

*"Make energy a consideration in all we do"*

# ENERGY | express

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A person in a military uniform is saluting a white hybrid car. The car is parked on a gravel lot. In the background, there is a brick building and an American flag on a tall pole. The sky is clear and blue.

## Go green: Eco-friendly staff cars aid initiative

By Senior Airman Tabatha Zarrella  
20th Fighter Wing Public Affairs

The 20th Fighter Wing commander recently turned in his traditional blue and white staff car for an eco-friendly hybrid.

The change was made in accordance with Executive Order 13514, which mandates the reduction of petroleum use and greenhouse gases over the next 20 years in the U.S. government.

"Anytime we can save fuel it's a great thing," said Thomas Pearman, 20th Logistics Readiness Squadron vehicle management superintendent. "These new cars get about 42 miles per gallon."

The new cars are gasoline-electric hybrid powered versions of the mid-sized sedan and are designed to run on electric mode, gas mode, or a combination of the two, once reaching a certain speed.

The Department of Defense officials set a goal of a 34 percent reduction of greenhouse gas emissions by 2020.

While Shaw begins its initiative going greener, Airmen are reminded

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*Photo: An Airman renders a salute as the 20th Fighter Wing commander's hybrid car comes to a stop at Shaw Air Force Base, South Carolina. (U.S. Air Force photo/Senior Airman Tabatha Zarrella/Released)*

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# Grissom leads the way with LEDs

By Tech. Sgt. Ben Mota  
434th ARW Public Affairs

Grissom Air Force Base, Indiana, became the first Air Force base to transition its aircraft mass parking area lights from a high pressure sodium light source to cost-efficient light emitting diodes, commonly known as LEDs.

The idea for the project began after a tornado knocked down one of the light poles in Grissom's aircraft mass parking area and damaged three others during the fall of 2013.

"In comparison, the old lights were just energy hogs and their technology was outdated," said Bryan Jaworski, 434th Civil Engineer Squadron civil engineer and project manager. "The storm was

the perfect opportunity to upgrade the lighting."

The LEDs that are replacing the incandescent lights in the mass parking area use approximately 75 percent less energy and last 25 times longer, said Michael Bowden, 434th CES electrical engineer. Based on 151 fixtures, the new LEDs will reduce Grissom's average annual operating costs by \$100,000.

"The project has a payback period of 2.88 years; the Air Force requires a 10-year payback period for any energy project," Bowden said. "This project clearly exceeds their requirements and has a return on investment of 35 percent."

An additional aspect that makes the new lights more efficient is that they are brighter.

"LEDs produce a brighter and whiter light," Bowden said. "This allows us to reduce the number of fixtures and still deliver the foot candles required for Maintenance and Security Forces to conduct their duties."

In addition to their efficiency, the LED light fixtures combined with the replacement light poles are more stable.

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*Photo: Recently installed light emitting diodes, or LEDs, illuminate a KC-135R Stratotanker on the mass parking area at Grissom AFB, Indiana, Jan. 9. The central Indiana base became the first base to transition its aircraft mass parking lot area lights from a high pressure sodium light source to a cost-efficient LED light source. (U.S. Air Force photo/Tech. Sgt. Benjamin Mota/Released)*



## Warren closes heat plant, feels warmer than ever

By Kevin Elliott  
AFCEC Public Affairs

Work is nearly complete on a large heat plant decentralization and deconstruction project at F.E. Warren Air Force Base, Wyoming, that is expected to save the Air Force 103,118 MBTU and \$740,000 in energy expenses per year.

Funded under the fiscal 2012 Energy Conservation Investment Program, base energy managers collaborated with the Air Force Civil Engineer Center to refit 85 base buildings with a high-efficiency, natural gas boiler.

The original central heating plant, commissioned in 1981, provided heat to 1.8 million square feet of Warren's facilities. In the late 1990s, it became apparent major repairs, renovation or replacement of the plant would be necessary to ensure reliable and economic heating for the base during the frigid Wyoming winters.

