

energyexpress

“Make Energy a Consideration in All We Do”

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Airmen compete and we all win

by Elisa Shyu
Air Force Energy Office

Airmen at Kirtland Air Force Base, N.M., last year competed against each other to see who could have the most energy-efficient dorm reducing energy consumption 15 percent. Meanwhile, Air Mobility Command awarded Fairchild AFB \$100,000 for implementing more energy-efficient flight routing and incorporating biodiesel in ground vehicles. In all, 14 bases or MAJCOMs held competitions to drive Airmen to become more energy efficient and reward their success.

With Energy Action Month approaching the Air Force Energy Office (SAF/IEN), led by Dr. Kevin Geiss, Deputy Assistant Secretary for Energy, wants to encourage more MAJCOMs and installations to execute similar efforts. Over the summer, SAF/IEN personnel reviewed data from last year's competitions, identified five types and created step-by-step instructions to make implementing them easy.

Awareness Competitions

The primary objective of awareness competitions is to increase the energy awareness of internal and/or external audiences. Awareness competitions do not focus on an energy saving/avoidance metric as a measure for success, instead, success is gauged by the level of participation. Awareness competitions incorporate energy messaging into promotional and engagement efforts.

There are two types of awareness competitions: Public Polling Competitions include drawing or essay contests and Group Event Competitions like fun runs or electric bike races that draw broad attention to energy as a priority.

Bring-In-A-Device Competitions

As the name implies, these competitions encourage participants to bring in an energy consuming item that is either inefficient or unnecessary. Success of a Bring-In-A-Device Competition is not only gauged by the number of active participants or items brought in, but also by the measured levels of energy cost savings or avoidance. Winners of the competition are determined through objective measures of greatest energy impact.

Facility-v-Facility Competitions

Facility-v-Facility Competitions track the level of energy consumption between facilities of similar size, composition and mission. The facility that saves the greatest amount of energy wins. These competitions educate and teach Airmen ways to save energy and show them the impact they can have on base energy consumption.



Col. Juan Gaud (left), 66th Air Base Group deputy commander, accepts an award for Highest Average Energy Intensity from Tom Schluckebier, base civil engineer. Although the air base group recorded the highest energy usage across the base, they were also recognized as the “Biggest Loser” for lowering their energy consumption during the Hanscom Energy Reduction Competition in 2011. (U.S. Air Force photo/Rick Berry)

Job Specific Competitions

Job-Specific Efficiency Competitions incentivize Airmen to optimize their performance and efficiency by measuring and comparing energy use across a range of job functions. Metrics collected directly relate to the Airman's ability to accomplish his or her piece of the mission in the most efficient manner. Innovative Airmen are also recognized by their leadership and their best practices shared with colleagues to improve overall performance.

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Air Force showcases hot technologies on “cool” roof

by Jennifer McCabe
AFCEC Public Affairs

Engineers say there is no metal roof in demonstration anywhere in the Air Force that will have the impact of what has been installed at Goodfellow Air Force Base, Texas.

“This project has captured a lot of attention because it’s a step in the right direction for the Air Force in becoming more energy dependent,” said 2nd Lt Joseph Buyer, a civil engineer with the 17th Civil Engineer Squadron at Goodfellow.

A year of data collection is nearly complete on the integrated roof system on the Security Forces building. The metal-over-metal retrofit integrates cool roofing, solar-power generation, solar thermal, above-sheathing ventilation, and rainwater catchment into one holistic system.

“The water is collected and drained into a 10,000 gallon tank. With about two inches of rain, which is about what we get here with any given storm, that tank is completely full,” said Lt. Buyer.



Roofing technology description

- Structural purlins were installed over the existing metal roof.
- Additional insulation, using rigid insulation board, was placed over the existing roof to meet the current code requirements.
- A waterproof roof underlayment was then applied over the insulation.
- A radiant barrier was installed over the underlayment.
- An integrated solar thermal system using a closed-loop tubing array with a water/glycol mix heat-exchange medium was installed over the radiant barrier to optimize the heat transfer.
- The thermal purlin used to position the solar thermal system tubing is configured to allow for above sheathing ventilation (convective cooling) to take place from the eave to the ridge.
- Panels of 24-gauge standing-seam metal roofing, pre-painted with a polyvinylidene fluoride cool coating, were laminated with a thin-film PV system and then installed directly over the solar thermal system.



GOODFELLOW AIR FORCE BASE, Texas -- A one of its kind roof here is attracting national attention. Six sustainable technologies installed atop the base's security forces building reduces the utility bill, produces energy and captures rainwater for irrigation. (U.S. Air Force photo/Eddie Green)

The Department of Energy’s Oakridge National Lab is collecting data on heat transfer, energy output from the photovoltaic panels and water usage. According to Goodfellow Base Energy Manager Mary Lumsdon, preliminary numbers show a 44 percent reduction in energy consumption.

“We were very excited to have been selected to have this project completed on our installation,” said Lumsdon. “This project is a combination of several technologies coming together to aid in our goal of energy reduction and develops our on-base renewable energy sources. Goodfellow continues to strive to be a leader in energy reduction.”

