

"Make Energy a Consideration in All We Do"

ENERGY

express

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Rebaselining puts everyone on the same page

Amy Ausley
AFCEC/PA

When you are comparing data, the old adage "comparing apples to apples" is important. For the Performance Measurement and Analysis Division at the Air Force Civil Engineer Center, Tyndall Air Force Base, Fla., the last few years of energy intensity data has been more like comparing "apples to oranges," which makes it difficult to show whether we're meeting federally mandated energy reduction goals.

The congressionally mandated energy intensity goal of three percent reduction each year with a total of 30 percent reduction by 2015, is based on the 2003 'baseline year' and the numbers collected in 2003. In 2003, energy was just beginning to be a major focus for the military and as a result, there wasn't clear guidance on collecting energy intensity data. The guidelines in place at the time were issued in 1996 and were vague and subject to different interpretations.

"It was extremely difficult for us to do analysis at the base level," says Rick Weston, AFCEC engineer. "We could look at the Air Force gross energy intensity, but there was no consistency in data from individual bases because personnel at each base had interpreted the regulations and guidance differently."

In 2008, there was a major increase in

the focus on energy. The Air Force Audit Agency did an audit of the 2003 energy baseline and determined there were significant errors.

Some bases reported Renewable Energy Credits as consumed energy even though RECs are not considered as energy consumption. Other bases reported renewable energy twice, while some were not reporting it at all. There was confusion when reporting tenant consumption. All of these issues added up to significant problems when AFCEC tried to do its analysis.

As a result, AFCEC published Engineering Technical Letter 11-6, which provides specific details and guidance regarding how to report the 2003 data.

Another step was an upgrade to the reporting system. The Air Force previously used the Defense Utilities Energy Reporting System, which was written in the 1970's and had never been updated. The new system, the Air Force Energy Reporting System, is more user-friendly, has built-in error checking and has the ability to create reports using a special program to extract data.

AFCEC has provided extensive training on the new ETL and the new reporting system to be sure all the bases and major commands are able to use both efficiently.

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Pete the Light makes an appearance at the Air Force vs. Navy football game in October to remind everyone to take part in Energy Action Month. Look for a complete wrap up of the Air Force's activities during Energy Action Month in the December issue of Energy Express. (Air Force photo)



rebaselining

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Now every base is using the same criteria and has resubmitted 2003 data using the new guidelines and reporting system. And that means a change in the Air Force base line numbers. The previous baseline number was 136,437 BTUs per sq foot. The new baseline has been changed and approved by the Office of the Secretary of Defense and is now 140,165 BTUs per sq foot. Weston says even though it's not a big change, it still makes a difference, "The new number is not a huge difference but it changed the numbers at the base level. Some bases went up, others went down and it actually

decreased the baseline consumption and the square footage across the Air Force."

The Air Force facility energy program will benefit from the OSD approved rebaselining effort in several ways. First, AFCEC can do a real "apples to apples" comparison. Second, since all the data will adhere to the same strict reporting guidelines, there will be fewer discrepancies. Third, with accurate data, individual base-level performance goals can be set taking into account the unique circumstances at each base such as mission, climate, and location. Finally,

the Air Force will be able to better focus on where to invest funds, considering which base projects will have the best energy savings and economic paybacks.

Being on the same page is good for everyone involved in the process according to Weston. "For the first time in a long while, the base is looking at the same information, gathered using the same criteria as the MAJCOM, who's looking at the same number as the Air Force, who's looking at the same number as the OSD."

Top 5 challenges of the Air Force facility energy program

Jennifer Elmore
AFCEC/PA

Energy – how to use less and create more – is a hot topic in the national news. But for hundreds of Air Force civil engineers, energy conservation is more than a headline; it's a daily job with many challenges.

The Energy Directorate is headquartered at the Air Force Civil Engineer Center, Tyndall AFB, Fla. AFCEC's Rates and Renewables Division Chief, Ken Gray, discussed five challenges and how the Air Force will meet them during a seminar at the 2012 World Energy Engineering Congress in Atlanta, Ga., earlier this month. He says numerous mandates and goals; utility costs; data collection; excess facilities; and a complicated renewable energy approval process make the job challenging but rewarding.

