

"Make Energy a Consideration in All We Do" energyexpress

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AFCEC conference 'energizes' MAJCOM representatives

*By Kevin Elliott
AFCEC Public Affairs*

Representatives from all Air Force major commands gathered at an energy conference here Aug. 5-7 to discuss the future of the service's energy program and showcase some of the latest energy conservation and production opportunities available across installations.

The conference, held by the Air Force Civil Engineer Center's Energy Director-

ate, was the first in-person gathering of major command energy representatives at AFCEC in two years.

"It was a great exchange," said David Bek, director of AFCEC's Energy Directorate. "It was beneficial to be able to look at each other, to speak and engage, and work through a number of topics. The conference was very successful."

"Meeting in-person provided many benefits," said Dan Gerdes, chief of the direc-

torate's rates and renewables division.

"There was a tremendous amount of really good cross-feed at the conference," Gerdes added. "We got to see lots of new faces, get them up to speed and anchor them in what is going on."

One of the ongoing programs at the energy directorate that was highlighted is the Advanced Meter-Reading System, or AMRS, that allows bases to accurately

STORY CONTINUED ON PAGE 4



Representatives from most of the Air Force major commands convened at Tyndall Air Force Base Aug. 5-7 for the first in-person Energy conference with MAJCOM reps in two years. (U.S. Air Force/Kevin Elliott/Released)

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Wind eliminates AF water cleanup power bill at JBCC

By Kevin Elliott
AFCEC Public Affairs

A major environmental cleanup effort that used to cost the Air Force as much as \$2.5 million per year in utility expenses is now offset completely by renewable energy.

Three wind turbines at Joint Base Cape Cod, Mass., or JBCC, power equipment used to purify groundwater that was contaminated through nearly a century of activity at the base.

The massive remediation project is led by the Air Force Civil Engineer Center, which has spent nearly two decades cleaning up the site. The project currently uses 4,300 monitoring wells, 27 miles of pipeline and nine water treatment plants to clean a dozen groundwater contamination sites, both on and off the base. This equipment requires tremendous amounts of energy that amounted to, at its peak, a \$2.5 million annual power bill for the Air Force.

One reason for the expense is Massachusetts' geography.

"Massachusetts doesn't have its own natural gas resource, nor does it have hydroelectric, so it has to import a lot of those energy sources into the state," said Rose Forbes, AFCEC program manager at JBCC and originator of the plan to use renewables to power the remediation. "Our cost per kilowatt hour is one of the highest in the nation."

The energy used for the cleanup came with an environmental cost as well.

"Here we are cleaning up the groundwater, but where is that power coming from? It's coming from fossil-fueled power plants like coal-based or oil-based, and we were using that energy and indirectly polluting the air," Forbes said.

This high cost and indirect pollution problem led AFCEC to consider renewable energy, particularly wind turbines, as a solution.

It took five years, but AFCEC's idea to add a wind turbine on the installation became reality in 2009. This first turbine offset approximately 25 to 30 percent of the cleanup's power needs. It was so successful that a few years later, Forbes oversaw efforts to build two more. Today, the three turbines provide 100-percent of the power needed for environmental remediation at the site.

The contamination at JBCC stemmed from almost a century of military activity at the installation, which was previously

known as the Massachusetts Military Reserve. During World War II, it was home to more than 70,000 military personnel and, at that time, people didn't understand how their actions affected the environment.

"There weren't any laws in place for the proper handling of those materials, so when you had oil or fuel that you didn't need any more, you would put it in the drains or bury it in the landfills," said Douglas Karson, AFCEC community involvement lead at JBCC.

Because of Cape Cod's sandy soil, rainwater washed pollutants into the aquifer hundreds of feet below. Once there, they were carried along with the underground

"Here we are cleaning up the groundwater, but where is that power coming from?"

-Rose Forbes



A massive groundwater cleanup effort at Joint Base Cape Cod, Mass., is now powered completely by three wind turbines located on the base. (U.S. Air Force photo/Eddie Green/Released)

Air Force Renewable Energy Projects



LANDFILL GAS



WIND



SOLAR



WASTE TO ENERGY

Projects in Operation (> 1 MW)

	Megawatts
1 Nellis AFB, NV (14.2 PPA, .5 Gov't.)	14.7
2 Davis Monthan AFB, AZ (PPA)	16.4
3 JB Cape Cod, MA (Gov't.)	7.9
4 USAFA, CO (6 PPA, .5 Gov't.)	6.5
5 Edwards AFB, CA (PPA)	3.0
6 FE Warren AFB, WY (Gov't.)	3.3
7 Hill AFB, UT (Gov't.)	2.2
8 Burlington ANGB, VT (Gov't.)	1.5
9 Buckley AFB, CO (Gov't.)	1.0
10 JBEB, AK (UP)	7.0