"The boilers in the central heating plant were operating at 83-percent measured efficiency, and it was estimated that half of the heat produced in the plant was lost in transmission to the buildings," said Paul Wise, plant decentralization project engineer. "Total energy losses in the heat plant boilers and distribution system were estimated at 50 percent."

Reliability of distribution lines was also an issue.

"The distribution lines from the central plant consisted of mains and branch lines, so a failure in a single pipe section could potentially interrupt service to 20 buildings or more," Wise said. "Elimination of the distribution system decreases vulnerability and greatly reduces the impact of a single point failure."

The plant had exceeded its design life cycle; current distribution system repairs weren't providing the anticipated life expectancy extension, and the cost to replace the entire



*The central heat plant at F.E. Warren Air Force Base, Wyoming, built in 1981, was suffering more than 50-percent energy losses due to age and deteriorating distribution lines. The base used the Energy Conservation Investment Program to fund the decentralization project that included fitting 85 base facilities with their own natural gas boiler, saving \$740,000 per year in energy costs. (U.S. Air Force photo Released)*

distribution system exceeded that of new individual boilers.

"We chose ECIP to replace the heat plant," Wise said.

ECIP is a subset of the Department of Defense-wide military construction program, a program designed to fund projects that save energy or water, produce energy or generally reduce the DOD's energy costs. ECIP supports construction of new, high-efficiency energy systems and the improvement and modernization of existing ones. ECIP can fund construction projects over \$750,000 and include anything that normal military construction, or MILCON, funds cover.

"For base-level conservation efforts that may not be large enough for funding through a power purchase agreement or energy savings performance contract, ECIP funds can be a solution," said John Byrnes, AFCEC ECIP manager. "The process takes time, but we are careful to ensure maximum savings from these projects. We are very pleased with the Warren project."

The heat plant decentralization and individual boiler installation were completed in September 2014.

"This is the largest ECIP project the Air Force has undertaken," Wise said. "It was an extremely large task, but through team building we were able to develop the project and get the job done."

The final step, to be done after the spring thaw, is deconstructing the old heat plant facility.

### GO GREEN *cont.*

to always remain vigilant for the many staff cars around Shaw and the recent change in appearance of the commander's vehicle.

Chief Master Sgt. Charles Mills, 20th FW command chief, reiterates the importance of Air Force Instruction 1-1, Air Force Standards stating that saluting is a courtesy exchange between members of the Armed Forces as both a greeting and a symbol of mutual respect.

The vehicle swap process took approximately a month to move over the special communications equipment, lights and the fins.

The 20th FW's commander leads the wing to a cleaner tomorrow and a greener future.

## Rapid improvement event invigorates AF Utilities Privatization process

By Eric Grill  
AFCEC Installations Directorate

The Air Force Civil Engineer Center held a rapid improvement event recently to codify and identify improvements for the Air Force's Utilities Privatization Program.

During the week-long event, various agencies involved in the program worked together to map the current process, remove redundancies and create a streamlined process that works for all stakeholders involved.

The UP rapid improvement event partnered decision-makers from headquarters Air Force, AFCEC's Installations and Energy Directorates, the Defense Logistics Agency Energy, Air Force legal counsel, as well as major command utilities privatization representatives and installation contracting officer representatives.

The Air Force UP program is transforming base infrastructure around the country by privatizing utility systems, which establishes a partnership and direct investment for both the Air Force and utility system providers, said Rick Weston, who leads the AFCEC UP Program Management Office.

When the Air Force privatizes utility systems, it conveys the entire system permanently within points of demarcation on the installation to a third party, such as a municipal, private, regional, district or cooperative utility company. The Air Force no longer owns, operates, maintains or repairs these systems.

The agreement also includes a utility service contract for operations, maintenance and recapitalization for a specified period of time, not to exceed 50 years, Weston said.

At the beginning of the event, AFCEC leadership challenged and encouraged the stakeholders to collaborate and look at the post-award steps in the utilities privatization process.

"Now is the time to work through the UP processes," said Joe Sciabica, AFCEC director. "We're here to sustain

the lifetime of the utility privatization program. The benefits will pay off for our Air Force and for the men and women in uniform, which is what this is all about."

