"Make energy a consideration in all we do"

ENERGY express

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JB Charleston releases notice of opportunity for base-wide ESPC

by Kevin Elliott AFCEC Public Affairs

he Defense Logistics Agency Energy recently released a notice of opportunity for an energy savings performance contract at Joint Base Charleston, South Carolina.

The notice invites the 16 energy service companies, or ESCOs, under the Department of Energy multiaward ESPC contract to submit written responses of their intent to pursue the project.

The proposed scope of the ESPC includes 121 Naval Weapon Station buildings and 461 parking and streetlight fixtures on JBC, according to the notice. Any energy conservation measures developed by the chosen ESCO in the preliminary assessment and investment

grade audit phases must specifically

Photo: A C-17 Globemaster III, P-223, flies over Joint Base Charleston, South Carolina. The Defense Logisics Agency Energy recently released a notice of opportunity for an energy savings performance contract at the base that could include up to 121 facilities and more than 400 exterior light fixtures. (U.S. Air Force photo/Senior Airman Dennis Sloan/Released)

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- AMRS earns full authority to operate
- New EMCS Playbook now available
- EE Profile: Mark Correll
- And more!



CHARLESTON cont.

address energy reliability and surety.

"We have certain renewable energy goals," said Cathy Cook, energy manager at Air Mobility Command, the major command under which JBC is organized. "So in addition to traditional energy conservation measures, we certainly want to look at renewable capabilities if feasible."

Joint Base Charleston provides installation support to 53 Department of Defense and federal agencies, servicing a total force of over 79,000 Airmen, Sailors, Soldiers, Marines, Coast Guardsmen, civilians, family members and retirees. The base is a consolidation of Charleston Air Force Base and Naval Support Activity Charleston, merged under the jurisdiction of the U.S. Air Force's 628th Air Base Wing.

"This will be a substantial ESPC," said Tom Laney, ESPC project manager at the Air Force Civil Engineer Center, the agency responsible for managing Air Force ESPCs. "Projects at large installations like JB Charleston are an opportunity to gain significant energy savings for the Air Force as a whole."

Due to a constrained budget environment, the Air Force is utilizing thirdparty financing tools like ESPCs to accomplish energy-efficiency upgrades at its installations. Under the ESPC model, ESCOs compete to finance, design, construct and manage energy projects, and maintain the systems long-term. ESPCs range from 10 years to a maximum of 25 years, with the Air Force paying the ESCO back over the term of the contract from cost savings garnered by the higher-efficiency equipment.

"The ESPC project effort at JB Charleston is very comparable to the other ESPC efforts we've executed," said Pamela J. Griffith, DLA Energy installation energy director. "The intent is to optimize the combination of conservation measures to achieve more substantial energy savings within a given facility."

The Air Force is currently pursuing potential ESPC opportunities valued at approximately \$416 million across its installations by the end of calendar year 2016.

Air Force Renewable Energy **MYTHBUSTERS**

Have you been considering a renewable energy project at your base, but have reservations? Consider these common myths about Air Force renewable projects, then decide if renewables might be right for your installation.

(\$) МҮТН

Renewable energy projects are not cost effective.

FACT

Given the installed costs and the performance of today's renewable technologies, renewable power generation is increasingly competetive head-to-head with fossil fuels, without subsidies.*

We don't have enough land for renewable projects.

FACT

According to Air Force guidelines, renewable energy projects can be installed on land that is not suitable to other development. Also, development is also possible off-base. Power is then transmitted on-base. Bottom line: Renewable development location requirements are very flexible.

We don't have available time or manpower for renewable projects.

*Source: International Renewable Energy Agency "Renewable Power Generation Costs in 2014" study

FACT

This concern is plausible, according to Air Force Civil Engineer Center Rates and Renewables Division Chief Dan Gerdes. Projects require limited initial effort, but long term the manpower is less than reading a building utility meter. Also, the AFCEC Energy Directorate is always available to help bases negotiate the process.

The Air **Force Civil Engineer**

Center's advanced meter reading system, or AMRS, pro-

gram was recently granted full authority to operate, officially launching an initiative to provide unprecedented energy saving opportunities to Air Force engineers, base energy managers and other decision makers.

The authority to operate, or ATO, represents the culmination of a 3-year process of planning, testing and optimizing AMRS to ensure the reliability and information security of the platform.

