucson, Arizona, provided industry members a chance to learn about opportunities to partner with the Air Force to increase the use of renewable energy on installations across the United States.

It's the second time the Air Force and industry have come together to engage in an open dialogue and identify productive, affordable methods for maximizing the value of renewable energy on Air Force installations.

"Industry brings unparalleled expertise to our renewable energy efforts, and it is an expertise the Air Force cannot do without," said Ms. Debra Tune, principal deputy assistant secretary of the Air Force for installations, environment, and logistics.

Last year, U.S. Government Accountability Office officials found that all 34 of the DOD's most critical assets require electricity continuously to support their military missions, and 31 of those assets rely on the commercial power grid. Renewable energy lowers the probability that the Air Force will be without energy when it needs it most. Today, the Air Force operates 85 renewable energy projects on 43 bases with 30 megawatts of power capacity. An additional 31 projects are currently underway or slated for construction.

Air Force engineers have made significant headway in the six months since the last meeting, held in Irving, Texas, with renewable energy industry experts. Following that meeting, Mr. Terry Yonkers, assistant secretary of the Air Force for installations, environment, and logistics, tasked the Air Force energy team to develop a specific plan to create projects over the next three years that would add 1,000 MW of renewable generation to the Air Force portfolio. Members of the Air Force Civil Engineer Support Agency and the Air Force Real Property Agency have worked together to develop the plan.

AFCESA specialists also issued three Requests for Information for small wind, geothermal, and small solar projects. More than 60 companies responded.

"We're excited about the response we got for the small wind Request for Information," said Mr. Ken Gray, AFCESA's Rates and Renewables Branch chief. "We got good coverage across industry and some good concepts. We're working on pilot demonstrations for vertical axis turbines. We haven't concentrated on those in the past because we knew it was harder to make the economics work."

Geothermal well exploration incurs major costs for the Air Force and energy industry. "We've had some firms that identified themselves to us that are willing to finance and do some of the well

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This 1.5MW Fuhrlaender wind turbine at the Massachusetts Military Reservation provides 30 percent of the electricity needed to power groundwater cleanup systems used by the Air Force Center for Engineering and the Environment. Two additional wind turbines are under construction and are expected to be online in September.



Ms. Debra Tune, Principal Deputy Assistant Secretary of the Air Force for Installations, Environment, and Logistics, speaks at the Renewable Energy Symposium.

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exploration work and will cover the costs," Mr. Gray said.

Over the next three months, Air Force officials plan to issue RFIs to collect information on woody biomass, large solar, and waste-to-energy (municipal solids) technologies.

Air Force engineers are working with specialists at the Idaho National Laboratory to drill a well at Mountain Home Air Force Base, Idaho.

"We've also been very engaged in ground source heat pumps for some time and we continue to make significant effort to develop those and put them into place," Mr. Gray said.

AFCEA experts are working with Air Force Research Lab engineers to create a database to document and categorize technologies that need research, development, and evaluation versus those that are fully vetted. Mr. Gray says this effort could be used throughout the DOD.

"Instead of wondering how to get your new technology into the Air Force so that it can be used, we can refine the time that you will spend calling or visiting multiple offices," he told members of industry. "We can direct you to a single office at AFRL that would be your initial starting point."

Air Force officials hope the symposium will help dispel the belief that it's often difficult to do business with the govern-

ment and is asking industry to identify the contracting roadblocks.

"I can tell you we have the committed senior leadership of the Air Force that can help change that," Ms. Tune said. "I don't want you to walk away thinking we're never going to get there, because we will and we can. We have proven that in the past, and we will prove it in the future."

The symposium was hosted by officials with the Secretary of the Air Force Office for Energy; the Office of the Air Force Civil Engineer; Davis-Monthan AFB, Ariz.; the 309th Aerospace Maintenance and Regeneration Group; and AFCEA.