Mandates and goals

"We have a host of mandates and goals that we're given," said Gray. "We get dizzy trying to keep track of what we're reporting on for what purpose." The goals that garner the most attention require the Air Force to reduce energy intensity 30 percent by 2015 from the 2003 baseline; 7.5 percent of our total electricity must come from renewable

energy by 2013; increase on-base renewable energy production to 25 percent by 2025; and reduce water use 26 percent by 2020.

"Each of those, unfortunately, has a different set of what counts and what doesn't count. We have three or four sets of books that we have to run all the time to answer how we're doing on these," said Gray. It's a tough job, but the Air Force is getting it done by reducing facility energy use consistently since the early 1990s. "We've cut our energy use by a third," he said. "We've gone from 100 trillion Btus to 64 trillion Btus."

Utility costs

"While we do concentrate on goals and mandates, managing and making improvements in how we're reducing energy costs is very much a fiscal issue for the Air Force," said Gray. The Air Force spent over \$9 billion on energy in fiscal 2011. While most of it was for aviation fuel, 11 percent, or just over \$1 billion, was spent powering facilities.

The Air Force has reduced facility energy use 35 percent over the past two decades, but the unit cost for that energy has grown by 90 percent. "The good news is that by reducing our facility energy use, we've avoided over a half

billion dollars that we would have had to pay for energy if we weren't in the energy reduction business," said Gray.

Data collection

At the heart of the Air Force facility energy program is data. Base energy managers enter monthly utility data into a new system called the Air Force Energy Reporting System or AFERS. It replaced the 30-year-old Defense Utility Energy Reporting System in 2011. Major commands and AFCEC validate the information. AFCEC also compiles data from energy purchases, project lists, production/consumption estimates, real property records and meters.

The Department of Defense required all Air Force bases to install electric, gas, water and steam meters where cost effective by the end of 2012. To ensure each installation does not have to manually read the meters, AFCEC awarded a \$16 million contract in September to install Advance Meter Reading Systems at 40 bases with plans to award 40 additional locations in 2013. The AMRS may save the Air Force up to \$25 million a year in utility costs, and will provide near real-time utility information, identify anomalies, flag buildings that are performing out of normal range and forecast future consumption.

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Cut your largest expenditure - collect utility reimbursements

Nancy Coleal and Frederick Cade
AFCEC/CNR

It's that time of the year again when energy managers and utility engineers develop base reimbursable utility rates, a time-consuming effort with big pay-off potential. Due to the United States Code, Department of Defense and Air Force guidance, the process for billing on-base customers using electricity, water, natural gas, wastewater treatment, chilled water and steam is complex. While Air Force Form 3556 "Utility Sales Rate Computation Worksheet" automatically calculates reimbursable utility rates, it still requires accurate data from nearly every civil engineering flight.

The Utility Rate Management Team at the Air Force Civil Engineer Center, Tyndall Air Force Base, Fla., reviews utility contracts and service arrangements, including the utility reimbursable program at Air Force bases. They identify discrepancies, rate increases and other issues and have saved the Air Force millions of dollars to date.

In January 2012, the URMT began working to identify previously unrecovered reimbursable expenses at bases. So far, the effort has potentially identified \$300,000 per year of previously unrecovered reimbursable expenses at every base reviewed.

This money directly impacts the base civil engineer operations and maintenance budget. Every utility dollar reimbursed back to the base, is an additional dollar the BCE can use for other base requirements.

