

*"Leading the Way in Delivering Air Force Installation Energy Assurance"*

# ENERGY | express

A product of the Air Force Civil Engineer Center

October 2019




No matter where  
we are, **ENERGY**  
makes the mission  
**POSSIBLE.**



#EnergyAbleMissionCapable

## ***New theme and material available now for Energy Action Month***

The article below from the Office of the Deputy Assistant Secretary for Operational Energy and Installations, Environment and Energy (SAF/IEE/IEN) introduces this year's new Energy Action Month theme: "Energy Able, Mission Capable." The theme emphasizes how the success of global missions require ready and resilient energy. The Air Force is committed to overcoming challenges and vulnerabilities by continuously enhancing its three energy goals to achieve mission assurance through energy assurance: improve resilience, optimize demand and assure supply. Please read the article below provided by SAF/IEE/IEN for further details regarding this year's Energy Action Month. As the article points out, new materials to raise awareness on the importance of smart energy use and management are available on their website (<https://www.safie.hq.af.mil/EnergyActionMonth/>). Materials include posters, tri-folds, infographics, social media toolkits, checklists, competition ideas, fact sheets, checklists and more. 

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# Air Force recognizes Energy Action Month 2019

October is **Energy Action Month**, an opportunity to highlight why energy is a critical enabler to combat capability for the U.S. Air Force and Department of Defense, and to encourage smarter energy use and management for installations, ground vehicles, and aircraft. Unveiled this year, the Air Force theme of **“Energy Able, Mission Capable”** educates Airmen about the importance of energy readiness and resilience for the global mission.

“By prioritizing energy management and resilience, we are building a strong foundation for the future warfighter and ensuring Airmen have energy when and where they need it,” said the honorable John W. Henderson, Assistant Secretary of the Air Force for Installations, Environment, and Energy.

Every year the U.S. Air Force spends nearly \$6 billion on energy, with approximately 82 percent used for aviation fuel, 16 percent for facilities and installations, and 2 percent for ground vehicles. While energy is a necessary part of operations, as the modern battlefield grows increasingly complex, keeping it secure and readily available can pose serious risks and challenges for troops. Powering aviation assets requires complex fuel planning and logistics, all the way from refinery and storage facilities to fuel convoys and transport to the end-user. As power projection platforms, installations depend on secure, reliable and quality power to ensure Air Force mission assurance.

The Air Force is focusing on energy resilience and optimization to sustain warfighting capabilities in the air and on the ground. For instance, upgraded aircraft aerodynamics increase range and limit the need for aerial refueling. Investments in modern software improve the effectiveness of tankers and streamline mission planning. Engine sustainment initiatives increase time on wing and prevent some maintenance issues. At the installation level, from new onsite generating capabilities to ensure energy resilient operations, to a record setting year of energy savings performance contracting, the Air Force



is prepared to fly, fight and win from its installations under any conditions.

During Energy Action Month, the Air Force will emphasize the need for smart energy solutions and inform Airmen, Air Force senior leaders, policy makers, and aligned organizations about what they can do to effectively distribute, generate, and manage resilient and reliable energy across the enterprise.

To share the message, visit [www.safie.hq.af.mil/EnergyActionMonth](http://www.safie.hq.af.mil/EnergyActionMonth)


for resources and follow the hashtag **#EnergyAbleMissionCapable** at [www.facebook.com/AirForceEnergy](http://www.facebook.com/AirForceEnergy) and [www.twitter.com/AFEnergy](http://www.twitter.com/AFEnergy).

Air Force Energy, comprised of Operational and Installation Energy, is led by the Assistant Secretary of the Air Force for Installations, Environment, and Energy (SAF/IE) and is located in the Pentagon.