Air Force Civil Engineer Center Energy Engineer, Mike Giniger, says this pilot project could be just the beginning.

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Meter contract extended through 2013

by Jennifer McCabe
AFCEC Public Affairs

A five-year effort to plan, coordinate and install complex advanced meter reading systems at major Air Force bases has reached a critical point in its timeline. The Government Services Administration has granted the Air Force Civil Engineer Center a contract extension beyond Sept. 5, 2013 to Dec. 31, 2013, giving the Air Force four additional months to receive and accept AMRS equipment.

AMRS will provide enterprise tools to monitor and manage energy consumption in order to operate buildings as efficiently as possible and identify potential energy-saving opportunities. The systems will provide critical information required by the Energy Independence and Security Act of 2007.

Acceptance testing conducted in June identified several vulnerabilities. According to AFCEC AMRS Program Management Office Chief, Paul Carnley, "The contractor (Benchmark Construction Incorporated and TolTest) is working to plug those holes and ensure the fixes do not break other parts of the software package."

Carnley plans to send the package to the office of the Air Force Civil Engineer in mid-September and receive authority to operate. Once granted, the first two systems will be deployed at Beale AFB, Calif., and Altus AFB, Okla.



This electric meter is one of thousands across the Air Force that will be hooked to an advanced meter reading system this year. AMRS will provide enterprise tools to monitor and manage energy consumption in order to operate buildings as efficiently as possible and identify potential energy-saving opportunities. The systems will provide critical information required by the Energy Independence and Security Act of 2007. (U.S. Air Force photo/Eddie Green)

All bases under contract have had site assessments completed.

"The contractor went to the bases and gathered information on the meters, their location, the network and details such as whether the meters need radios or can use the local area network," said Carnley. "So far, the contractor has submitted four designs to the government for approval." Carnley urges bases to review designs as quickly as possible and give comments back to AFCEC.

The contractor is developing a schedule recovery plan to complete the remaining bases by Dec. 31st. If funding allows,

AFCEC can add the bases that were de-scoped by sequestration. There are also two 20-base options available in the contract that can be awarded as long as the contract is still active. They would cost an estimated \$7.5 million and \$9.7 million.

"We're doing everything we can to exercise these options before the contract ends at the end of the calendar year," explained Carnley. "The Air Force will have to go back into the acquisition process, which can take 18 months, and prices will likely rise significantly."

Cool roof...

STORY CONTINUED FROM PAGE 2

"We want to exceed our energy conservation goals and our renewable energy goals, but we also want to be the visionary and driver of getting new technologies into our facilities.

"Incorporating a number of technologies can be a difficult process but through teamwork and proper planning it's actually an attainable goal," said Lt. Buyer.

The Department of Defense Environmental Security Technologies Certification Program paid for the Goodfellow roof project. The ESTCP provides grants to industry to demonstrate sustainable products and systems aimed at meeting DOD's energy and water conservation goals.

The National Defense Authorization Act passed in 2007 requires DOD to produce or procure 25 percent of all energy from renewable sources by 2025. In addition,

the federal government has mandated DOD institute a 30 percent energy-use reduction on its properties by 2015 and another 37.5 percent reduction by 2020.

AFCEC releases 2012 Facility Energy Almanac

by Ken Walters
AFCEC Energy Engineer

Every year, we are required to report our progress towards meeting the major goals and mandates associated with various laws and orders: EPAAct05, EISA07, USC2911, EO13514 and so on. The Air Force's Annual Energy Management Report (AEMR) to Congress is our official reporting venue, and Air Force installations, major commands and the Air Force Civil Engineer Center expend considerable effort towards entering the needed data to generate the Air Force-level results. Yet, there exist some inherent weaknesses in the AEMR processes that create inaccuracies, generate only macro-level results and potentially lead to false conclusions. Specifically:

- 1) The congressionally mandated timeline for reporting forces the Air Force to use estimated data for much of the fourth quarter.
- 2) There is significant opportunity for error in reporting 300,000 data elements. The mechanics for AEMR submission require the Air Force to pull data from the Air Force Reporting System (AFERS) to populate two separate and distinct spreadsheets (FEMP's Greenhouse Gas Workbook and OSD's Supplemental Workbook) that often contain similar data, but in different formats or units.
- 3) The AEMR's sole purpose is to communicate how the Air Force is performing against set goals. It is not an analysis tool.