Don't Miss "Air Force Day"



AFCEA will host the Air Force Facility Energy Training Workshop, more commonly known as "Air Force Day," in conjunction with the GovEnergy Conference on Thursday, August 11, 2011 at the Millennium Hotel Cincinnati, 150 West Fifth Street, Cincinnati, Ohio. This is a closed (Government Only) meeting limited to military, federal civilians, and direct contract support personnel such as REMs or other contractor personnel assigned to a specific MAJCOM or base. Early registration is recommended. To register, please send your name and base/organization to: Ebony Payton, ebony.payton@tyndall.af.mil or call (850) 283-6236, DSN 523-6236.

AFERS Bolsters Energy Analysis Program

Ms. Christine Walker
AFCEA/CGBH

If experts were constructing your home, you'd expect them to use the best tools and avoid mistakes that would compromise the integrity of the structure and add to your costs. The same expectations apply to the experts responsible for building sustainable installations for the Air Force.

Accurate energy consumption data is a critical element in this building process. One small error can affect every aspect of a project, which is why the Air Force is replacing a 30-year-old data collection system with an interim bridging solution.

The team of energy program analysts at the Air Force Facility Energy Center,

located at AFCEA, must have accurate data to evaluate and make decisions on energy-saving projects. The Air Force Energy Reporting System, known as AFERS, has replaced the Defense Utility Energy Reporting System as an interim system between DUERS and Air Force Civil Engineering's future information technology system, "NexGen IT."

Ms. Jaika Stone, AFCEA energy project analyst, says AFERS is a new software platform for energy consumption data. It collects the same data from the same sources but collects it in a single modernized repository. Energy program analysts will no longer have to spend time gathering and analyzing base, major command, and AFCEA data from different locations; instead they will analyze it all in one location.

Story continued on page 3.

Renewable Energy Case Study

Two New Wind Turbines Going Up at the MMR

Ms. Rose Forbes, P.E.
AFCEE/EXE/MMR

Hazardous waste and groundwater contamination clean-up efforts underway at the Massachusetts Military Reservation (MMR) require a lot of energy. The environmental initiative is jointly funded by the Air Force and the Army. The MMR is located above a relatively fast-flowing, sole source aquifer that radiates in all directions from a point near the eastern border of the facility. Past fuel leaks, disposals, fire training, and wastewater operations have caused numerous large, contaminated groundwater plumes that have migrated beyond the MMR boundaries into the surrounding communities. In some cases, municipal and private water supply wells were affected.



In the 1990s, the Air Force Center for Engineering and the Environment (AFCEE) identified 80 potential hazardous waste sites and numerous areas of groundwater contamination. Since then, AFCEE has used nine groundwater cleanup systems to clean more than 13 million gallons of contaminated groundwater a day. AFCEE is conducting the cleanup and has provided replacement water supplies for the surrounding towns while depending on electricity generated by the New England energy mix, which includes fossil fuel based energy. AFCEE set out to green the remediation efforts by installing a 1.5MW Fuhrlaender wind turbine in 2009. The cost of the \$4.6 million project was split between the Air Force and Army. CH2M prepared the constructability and environmental assessments and conducted the Title II oversight. Environmental Chemical Corporation was awarded the construction contract.

At a 29 percent capacity factor, the AFCEE wind turbine creates about 3,810 MWh of power annually while producing green energy. Presently about 30 percent of the electricity for the treatment plants is being generated from the wind turbine. Cost benefits are still being calculated, but recent estimates indicate the AFCEE wind turbine will save the program about \$500,000 per year. The project's return on investment is approximately seven years.

AFCEE is currently installing two additional wind turbines and expects to have them online in September 2011. CH2M prepared the constructability and environmental assessments and is conducting the Title II oversight of the project. ECC was awarded the design-build contract. Each of the two new 1.5 MW GE wind turbines will be nearly 400 feet tall. This latest project will cost a total of \$9.62 million, which includes the two turbines and building a substation to tie them into NStar's transmission lines. The new turbines will be located in the northern portion of the 22,000-acre base near the 6th Space Warning Squadron's PAVE PAWS radar station.