With 66 privatized water, wastewater, electric and natural gas utility systems Air Force-wide valued at \$3.6 billion, the UP program is an example of how the Air Force is conserving resources and looking at different ways to effectively apply them to meet an enterprise business need, said Robert Moriarty, director of AFCEC's Installations Directorate.

"We have to change in today's business environment; the military has been naive in this realm," Moriarty said. "It's about conserving resources and taking a business approach to utilities privatization and portfolio management. There is engineering involved, but in the end it's business that we're doing here, as it should be."

"Bringing together key stakeholders provided an opportunity for identification and proper articulation of problem areas and understanding of UP post-award processes such as portfolio management and post-conveyance reviews," said Debra Harkiewicz, AFCEC's UP portfolio management branch chief. "Challenges and processes that we had been working on over the last nine months were brought to closure in less than five days."

As a key partner of the Air Force in the UP program, DLA Energy-Utility Services administers most of the 50-year utility services contracts for the UP program.

The potential results of the RIE are seen as essential to the future success of the Air Force's UP program, said Col. James Wilkie, DLA Energy-Utilities Services director.

"The RIE provided the opportunity for all stakeholders to have a better understanding of the UP program and dispel the perception that UP is similar to other DOD privatization programs," Wilkie said. "Resolutions from the RIE and action items (identified) on critical post-award issues should mitigate obstacles experienced and improve support for the administration of Air Force UP contracts, which can be quite challenging due to the complex, dynamic, and unique environment at each Installation."

Mary Lumsdon, a contracting officer representative, or COR, from Goodfellow Air Force Base, Texas, represented CORs from the installation level to give that perspective to the process.

"We were able to get through a lot of the pain points CORs experience regarding the UP process," Lumsdon said. "The new process makes the program more efficient with clear lines of responsibility identified."

As an added benefit, Lumsdon said the rapid improvement event was an eye-opening experience for her as she now has a clear view of the entire UP process.

"Several years ago when I started as a utilities privatization COR, I had to learn this process the hard way — on my own," Lumsdon said. "This event turned into a great learning experience for me as I had the opportunity to hear all stakeholders' perspectives and at the same time offer my own to influence the entire utilities privatization process."

## AFCEC makes the cover!



AFCEC energy director David Bek's recent article is the cover story for the January/February issue of The Military Engineer magazine. The piece describes the public/private partnership successes of the energy directorate, including power purchase agreements, ESPCs and utilities privatization. Check it out!

[Click here to read the article](#)



# A conversation with...

# David Bek

## Director, Air Force Civil Engineer Center Energy Directorate

With changing commands and shrinking budgets, 2015 promises to be a year of exciting opportunities and bracing challenges for the AFCEC Energy Directorate. We spoke with director David Bek about the energy directorate's accomplishments in 2014, new opportunities under the Air Force Installation and Mission Support Center and his major goals for 2015.

**With new leadership at SAF/IE, and as AFCEC transitions to the AFIMSC, do you see the focus or priorities of CN changing?**

Yes, we anticipate some adjustments in our focus and priorities. Assistant Secretary Miranda Ballentine brings to the Air Force a fresh industry and business perspective on energy matters. One of her foundational principles is ensuring energy supply continuity for mission assurance. Generally speaking, we've been working under particular laws or mandates that have directed specific goals. As a result, our focus

was largely centered on goal attainment.

While obtaining renewable goals for the Air Force is important, Honorable Ballentine clarified what's critically important is accomplishing energy supply assurance, improved resiliency, and reduced demand,

for the main purpose of accomplishing the mission. In the process of doing those things for the mission, we'll make progress toward our goals. What this means in practical terms is looking for energy reduction, production and system improvements that make a smart business and mission sense while moving us towards strategic or tactical energy assurance, resiliency and demand reduction.