The AEMR serves its purpose as a one-time snapshot of Air Force-level progress towards meeting federal goals. But, what about leveraging that same data to provide installation-level facility energy results? The 2012 Facility Energy Almanac, now available on the AFCEC Energy SharePoint site,

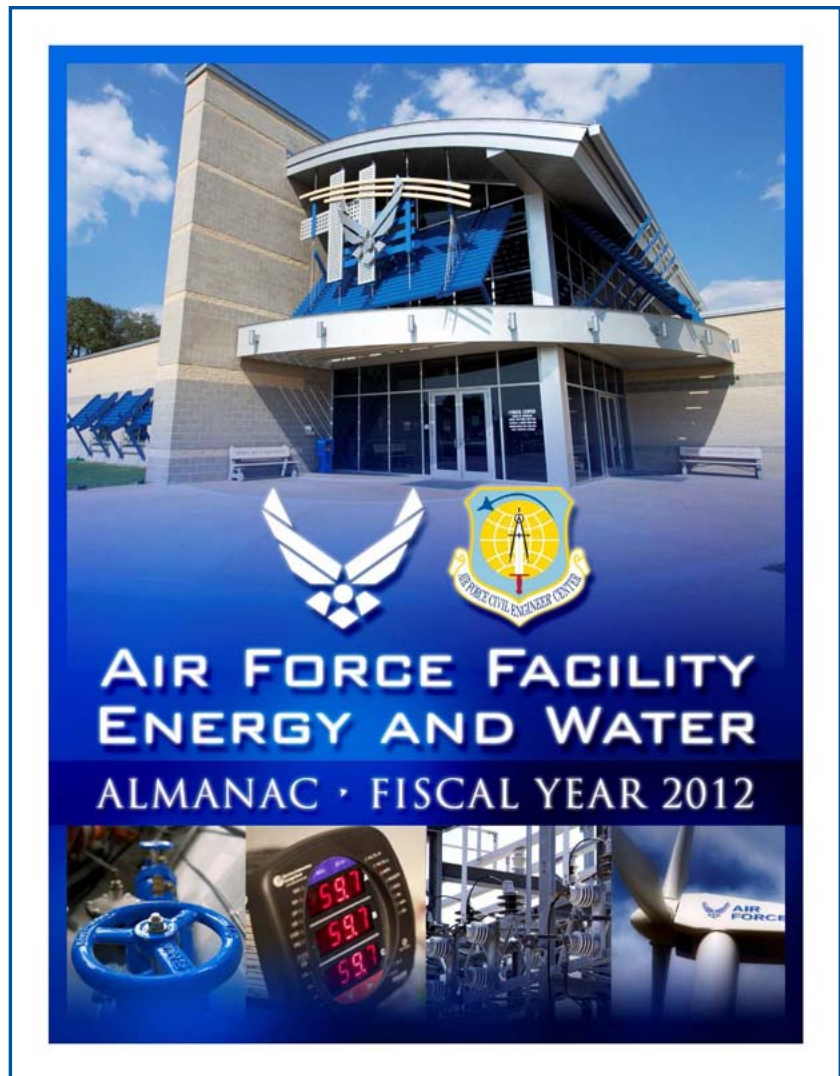
utilizes the final, fully-vetted data residing in AFERS. Furthermore, we asked that major commands and installations offer their insight into their own performance within this document so that upon its release, our leaders and other agencies will see a full-spectrum view of facility energy performance.

The Facility Energy Almanac shows different Air Force-level results than the AEMR. Members of AFCEC's Performance Measurement and Analysis Division believe these are the "real numbers" because we replaced estimates with actual figures and corrected some previously overlooked errors.

Finally, whether you agree with the way we present the data or the algorithms used, or not, we believe this consistent application across the enterprise adds significant value towards apples-to-apples comparisons and hence, presents information we all can use.

[Click here to view the 2012 Air Force Facility Energy Almanac.](#) The report is only accessible by government personnel with Common Access Cards. If you need assistance accessing the site, contact Jennifer.McCabe.2.ctr@us.af.mil.

Author Ken Walters served as the chief of the Air Force Civil Engineer Center Energy Directorate Performance Measurement and Analysis Division until Sept. 12, 2013.



Airmen compete...

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Innovation Competitions

Innovation Competitions encourage Airmen to examine their day-to-day activities both on the job and in the workplace, and submit ideas for how they can become more energy efficient. These idea submissions are then reviewed by a judging panel of either the base civil engineer or base commanders for originality, impact and feasibility of implementation.

You can access the Air Force EAM competition guides and other Energy Action Month materials on several sites:

AFCEC public page

<http://www.afcec.af.mil/news/energyactionmonth2013/index.asp>

AFCEC Energy SharePoint page

<https://cs3.eis.af.mil/sites/OO-EN-CE-A6/OO-EN-CE-A4/default.aspx>

AFCEC AF portal page

<https://app.eis.af.mil/a7cportal/Pages/default.aspx>



U.S. Air Force Airmen assigned to the 4th Comptroller Squadron pose with "Airman e-BEAST," 4th Civil Engineer Squadron energy awareness mascot, after receiving energy-efficient products during National Energy Action Month on Seymour Johnson Air Force Base, N.C., Oct. 17, 2012. (U.S. Air Force photo/Airman 1st Class Aubrey White/Released)

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<https://afcesa.csd.disa.mil/kc/login/login.asp>

1. Log in with your CAC
2. Click "Course List" on the far left column (near the top)
3. Find "Air Force Energy Courses" in the list
4. Click "Air Force Energy Awareness Course" to start!

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