"To obtain the ATO, the AMRS program was required to meet exhaustive information assurance guidelines," said Jesse Brosig, an AFCEC information security assurance engineer. "Our team had to address thousands of checks to get the proper security compliance rating for the system, as well as develop plans and policies for future sustainment of the system - how we would recover it in the event of a disaster, password protection issues and other by Kevin Elliott AFCEC Public Affaits information technol-

AMRS utilizes a software called Wonderware as the basic platform to integrate all metered buildings on a base, allowing users to view energy consumption building-by-building in near-real time. This data, combined with built-in analysis tools, enables installation engineers to integrate energy conservation measures into daily asset management decisions.

Having this granular data is crucial, but the goal of AMRS is action, said Shannon Brittain, the AMRS project manager at AFCEC.

"At the end of the day, AMRS is a tool to discover and implement energy savings opportunities," she said. "The system will provide energy demand and usage data to energy managers, but the idea is to use that data to make actual changes to reduce energy consumption across the Air Force."

The Air Force started metering its

larger facilities in 2008 as part of an effort to gain information about base energy consumption at the building level. To improve its ability to monitor energy use Air Force-wide, the service began a process in 2010 to identify a software solution that would connect and manage meters at each base on a centralized platform.

In November 2013, AFCEC received interim authority to operate this integrated solution, called the advanced meter reading system. AMRS was installed as a test program at Altus Air Force Base, Oklahoma, and Beale Air Force Base, California. Preparations are now underway to fully field the system, focusing initially on higher energy-consuming installations, and eventually across the Air Force enterprise where economically feasible.

Until now, Air Force metering policy required bases to install smart meters that were compliant with the Unified Facilities Guide Specifications, but without connecting them to any communication or software until the office of the director of Air Force Civil Engineering determined a software solution. Since the ATO has been signed, that solution is now AMRS.

"Because this program has taken years to get off the ground, base energy managers have been hearing about AMRS for a while," said Nathaniel Shiflett, an industrial control systems technician at AFCEC. "This ATO is an indication that the AMRS program is now moving forward; we are about to deploy Air Force-wide, and it is time to work together to ensure all pre-requisites are in place and your base is ready for AMRS integration."

Meeting challenges, embracing opportunities

As he assumes new responsibilities in Air Force installation energy, Deputy Assistant Secretary of the Air Force for Environment, Safety and Infrastructure Mark Correll spoke with Energy Express about his goals and vision for Air Force facilities energy.

What are your thoughts on the role of the energy program in the Air Force civil engineering enterprise?

From a secretariat perspective, I'd really characterize it as the role of the energy program in the Air Force enterprise. There are two major parts to that, operational and installation energy, but the overarching role is the same for both: provide mission assurance through energy assurance. In my new role as the installation energy lead for the Secretary of the Air Force, that translates into assured energy to meet mission needs at the lowest cost using the most renewable sources while optimizing our energy consumption.

> As you assume your new responsibilities with Air Force facilities energy, what are your primary goals?

To clarify, my role is more than facilities energy; it is installation energy, which includes not only facilities energy but also process energy, vehicle and other mobile source energy and energy use for contingency operations. With that in mind, my top goals are: establish an overarching approach to renewables and energy efficiency with a clear vision for each; develop and execute a top-to-bottom energy governance structure; evaluate and optimize the energy organizational structure; leverage special incentives with third parties as well as new technology to address energy resiliency; and develop both technical and financial tool kits to get after actually realizing savings, energy intensity reduction and resiliency.

What are some of the challenges you see facing Air Force facilities energy and what is needed to overcome them?

I see four major challenges. First, where are we going? That is why my first goal is to set a vision via an installation energy strategy. Second, how do we sort the wheat from the chaff on the technical side to make smart decisions? That is what the technical tool kit will try to address. Third, how do we pay for energy projects which typically don't compete well in a resource-constrained environment even though they pay long-term dividends? The financial tool kit will seek to address this with significant focus on third-party opportunities.

EMCS Playbook provides 'model' guidance

by Amy Ausley AFCEC Public Affairs

The Air Force Civil Engineer Center's Operations Directorate recently went live with a new playbook for Air Force energy management and control systems, or EMCS. The interactive, webbased tool provides a centralized location for EMCS news and guidance, helping installations better manage their energy use.

The objective of an EMCS is to keep building occupants comfortable while keeping energy consumption, demand and costs at a minimum. The EMCS controls energy consuming devices such as fans, pumps, heating and cooling equipment, dampers and thermostats through a central computing system and monitors and records information from heating, ventilation and air conditioning systems throughout an Air Force base.