The following are things the team looks for in order to find reimbursable or avoidable expenses at each base:

Reimbursement problems

- Inaccurate work order account codes for utility expenditures
- Project costs not included in rate calculations
- Costs for utilities produced on base not included in calculations
- Tenants not identified properly as reimbursable or incorrectly classified
- Late fees from customers not paying on time or not paying at all

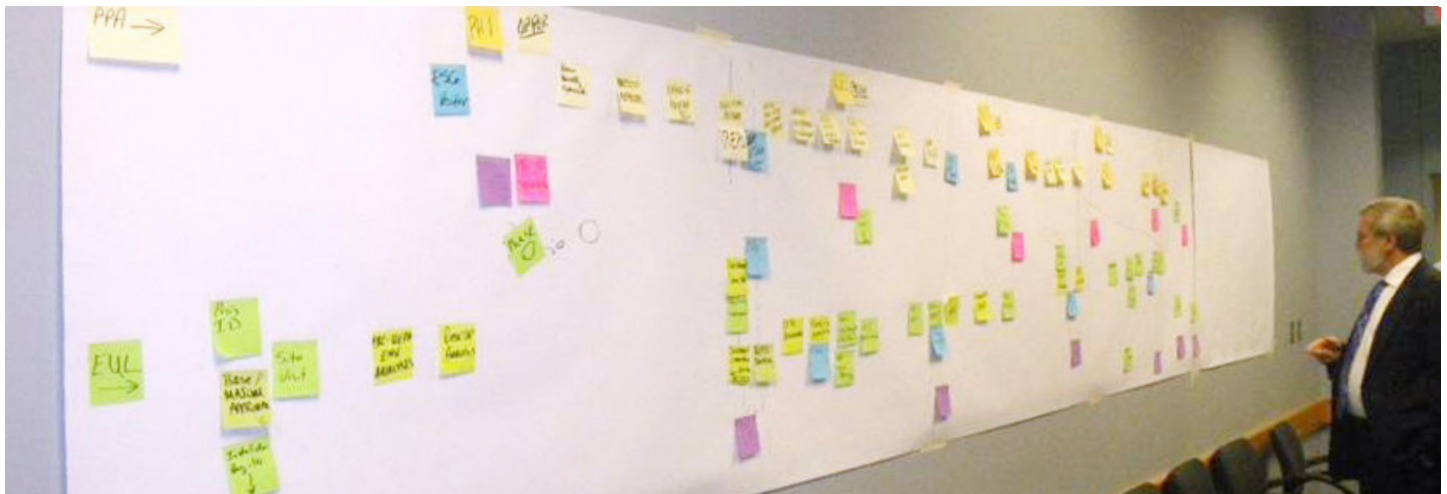
Avoid losses

- Review every work order the base completes in the fiscal year
- Review every base project in ACES-PM
- Ensure costs to produce utilities on base are separated from distribution costs
- Review real property records, telephone directories and facility manager listings for tenants that should reimburse for utilities
- Follow up frequently with customers, finance and DFAS to ensure customers pay in a timely manner

These tasks require the CE squadron to internally coordinate to ensure the URMT is getting the necessary data. AFCEC will sponsor reimbursable training by web conference in December. The exact date will be announced soon. Representatives from Operations, Resources, Programs and Asset Management Flights are encouraged to attend. The URMT will show bases shortcuts to gather and analyze data. Contact Nancy Coleal at 850-283-6295 for URMT assistance or Frederick Cade at 850-283-6463 for help with reimbursables.



After an extensive review of eight years of utility bills at Edwards AFB, Calif., The Utility Rates Management Team at the Air Force Civil Engineer Center, Tyndall Air Force Base, Fla., discovered the Air Force was due a refund of nearly \$3.7 million. (U.S. Air Force photo/Ms. Jennifer Elmore)



This poster shows one of the tools team members used to create a new Renewable Energy Process at a Rapid Improvement Event in San Antonio, Texas. The group met to streamline the efforts for getting renewable energy projects through the approval, development, construction and decommissioning phases. (U.S. Air Force photo)

New Renewable Energy Process streamlines projects

Amy Ausley
AFCEC/PA

Renewable energy projects are the buzz word throughout the Air Force, but the road from the initial idea to actual completion of a project is usually long and complicated. Simplifying the process was the goal of a recent Enhanced Use Lease (EUL)/Power Purchase Agreement (PPA) Rapid Improvement Event (RIE) held at the Air Force Civil Engineer

Center, San Antonio, Texas.