# *Invitation to GridEx V, 2019's Interactive Grid Security Exercise*

GridEx occurs every two years and will take place November 13-14, 2019. Energy Managers are invited to attend this interactive simulated grid security exercise. The exercise is open to registered utilities, law enforcement, emergency managers, State and Federal government, and utility-invited vendors and stakeholders. Participation enhances relationships across the electric industry and among government stakeholders. It also provides opportunities for utilities to demonstrate how they would respond and recover from simulated cyber and physical security threats and incidents. The exercise accomplishes this by introducing scenarios that interrupt power supplies and allows installations to execute their response and mission assurance plans to gauge the impact that would be experienced. The results are used to promote a deeper level of thinking about vulnerabilities and how to mitigate impacts of these risks. We encourage you all to participate, from your regular work stations, in this two-day exercise. More details will be provided in the next Energy Express, including specific objectives, how to register and roles in the exercise. 



*Staff Sgt. Manoj Williams, a 375th Civil Engineering Squadron electrical systems craftsman, greases framework knife blades and tightens loose conductor connections at Scott Air Force Base, Ill. (U.S. Air Force photo by Airman Daniel Garcia)*

# Recent funding awards to support resiliency at three installations

By Sarah McNair  
AFIMSC Public Affairs

Three Air Force installations, Dyess, Moody and Keesler Air Force Bases, are receiving energy efficiency and resiliency updates through recent Energy Saving Performance Contracts (ESPC) Awards. Each of the projects will reduce energy consumption and maintenance cost while increasing resiliency, efficiency and reliability for the Warfighter. The savings generated from an ESPC project are energy consumption savings, not actual dollar savings, which are measured in British Thermal Units (BTUs) inclusive of all types of energy or in kilowatts (kWh) when referring to electricity only. It is a budget neutral program that operates by using the savings generated from the project to implement capital improvements to the installations. The Air Force Civil Engineer Center (AFCEC) collaborated with the installations, Defense Logistics Agency – Energy (DLA-E), the U.S. Army Corps of Engineers (USACE) and energy services companies to ensure project success.

“We have an entire team of engineers dedicated to supporting the development, execution and performance of these projects,” said Mike Ringenberg, ESPC Program Manager at AFCEC.

Each of the three installations are in different phases of implementation but have all been awarded the funding to move forward with the following energy projects.

***“The AFCEC Energy Directorate is working very hard to ensure the Air Force meets its mission energy needs in the most efficient and effective way without interruption. This recent \$44 million ESPC award at Dyess Air Force Base furthers that objective because it increases the energy resiliency with greater on-site generation and redundancy.”***

***Les Martin, Chief of AFCEC's Program Development Division***

On Aug. 27, 2019, the USACE Engineering and Support Center awarded a \$44.2 million ESPC Task Order to Siemens Government Technologies, Inc. for the Dyess Air Force Base project that includes 278 buildings, totaling 3.3 million square feet by incorporating nine Energy Conservation Measure (ECM) upgrades. The scope of work to be completed under this ESPC includes boiler and infrared heating upgrades, air-cooled chiller improvements, interior and exterior LED lighting installation, water fixture upgrades and increased distributed energy resiliency.

“The AFCEC Energy Directorate is working very hard to ensure the Air Force meets its mission energy needs in the most efficient and effective way without interruption,” said Les Martin, Chief of AFCEC’s Program Development Division. “This recent \$44 million ESPC award at Dyess Air Force Base furthers that

objective because it increases the energy resiliency with greater on-site generation and redundancy.”

This ESPC will provide Dyess distributed generation resiliency through two on-site substations for generation, storage and distribution with a combination of a battery energy storage system and natural gas engines. These substations will be connected to control power across the base, reducing power loss and increasing energy resiliency and security.

Siemens will also replace 36 boilers, 31 hot water pumps and 95 infrared heating systems that are approaching or have exceeded their lifecycle, and do not meet today’s energy efficiency standards. The new systems will also come with a 10-year parts warranty.

Replacing the interior and exterior

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lighting in 103 buildings and exterior parking lots, walkways, street and ballpark lights, an airport ramp and two additional parking lots will reduce lighting electrical consumption by 60%, increase the quality of the lighting and reduce the necessary maintenance costs and inventory.