Eventually, the three AFCEE turbines will put enough energy into the regional electricity grid to cover 100 percent of the energy costs incurred by the Air Force and Army for cleaning up plumes of polluted groundwater created by the military's past uses of the land.

AFERS *Continued from page 2.*

"Now we can use that time to really dig into analysis, verification, and validation of the data, and with the same amount of manpower, we can present a product with more credibility and veracity," said Ms. Stone.

By having more precise data, AFERS will give the team of energy analysts an efficient tool for viewing the data more quickly. A typical report that would take two days to generate from a DUERS report will now take just a few hours with AFERS. Mr. Rick Weston, with AFCEE's Conservation Branch, said the real struggle for so many years has been the gathering phase, but now the energy team can quickly get into the more important phase of analysis and put more focus on finding energy project opportunities. AFERS will bolster the process for analysts to efficiently find the areas where energy is consumed and highlight where the Air Force can get the most return on its investment.

"There's less opportunity for error, because you're drawing information directly out of the system instead of having to read data off the screen and manually type it into a different system. Analysts can just go to the AFERS system, find the reports and begin analyzing," said Mr. Weston.

AFERS is expected to save the Air Force money and help build a more sustainable future.



Luke AFB hosted an energy fair in April and attracted 500 people. This is the team who helped organize the event: Luke Energy Manager MSgt Russ Fowler, TSgt Tommy Harris, Lt Amanda Frey, TSgt Rich Vera, and TSgt Brian Scott.



Spotlight on Success



Davis-Monthan AFB PV Array Closer to Reality

Davis Monthan AFB awarded a 14MW photovoltaic array project to Sun Edison on 10 Sep 10. Notice to proceed for construction requires lease signature (in process) and SAF determination to allow competitive sourcing under 40 USC 591 based on utility power reliability. SAF-GCN, in coordination with the project team, redirected approval to use the 10 USC 2922a authority and has action to move this approval package to OSD for action. (Mr. Gray, HQ AFCESA/CENR, DSN 523-6357)

Geothermal Test Drill Underway at Mountain Home AFB

The Air Force has partnered with the Department of Energy and Utah State University to drill a 6,000-foot geothermal test well at Mountain AFB, Idaho, in hopes of finding a natural source of hot water that can be used to produce electricity. The research project may allow the Air Force to create its first geothermal power plant. Drilling began in June. Completion is expected by September.

Energy Audit Results now in the DOE Compliance Tracking System

The Air Force has completed energy audits on 49 percent of all Air Force installation gross square footage. The Sustainable Infrastructure Assessments (SIA) incorporate the remainder of the energy audits, and FY11 SIA awards are in negotiations. FY12 SIAs are currently planned for straddle bids at the end of this fiscal year. (Mr. Weston, HQ AFCESA/CENE, DSN 523-6302)

Water Distribution Leak Detection ETL

AFCESA published ETL 11-22 on 21 Jun 11, and is beginning the internet review process to obtain approval for posting on the AF Portal and Whole Building Design Guide. The ETL provides guidance and example statements of work for water leak detection on water distribution lines to assist in Air Force water conservation efforts. (Ms. Larson, HQ AFCESA/CEOA, DSN 523-6437)

Utilities Reporting for Air Force Facilities ETL

AFCESA has released ETL 11-6 for publication. The ETL, which standardizes utilities reporting across the Air Force, is available on the Air Force Facility/Energy Program Community of Practice. (Mr. Weston, HQ AFCESA/CENE, DSN 523-6302)

Wright-Patterson AFB Negotiates Utility Discount

The Public Utility Commission of Ohio has approved a discounted electric rate agreement between Wright-Patterson AFB and Dayton Power & Light. The 42-month agreement provides a 10 percent discount on existing 69MW base loads and applies a 25 percent discount to all new loads, estimated at 20MW. The discount is valued at about \$1M annually relative to competitive supplies. AFCESA/CENR supported the rate development. (Mr. Fillman, HQ AFCESA/CENR, DSN 523-6265)



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