The RIE was attended by multiple groups with key stakes in the Air Force renewable energy game including representatives from several major commands, the Secretary of the Air Force's Installations and Energy office and several divisions from the newly formed AFCEC.

Two of the preferred vehicles used to fund and complete renewable energy projects are enhanced-use leases and power purchase agreements. EULs are partnerships between installations and commercial developers to lease and develop non-excess Air Force property. Energy generated by an EUL renewable energy project is sold to the local utility and the base receives an in-kind consideration. PPAs are partnerships between the installation and commercial developers to use Air Force property with the Air Force purchasing the energy generated. Both EULs and PPAs previously had separate, complex processes for execution and sometimes the lines were blurred between the two.

Improvements are coming according to Ken Gray, Rates and Renewables

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An advertisement with a yellow background. On the left, a man in a blue shirt and glasses looks confused, with his hand on his head. Several white question marks are floating around his head. Three callout bubbles contain the text: 'AF Form 3555', 'AF Form 3556', and 'AFI 32-1061'. To the right, the text reads: 'Baffled by Reimbursables???' in large white letters. Below that, it says 'Utility Managers/CE Resource Offices' and 'If you have questions on setting utility reimbursable rates— Call Frederick Cade 850-283-6463 DSN-523-6463'.

streamline

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Division Chief. "We have created a single process which is the same for both EULs and PPAs and it's called the Renewable Energy Process. Some projects may be EULs, some may be PPAs, some may have components of both, but it's a single process."

The group came to an agreement on standardized terms and a single set of phases and milestones to move from one step to the next.

The revised Renewable Energy Process consists of 6 phases:

Phase 0-Opportunity: In this phase, the base and the MAJCOM do early project development, gain internal consensus about the project and decide to commit the Air Force property and resources. This may include a site visit by AFCEC, beginning the Planning Requirements for the Environmental Impact Analysis Process which is the first environmental planning steps for the National Environmental Policy Act, known as NEPA, as well as conducting an opportunity assessment on the potential resource strength, land availability and economics. AFCEC then provides the Privatization Executive Steering Group a vector advising it is ready to move forward with development of the idea or opportunity as a project.

Phase 1-Project Development:

This includes strategic basing and encroachment reviews, the full NEPA document, the development of the lease and the Request for Proposal as well as a feasibility study which satisfies the requirements of a business case analysis. IEEE 1547 coordination relating to the electrical connection takes place in this phase, and then the final step in this phase would be the ESG's approval to release the RFP.

Phase 2-Project Acquisition: Phase 2 includes the advertising, developer/proposer site visit and source selection. PPAs must get approval from the Office of the Secretary of Defense during this phase for use of long-term PPA authority. The final step is ESG approval

of the selected partnership with OSD authorization of the actual selected vendor or developer.

Phase 3-Project Execution: To complete and execute the project, parties would have any final discussions on the lease or the contract during Phase 3. Final OSD certification comes during this phase as well. Legal agreements are signed in the form of a lease and contract. The last step is to issue the notice to proceed to the contractor.

Phase 4-Design/Construction: Phase 4 includes design and construction of the actual renewable generation including the electrical interconnection and final approvals. Phase 4 ends with the energizing of the project in whatever form of energy it produces.

Phase 5-Management: Phase 5 is the long-term operation and maintenance of the project and managing the portfolio. It eventually includes the decommissioning and removal of the plant and restoration and return of the property to the Air Force.

Terms used in EULs and PPAs are now standardized for the RE Process. Opportunity Assessment refers to the early study document which evaluates and documents the potential for a project. A Feasibility Study is the last complete analysis of a project's structure, including the contract lease and finances. The analysis of the natural resources at a location is called the Resource Analysis.

The next challenges for the group will be to drill down on the details for the action steps in each phase, continue to standardize terms across the process and then make updates to the RE Playbook. This will document and allow common real-time access to the process and key documents.

challenges

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Excess facilities

The Air Force attention on efficiency includes demolishing excess facilities that require time, energy and dollars to maintain. Known as the "20/20 by 2020" goal, the Air Force plans to reduce its physical footprint and operating costs by 20 percent by fiscal 2020. AFCEC's new Sustainable Infrastructure Assessment program created in fiscal 2012 will help the Air Force meet its goal by combining six building process assessments into one SIA. Energy audits are one of the assessments. SIAs are planned at 93 major installations over the next two years.