"Having a standardized playbook for EMCS helps everyone use their systems more effectively," said Billy Webb, chief of the operations mechanical and electrical branch at AFCEC.

"Over the last 15 years, EMCS projects have been the favorite target of energy conservation efforts," said Tom Adams, the AFCEC mechanical engineer subject matter expert. "Unfortunately, implementing these projects has been problematic. For instance, connections to utility meters have not been included, proprietary parts have caused unnecessary complexities and virtual local area network certification procedures were neglected."

The new playbook addresses some of these common issues with the primary goal of optimizing energy savings such as temperature set points and evening and weekend setback temperatures scheduling. The playbook also encourages bases to use a network of expertise from other bases to collaborate and provide useful information that can enhance EMCS performance.

"The EMCS system must be able to accurately control climate conditions within Air Force prescribed set points and occupancy schedules to meet mission requirements," said Joel Hughes, an AFCEC mechanical engineer subject matter specialist.

Maintenance of the EMCS and security of the system are also covered in the playbook. Since EMCS is a type of CE industrial control system, protection of the information transferred across the system is necessary to safeguard the base.

The EMCS at Eglin Air Force Base, Florida, is considered to be an example of a highly efficient system and was used as a model by the playbook authors. At Eglin, 200 buildings are connected to a software platform that controls and monitors facilities using real-time data to save energy and operate more efficiently. The system uses data from meters to adjust energy usage and take advantage of time-of-day utility price saving.

Using real-time price savings, Eglin saved millions of energy dollars in fiscal 2013 and 2014, Hughes said. The base uses an Air Force-unique energy monitoring system called Business Intelligence for Buildings, or BDOC, to record, analyze and present EMCS data and meter readings.

The playbook is located on the civil engineering portal and currently includes a standard description of EMCS, its objectives and capabilities. Eventually, it will also house assessments of current Air Force EMCS systems and plans for system optimization.



Joint Base Elmendorf-Richardson, Alaska, uses a sophisticated energy management control system to monitor buildings and find energy savings. Currently the system saves the base more than \$500,000. (U.S. Air Force photo/Released)



ENERGY MISER TEAM CONTINUES LOOKING FOR SAVINGS

by Base Energy Office 78th Civil Engineer Group

The 78th Civil Engineer Group's Energy MISER team—MISER stands for measure and investigate site energy reduction—continues to survey installation facilities for energy conservation improvements.

Robins' annual utility bill is \$26 million. During the second quarter of fiscal 2015, the MISER team made improvements across 13 base facilities, resulting in roughly \$70,000 in cost avoidance savings.

Principal energy savings were generated from replacing outdated heating, ventilation and air conditioning motors and related air handling controls, as well as replacing numerous lighting fixtures and automatic light sensing controls.

The team, originally established in November 2010, builds on existing base programs to incorporate energy consideration into normal maintenance activities. Team members include personnel across multiple civil engineering shop skills and capabilities needed to address facility energy conservation.

The team examines the entire facility for cost-effective energy conservation opportunities, to include: proper insulation, reflective roof coatings, door and window leaks and HVAC equipment and lighting systems.

A typical MISER team audit begins with an inquiry from a facility manager or perhaps a routine building walkthrough that identifies potential improvement opportunities.

In connection with the 78th CEG energy management office, the MISER team investigates historical utility consumption patterns to identify facilities displaying high-energy consumption trends.

Air Force energy conservation goals include a 5 percent reduction in energy intensity and water consumption each year.

MISER team efforts, supported by greater employee energy awareness and conservation, are key to improving base statistics.

Employees anywhere can help meet energy conservation goals by considering how they use energy in their daily jobs and taking appropriate actions.

Administrative office examples include: turning off workstation task lighting, computer monitors and printers and other office equipment at the end of shifts.

What to Know:

-Robins' annual utility bill is \$26 million.

-Air Force energy conservation goals include a 5-percent reduction in energy intensity and water consumption each year.

-Employees can help meet energy conservation goals by considering how they use energy in their daily jobs and taking appropriate actions.

Graphic: Commander Kill-A-Watt was created to promote energy conservation efforts at Robins Air Force Base, Georgia. The drawing helps remind base members to "stomp out" unnecessary energy use. Illustration by Harry Paige.



BPR forges new way for Air Force facilities energy

by Kevin Elliott AFCEC Public Affairs

A business process re-engineering conference held at Tyndall Air Force Base, Florida, recently will shape the future of the Air Force facilities energy program.