**What is one of the major challenges you face on a daily basis?**

To frame the issue, first let me highlight the Air Force spent almost \$1 billion last year on facility energy utility bills. A major challenge is communicating, educating and encouraging every person at every base to look for opportunities to accomplish their mission while using less energy. We collectively have the potential to reap considerable energy reductions simply through fostering a cultural

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BEK cont.

change, from energy awareness towards energy action. We have to think differently about how we use energy. Over the past several years, the Air Force has had an aggressive energy reduction investment program, which has helped immensely in lowering our consumption. That's great, and we want to keep going with more capital investments. This drives us to continuously work with installation energy staff to identify and manage more of those projects. But more than that, I believe there are potential reductions and savings opportunities out there if we step outside our paradigm and rethink and revise our consumption habits. So, the energy directorate staff is working closely with major command and installation civil engineer staffs to identify and implement new paradigms and ideas, cross feed them for broader use and encourage applications that virtually everyone on an installation can incorporate. We can all share the opportunity to meet mission requirements while consuming less energy.

#### What does 2015 hold for the energy directorate?

I think 2015 will be a great year for energy-related achievements! In our direct funded business lines, we are excited about a \$41 million Energy Conservation Investment Program to be executed. Our facility sustainment program looks to be small this year, about \$25 million, but we still want the installations to be postured to execute more using local year end funds, consistent with an installation's spend plan. Plus, and this is really important, we need the installations to bring forward the best of breed sustainment energy requirements for Fiscal 2016 Integrated Priority List consideration. Sound savings projects will compete well for funding.

Because direct funding may not be as plentiful given future budget restrictions, we are turning considerable attention to third party financed contracts in the energy savings performance contract and utility energy service contract areas. This is the calendar year I think we will start to see some

fruit from our centralized ESPC process within the Air Force Installation and Mission Support Center, particularly at Wright-Patterson AFB, Ohio; Peterson AFB, Colorado; and Edwards AFB, California, as our path finders. In fact, you will see us expanding to include use of U.S. Army Corps of Engineers and Defense Logistics Agency acquisition expertise as partners in executing our ESPC program. We're looking forward to some tangible, big dollar awards that will make a great difference in our energy conservation.

In our utility privatization program, we are looking to assess and reach system owner decisions for eight utility systems. If the decisions are to privatize, we expect each installation to see increased utility system resilience and reliability, measured in fewer util-

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*"At the end of the day  
we are here to help the  
installations."*

*— David Bek*

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ity disruptions, once the system owner brings the utility up to industry standards. So, that can be a great thing for mission assurance!

In renewable energy, we look forward to finalizing agreements at 12 locations for on-base generated renewable energy, with the potential to more than double our current green energy production level of 102MW. These power purchase agreements and enhanced use leases can be the next step in a building block approach for providing energy supply continuity during grid disruptions to meet an installation's critical energy requirements.

In the area of utility rate analysis, our team of experts will start their second five-year cycle of reviewing installation consumption, demand, billing and rate structure details to ensure the Air Force is paying no more than necessary

to meet installation mission requirements. Our Utility Legal Field Support Center will similarly continue to engage on our behalf with public utility commissions to ensure we receive fair decisions in regional rate cases.

You may have heard about our central acquisition of advance meter reading systems. We are preparing to execute new contracts that will expand the installation and use of the system from the current two installations to seven. We believe this will provide a powerful consumption data gathering tool that will foster sound, timely installation-level energy conservation management decisions on a secure industrial control system network.

Finally, we will continue our training and preparation for the Annual Energy Management Report. The AEMR data is scrutinized by OSD, Department of Energy and Congress, so we appreciate the huge effort required at each installation. In essence, we anticipate, 12 months from now, looking back and being able to say, "Wow, we accomplished some great things. We are so glad we aligned our execution with leadership intent and made investments to assure energy supply, improve resiliency, and reduce demand to enable the Air Force meet its mission."

#### If there was one message you could convey to installation commanders and engineers, what would it be?

Let us help you! We're training our energy program specialists to help bases not only identify what the opportunities are, but also help bases turn those opportunities into executable projects. Whether that help is developing programming documents, or inputting projects into ACES, they are focused to ensure projects make the Integrated Priority List to compete for funding. We are developing some centralized execution tools for third party financed contracts that can be real game changers in the energy reduction and production arenas. At the end of the day, we are here to help the installations help themselves.