Another way energy efficiency is increasing at Dyess AFB is by replacing two air-cooled chillers that are currently using a HCFC-22 refrigerant, a transitional ozone-depleting substance, as well as cooling units in 16 other buildings with high-efficiency units. This will not only improve energy efficiency but will also comply with current standards and reduce maintenance issues.

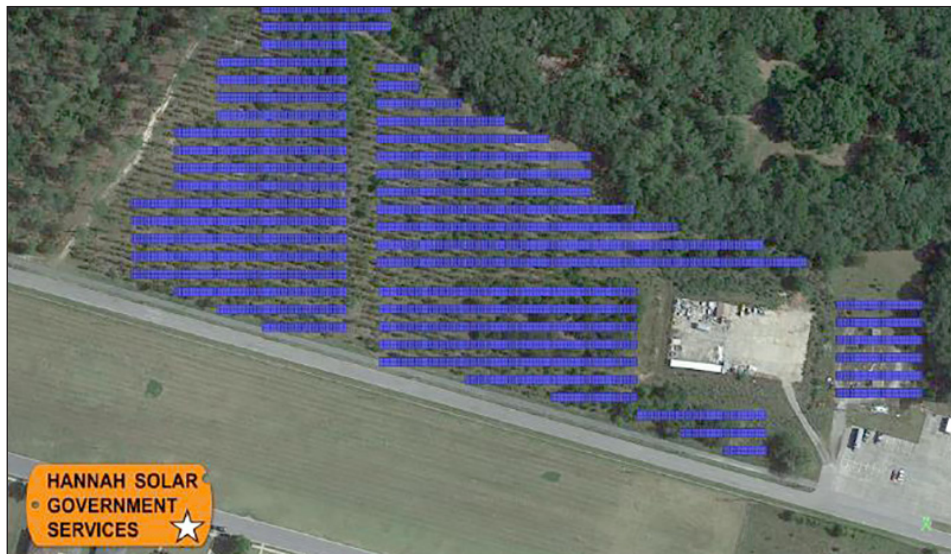
Planned improvements to water fixtures in 89 buildings will reduce water consumption and energy use by lowering hot water usage. Upgraded fixtures will add to the reduction of maintenance costs as well.

“The project increases resiliency by adding two new 1.98 megawatt Natural Gas Rice Generators to the existing five 2.25 megawatt Diesel Generators to the Distributed General Resiliency Management System with battery back-up capability,” said Tom Denslow, Dyess AFB Energy Manager. “In addition, the contract will reduce maintenance requirements because equipment will be upgraded.”

Overall, Dyess can expect to see a savings of 23,613,928 kWhs from the project.

On July 31, 2019, DLA-Energy, AFCEC Energy and Schneider Electric held a construction kick-off meeting at Moody AFB for the \$11.9 million ESPC that has been awarded to implement energy conservation measures for 104 facilities totaling 2.1 million square feet. The energy projects for Moody AFB include installation of a Solar Photovoltaic (PV) array system, lighting upgrades, transformer replacements, installation of Variable Frequency Drives (VFD) and Energy Management Control System (EMCS) software updates.

“DLA-E hosts and runs the meeting with the base. AFCEC’s presence at the pre-construction kick-off provides an opportunity to answer questions the base may have concerning technical issues and displays the continued support from AFCEC throughout the entire ESPC



process,” said Dean Andrews, AFCEC’s Energy Project Manager, who has worked diligently to get the ESPC approved for Moody.

Under the scope of the project, a ground-mounted Solar Photovoltaic (PV) system will be installed on approximately 8.7 acres of land located on the south end of the installation. The system will be capable of providing 2.0 megawatts alternating current (MWAC), which will be connected to the installation’s existing 13.09 kV electrical power distribution system. This system is sized appropriately to meet Moody’s power needs with land limitations, local and regional utility solar interconnect requirements and economic justification. Benefits of this system include having a clean source of renewable energy that will offset current energy consumption from fossil fuels, reduce dependency on the utility grid, and reduce energy consumption by an estimated 32,858,000,000 BTUs. It is another crucial step towards the installation’s long-term resiliency plans.