The week-long BPR included energy representatives from the Office of the Secretary of the Air Force, several major commands, base-level energy managers and the Air Force Civil Engineer Center Energy Directorate. The group was tasked by Air Force Installation and Mission Support Commander Maj. Gen. Theresa Carter to analyze six current Air Force facilities energy business processes and reconfigure them for use under the newly established AFIMSC.

"Overall, the BPR was both effective and enlightening," said David Bek, AFCEC Energy Directorate chief. "Given our problem statement, 'Current processes do not account for the existence of the AFIMSC and do not address the process changes required to help the Air Force reach its facility energy goals,' and given that MAJCOMs will not be postured to directly support facility energy requirements going forward, the BPR made progress toward addressing the problems."

AFCEC is one of six primary subordinate units that were reorganized last year under the AFIMSC in an effort to centralize management of Air Force installation and mission support capabilities. Each of AFCEC's seven directorates will convene a BPR to establish future process maps and best practices.

The goal is to make the transition to the new organization as seamless as possible.

"We challenged our current ways of thinking and doing business," said Kelly Jaramillo, energy manager at Kirtland Air Force Base, New Mexico, and former energy program manager for U.S. Air Forces in Europe. "I appreciated the team-based approach to defining the future state. Hopefully, the same brain trust can remain engaged over the next few years to smooth the transition using creative manpower and staffing approaches."

Though the BPR made preliminary gains, challenges remain, Bek said.

"More work will need to be done with finer details and process steps," he said. "Critical aspects, such as establishing roles and responsibilities so there is clear understanding of others' roles and who to contact for specific topical support, still need to be addressed. Similarly, we have to find qualified human resources to help accomplish the specialized and expert work formerly performed at the MAJCOMs in support of the facility energy program."

The Air Force activated the AFIMSC Aug. 8, 2014, and on Oct. 1, 2014, six separate Air Force organizations were consolidated under Air Force Materiel Command in a step toward integrating mission support activities and forming AFIMSC's foundation.

Four field operating agencies - the Air Force Civil Engineer Center, Air Force Financial Services Center, Air Force Installation Contracting Agency and Air Force Security Forces Center - were reassigned to AFMC.

Additionally, the Air Force Financial Management Center of Expertise and the Air Force Services Activity were realigned from the Air Force Cost Analysis Agency and the Air Force Personnel Center, respectively, to the command.

To learn more about AFIMSC, visit http://www.afimsc.af.mil.

Photo: Energy leaders from across the Air Force gathered recently at Tyndall Air Force Base, Florida, for an energy business process reengineering event. (U.S. Air Force photo/Kevin Elliott/Released)



QER now available for download

On Jan. 9, 2014, President Obama issued a presidential memorandum directing the administration to conduct a Quadrennial Energy Review. As described in the president's Climate Action Plan, this first-ever review focuses on energy infrastructure and identifies the threats, risks and opportunities for U.S. energy and climate security, enabling the federal government to translate policy goals into a set of integrated actions.

Click here to download the QER

Turkish Air Force engineers visit AFCEC

AFCEC Energy Directorate Chief David Bek met recently with senior engineers of the Turkish air force, as part of a visit by the TURAF leaders to learn about the U.S. Air Force's major facility energy goals and business lines, as well as lessons learned.

"We were pleased to answer their questions and encourage them in their facility energy program journey," Bek said. "Even with language barrier challenges we communicated effectively and we wish them the best."



CORRELL cont.

Finally, are we organized and governed in a way that will allow us to get where we need to go?

Considering the future of facilities energy, what is the greatest current opportunity facing the program?

The technology and methods are there if we are willing to embrace them. That technology includes actually using the data from the meters we've installed to make the asset management-based decisions we've said we embrace. It includes microgrids to optimize our energy use. It includes fuel cells, Tesla batteries, electric vehicles and renewable options to enhance mission assurance. From a methods perspective we have sister service partners, industry and providers all focused on the same goals, which gives us a huge opportunity to work together toward our goals.

If there was one message you could send to Air Force energy engineers, what would it be?

Effort counts, results matter—it's now time to focus on results. You are expert professionals in your business, you know the art of the possible and you know what makes sense; it is now time to take action and put that knowledge to work by completing projects that provide mission assurance and save money. Air Force civil engineers proudly say "Engineers lead the way!" Let's lead the way in providing resilient, cost effective and renewable energy to assure our Air Force mission.



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