Projects in Development (> 1 MW)

	Megawatts
11 JB Cape Cod, MA (PPA)	6.0
12 Nellis AFB, NV (PPA)	19.0
13 Vandenberg AFB, CA (PPA)	20.0
14 JB McGuire-Dix-Lakehurst, NJ (PPA)	10.0
15 Laughlin AFB, TX (PPA)	10.0
16 Hanscom, AFB, MA (PPA)	10.0
17 Holloman AFB, NM (PPA)	3.1
18 Dyess AFB, TX (PPA)	5.4
19 Sheppard/Goodfellow AFBs, TX (PPA)	6.0
20 JB San Antonio, TX (EUL)	4.5
21 Luke AFB, AZ (EUL)	10.0
22 Robins AFB, GA (EUL)	10.0
23 JB McGuire-Dix-Lakehurst, NJ (EUL)	30.0
24 JB McGuire-Dix-Lakehurst, NJ (EUL)	18.0

PPA = Power Purchase Agreement EUL = Extended Use Lease UP = Utilities Privatization

current as of Aug 11, 2014

created by AFCEC PA



The Air Force has renewable energy projects in operation and in development across the United States. This graphic shows all current projects, their megawatt capacities, contract arrangements, and type of renewable energy they utilize. To download this graphic or learn more about Air Force renewable energy efforts, follow this link to the AFCEC Renewable Energy web page: <http://www.afcec.af.mil/energy/renewableenergy/index.asp>

Wind eliminates

CONTINUED FROM PAGE 2

current creating a "plume" of contamination that, in some cases, drifted beyond the borders of the base.

Once the contamination was detected, the Air Force took action to remediate affected areas, paying not only for the cleanup but also to transfer homeowners living near the base off of possibly polluted private wells to municipal water supplies.

Much progress has been made in cleaning up the site over the past two decades, Karson said.

"We are happy this program has managed to get to this point," he said. "We're certainly not done with the work that needs to be done here but we have the systems in place. We've taken proactive steps to protect human health, which is our number one priority. The future looks very, very good."



The view from inside one of three wind turbines at Joint Base Cape Cod, Mass., that are used to power groundwater purification equipment. The electricity generated by the turbines is enough to totally offset the project's annual power bill, as much as \$2.5 million at its peak. (U.S. Air Force photo/Eddie Green/Released)

AFCEC conference

CONTINUED FROM PAGE 1

monitor energy usage on a per-building basis. This accuracy enables base energy managers to better track energy consumption and target savings. AMRS team lead Paul Carnley walked major command attendees through a Tyndall building where the technology is implemented to great effect.

"We were able to show what the system does, what the capabilities are and how it can be expanded in the future to standardize the operating platform across the Air Force," Carnley said. "This was one of the more productive conferences we've had."

In-person demonstrations of new technologies are important not only to show program effectiveness to stakeholders from around the Air Force, but also to bolster enthusiasm for the other opportunities AFCEC has to offer bases, Bek said.

"We want bases to be thinking, 'Where can we implement conservation and production measures to strengthen our

ability to meet our mission and do it in a cost-effective manner?'" Bek said. "AFCEC is in a position to help the installations achieve those energy conservation opportunities."

Helping bases accomplish their missions through energy innovation was a consistent theme of the conference. Decisions

feedback and having their questions answered, MAJCOM representatives ensure

Air Force energy programs are a good deal for our installations and worth the investment of time and effort."

"We want to make sure the bases understand that energy conservation and

"We want to make sure the bases understand that energy conservation and production are very important pieces of their overall strategy,"

-David Bek, Energy Directorate

to pursue energy projects are made at the base level, and conference leaders emphasized to base energy managers that AFCEC has all the tools to help. "People (at the bases) are very busy and they are asking, 'Why would I want to do this?'" Gerdes said. "By being at the conference, giving and getting personal

production are very important pieces of their overall strategy," Bek added. "The conference was instrumental in gaining an understanding of the current way the center and the MAJCOMs interface and encourage base energy conservation activity."

Power the Force. Fuel the Fight.



October is Energy Action Month!

Are you ready? Led by the office of the Assistant Secretary of the Air Force, Installations, Environment and Logistics, EAM is an Air Force-wide campaign to raise awareness about and action for energy efficiency and conservation at bases around the world. From massive renewable projects conducted by AFCEC

to Airmen turning out the lights when they leave the room, everyone can take part. For more information about EAM and to find tips for how you can save energy, follow this link: <http://www.safie.hq.af.mil/energy/action/energyactionmonth/index.asp>



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