Renewable energy

The Air Force more than doubled its number of on-base renewable energy projects from 131 in 2011 to 266 in 2012, a major feat considering it can take up to two years or more to develop, gain approval and construct a renewable energy project. AFCEC is working with the Air Force Secretariat level and the Office of the Secretary of Defense to streamline the process and continues to search for new opportunities. In fiscal 2012, the Air Force conducted assessments on the resource availability and the economic feasibility of developing renewable energy resources at 75 installations.

"We're working to meet the mandates," said Gray. "We get a two to one return on what we invest in energy." For every dollar the Air Force spends on an energy-focused reduction effort, it gets two dollars back to invest in the mission, which makes overcoming energy challenges worth the effort."

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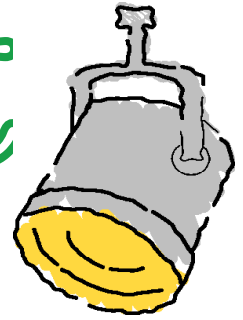
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Spotlight on Success



Energy Playbooks Released

A7CEN, A7CIB, and AFCEC/CN have introduced the new Energy Evaluation playbook and the revised Renewable Energy Playbook. Both of these Playbooks can be found on the Civil Engineer portal at <https://cs.eis.af.mil/a7cportal/CEPlaybooks/Pages/default.aspx> (Mr. Scott, AFCEC/CNA, DSN 523-6302)

MAJCOM Energy Program Management Review

The AFCEC Energy Program Development Division conducted its quarterly review via DCO and telecom on October 12, 2012. The agenda covered the FY11 project construction progress and FY12 project awards. The group also discussed the FY13 energy project pull, design funding and the Authority to Advertise strategy. (Ms. Doornik-Surber, AFCEC/CND, DSN 523-6546)

Tinker Holds Energy Savings Performance Contract Ribbon Cutting

Tinker AFB held a ribbon cutting ceremony on October 30, 2012 for their \$91 million ESPC project which

was awarded in July 2012. The project includes decentralizing all or parts of the central boiler plants located throughout the base and replacing them with smaller, more efficient boilers in 70 buildings. When complete, this project will save Tinker 493,000 MBTUs/year. Utility and Operations and Maintenance savings over the next 20 years will be used to repay the project costs. (Mr. Martin, AFCEC/CND, DSN 523-6475)

“See Ya’ Later Old Refrigerator” Contest Winners Announced

In conjunction with Energy Action Month, a base-wide contest identified the two oldest government refrigerators in the inventory at Hill Air Force Base, Utah. The contest challenged facility managers to survey their break areas and identify the oldest energy consuming appliances. Out of 36 entries, two winners were selected: the 748th Supply Chain Management Group refrigerator and the 75th Medical Group refrigerator. Although the winners were somewhat chagrined about having the oldest refrigerators, both were awarded with new refrigerators, so their co-workers now have new energy-efficient models to use in the break areas.

Space Command Prepares to Install Thousands of Outdoor LED Lights

In mid-September, AFSPC initiated a command-wide program to replace all the street lights and parking lot lights and awarded a contract to Utility Systems Solutions, Inc. for the project. Included in the procurement is the U.S. Air Force Academy and 14 other locations. A bulk purchase of about 6,400 LED fixtures for 15 installations will be made using \$6.4 million of Energy Focus Funds from the AFCEC. Across AFSPC savings from the lights will be \$388,000 annually with an additional \$618,000 annually in operations and maintenance costs. The fixtures will begin shipping in mid-December and installation of the LED lights will start shortly after they arrive at the bases. The process should take three to four months to complete.



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The Energy Express is a publication of the Air Force Civil Engineer Center, Tyndall AFB, Fla.

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