Other projects to be completed are the lighting upgrades, transformer

replacements, installation of Variable Frequency Drives and EMCS software updates. Moody AFB will receive a comprehensive LED interior and exterior lighting upgrade to 57 buildings. High bay and exterior fixtures will be replaced, whereas interior lights will be retrofitted with LED’s to reduce the electric consumption by 50-70%. This will provide better quality lighting and reduce maintenance intervals and costs. Thirty-seven aging transformers will be replaced in 25 buildings throughout the installation, increasing resiliency and efficiency by reducing core losses and heat emitted inside the locations. Replacing the constant speed motors for the chilled water systems in three buildings, heating and cooling air handler units in two buildings, and the pump motors at the Aquatic Center, as well as installing a timer, with variable speed drives, will reduce flow rates, control temperatures and humidity better, reduce pumping power requirements and lower energy consumption, while improving operating efficiency and reducing maintenance

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for these systems. The 81 buildings that currently have Energy Management Control Systems will receive a software upgrade providing a fully featured graphical interface enabling optimized strategies for energy management and monitoring, including time-of-day scheduling as well as troubleshooting.

The process for obtaining this ESPC award for Moody AFB came with challenges. The challenge of using funds from other programs, such as Facilities, Sustainment, Restoration, and Modernization (FSRM) -- through the Department of Defense (DoD) and Energy Resilience Conservation Improvement Program (ERCIP) -- is that the project needs to be awarded in the same year that funds become available.

This ESCP for Moody AFB utilized \$1.2 million in FSRM funding from a lighting improvement project that was set to be funded in FY18. Contrarily, the ESPC was scheduled to award in FY19, so Moody requested and received approval to have those funds moved to FY19.

"When the task order was ready to be awarded, the FSRM funds were no longer available," said Dean. "AFCEC Energy and MAFB worked together with AFCEC San Antonio to get the funds restored for FY19. Three weeks later MAFB received the funds and the ESPC task order was awarded on 11 June."


The construction, commissioning and



project acceptance for Moody AFB's ESPC is expected to be completed by Sept. 2021.

On Aug. 8, 2019, DLA-Energy, AFCEC and NORESKO held an official construction ground-breaking ceremony to begin a \$32.7 million ESPC project that was awarded to Keesler AFB in Dec. 2018. The project includes a 1.5 megawatt Solar Photovoltaic Carport Array that will generate over two million kWh of electricity annually for the installation. Additionally, the solar carport will provide 497 covered parking spots to be utilized at the commissary. In addition to constructing the solar array project, the ESPC provides for three other energy conservation measures including upgrading nearly 30,000 lighting fixtures

in 64 buildings to LEDs across the installation, installing controls for chiller plant optimization and upgrading to cyber-secure digital building controls. These upgrades will improve the quality of life at the installation, while also reducing the consumption and cost of electricity to be purchased from the local utility, increasing efficiency, enhancing resilience and improving mission assurance for the Warfighter. Overall, the project is expected to provide Keesler with 113,840,000,000 BTUs in energy cost savings, by reducing the installation's energy consumption by an estimated 16%, over the next 22 years.

Air Force readiness requires resilient energy to make the mission possible and sustain the Warfighter. Installations are encouraged to make smart energy decisions and optimize energy utilization through 21st century technologies. Installations interested in pursuing energy projects are encouraged to reach out to AFCEC through the Reachback Center at (888) 232-3721 or AFCEC.RBC@us.af.mil. 

**If you would like to nominate someone to be profiled in an upcoming issue, please contact us at [AFIMSC.PA.Workflow@us.af.mil](mailto:AFIMSC.PA.Workflow@us.af.mil).**

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*Please send your comments, story ideas and photos to [afimsc.pa.workflow@us.af.mil](mailto:afimsc.pa.workflow@us.af.mil).*

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