LEDs cont.

"We chose a light fixture design that reduced drag from wind; this design reduces stress on the light poles to prevent future damage," Jaworski said. "The new light poles are made up of reinforced concrete and are stronger and sturdier than the old steel posts.

"During inclement weather you could see the old steel poles swaying back and forth, but combined with the support of the new concrete poles and the reduced wind drag from the new light fixtures we do not have that problem," Jaworski said.

The LED lights will also save Grissom maintenance manpower, he said.

"The new light fixtures come with a 10-year warranty and last up to 25 times longer than high pressure sodium lights, so fewer man-hours will be spent changing bulbs," Jaworski said.

This project and other LED projects around the base are already starting to pay for themselves, said Bowden.

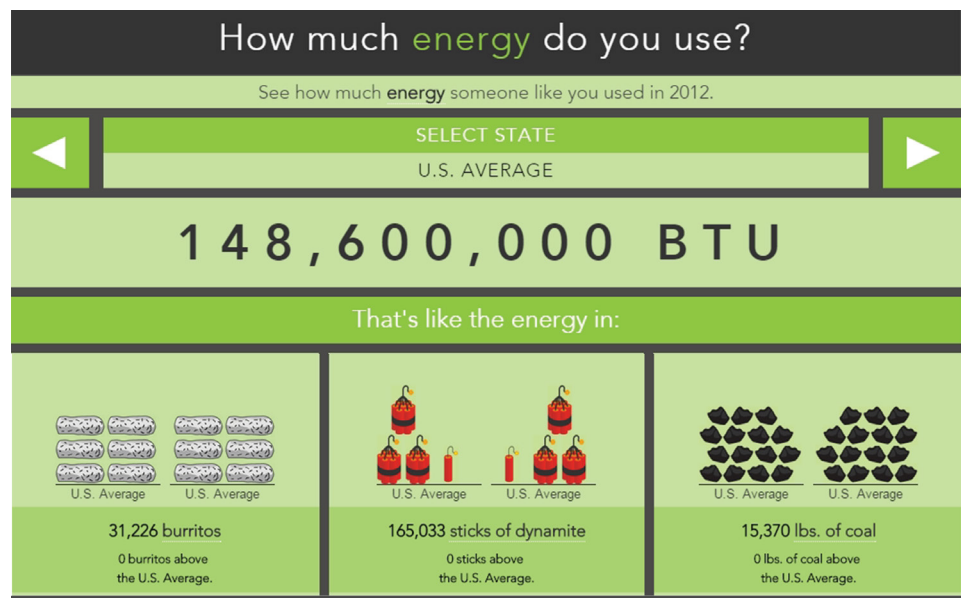
"In the 3rd and 4th quarters of fiscal year 2014 we had a 12 percent energy reduction when compared to the average energy used in the 3rd and 4th quarters of fiscal year 2012 and 2013," Bowden said. "And we are just starting to get warmed up with our LED projects; we have several more we are trying to program."

Grissom is home to the 434th Air Refueling Wing, the largest KC-135R Stratotanker unit in the Air Force Reserve Command, as well as three Army Reserve units. Airmen, Soldiers and Marines routinely deploy from Grissom around the world in support of the Department of Defense mission and U.S. strategic objectives.



## AF energy leaders meet at Tyndall AFB

Miranda Ballentine, assistant secretary of the Air Force for installations, environment and energy (seated at the head of the table) listens to AFCEC director Joe Sciabica during a recent energy meeting at Tyndall Air Force Base, Florida. Topics discussed included energy resiliency, reliability and supply continuity, as well as ways to align AFCEC's execution goals with SAF/IE's policy intent. (U.S. Air Force photo/Kevin Elliott/Released)



## Check *this* out!

Ever wonder how much energy someone like you uses in a year? Click on the image above to view this fun and interactive infographic from the Department of Energy's website. It has a state-by-state breakdown of energy consumption using measurements like sticks of dynamite, lumps of coal — even burritos!



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