



# U.S. ARMY OFFICE OF ENERGY INITIATIVES NEWS

**SECURING ARMY  
INSTALLATIONS WITH  
ENERGY THAT IS  
RESILIENT, AFFORDABLE,  
AND SUSTAINABLE**

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**U.S. ARMY**

## FROM MR. MICHAEL F. MCGHEE, P.E. EXECUTIVE DIRECTOR, OFFICE OF ENERGY INITIATIVES

### **Readiness- Modernization- Reform-**

These are the Army's top priorities, and the Army Office of Energy Initiatives (OEI) is living them every day as we develop projects that increase energy resilience at Army installations.

**Readiness.** Our goal is to ensure every project serves a critical mission need in some way and directly contributes to Army readiness. In other words, if grid power is lost, the critical mission continues as onsite energy infrastructure ensures support.

Ensuring continued operations is the primary objective of energy resilience, which is vital to maintaining Army readiness. The OEI has a portfolio of projects either operational or in active development at 16 Army installations, with "islandable" capabilities to power critical missions at 13 of those installations.

**Modernization.** Together OEI and installation staff develop energy solutions that modernize Army infrastructure to enhance resilience and help prepare installations for future threats. We do this by working with

installations to assess energy requirements, determine if there are capability gaps that affect their mission, develop solutions and seek creative ways to make those solutions a reality. We leverage our expertise in engineering, finance, project management and other fields to identify, design and execute energy resilience projects with an eye toward the needs of the Army of the future.

**Reform.** Traditionally, large-scale infrastructure projects at installations require congressionally appropriated funds. There is always significant competition for these in-demand funds, and infrastructure modernization efforts for items such as energy resilience may struggle to compete for resources when compared to new mission needs, immediate critical infrastructure repairs, or the need to address health or safety issues. This is why the OEI collaborates with industry to identify private sector investment opportunities as a means to resource energy resilience projects that contribute to Army readiness. Through

collaboration and teamwork, our projects have resulted in more than \$627 million of private sector infrastructure investment at Army installations. Leveraging private investment is an innovative business model for the Army. This reform approach helps ensure Army installations can improve energy resilience while reducing demand for appropriated funds. We look forward to continuing working with installations, industry and energy stakeholders to accomplish the Army's top priorities of readiness, modernization and reform. ■



Mr. Michael F. McGhee, P.E.  
Executive Director  
U.S. Army Office of Energy Initiatives

## THE THREAT PICTURE

The OEI has significantly revised our objectives, processes and priorities over the past several years and is now focused on energy resilience. To understand what the Army seeks to accomplish via the OEI's efforts it is important to understand this shift in focus. The 2018 National Defense Strategy highlighted that access to reliable energy and water supplies will be challenged by our adversaries at every opportunity, across multiple domains, and by multiple actors simultaneously.<sup>i</sup> The Worldwide Threat Assessment published in January 2019 by the Director of National Intelligence warned that China, Russia, Iran, and North Korea increasingly use cyber operations to steal information, influence our citizens, or disrupt critical



The I Corps Cybersecurity Division conducts cyber threat scans in support of the annual Cybersecurity month at Joint Base Lewis-McChord, Wash.

infrastructure.<sup>ii</sup>

Today's news headlines report on Russian efforts to stage cyberattacks to disrupt or damage U.S. civilian and military infrastructure, including electrical distribution networks, and how China presents a growing attack threat to our core military and critical infrastructure systems. For years, our adversaries and strategic competitors

have conducted cyber espionage to collect intelligence and targeted critical infrastructure to hold it at risk. These threats underscore that understanding energy vulnerabilities and any dependent critical mission requirements are vital to long-term planning and success. Secure and uninterrupted access to energy is essential to Army missions. Today's highly contested and complex operating environment calls for aggressive and forward-looking action now. ■

<sup>i</sup> United States. Department of Defense. (2018). Summary of the 2018 National Defense strategy of the United States of America: Sharpening the American Military's Competitive Edge. <http://nssarchive.us/wp-content/uploads/2018/01/2018-National-Defense-Strategy-Summary.pdf>

<sup>ii</sup> Director of National Intelligence (2019). Statement for the Record Worldwide Threat Assessment of the US Intelligence Community (p.5) (United States., Director of National Intelligence). <https://www.odni.gov/index.php/newsroom/congressional-testimonies/item/1947-statement-for-the-record-worldwide-threat-assessment-of-the-us-intelligence-community>.

## U.S. ARMY OEI WELCOMES NEW ASSISTANT SECRETARY

Mr. Alex A. Beehler was confirmed by the U.S. Senate on Jan. 2, 2019, and sworn in as the 16th Assistant Secretary of the Army for Installations, Energy & Environment (ASA IE&E).

During his Senate confirmation hearings, Mr. Beehler said, "I will do my part in supporting the well-being of our Soldiers and their Families, ensuring that necessary mission testing and training capabilities on our installations are not compromised, and helping enhance the resiliency and modernization of military operations through innovative, effective approaches and public-private partnerships."

During a recent OEI program update, Assistant Secretary Beehler made it clear he wants OEI's efforts in enhancing energy resilience at Army installations to continue, accelerate

and grow. He emphasized how important energy and water resilience was to his prior work for Installations and Environment, and how important it is to him and the Army today.

He pledged, "I will draw upon my five-year experience with the Office of the Under Secretary of Defense for Installations & Environment, where I encountered many of the same issues and processes I likely will face as the Army ASA IE&E. In addressing issues, I will seek to draw upon both the breadth and depth of our civilian and military personnel, and foster a cooperative team atmosphere as much as possible."

He praised the Army for making great strides in the area of energy resilience and emphasized the importance of the OEI program efforts in readiness, modernization, and reform. "OEI's ability to leverage direct private



Honorable Alex A. Beehler  
Assistant Secretary of the Army  
Installations, Energy and Environment

investment and third-party financing tools to drive projects with little or no upfront cost to the government is especially important," he emphasized. Capital investment from private developers is a priority for OEI as it expands the resources "pie" to enable more funding for resilience projects.

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Collaboration is key to this success. To date, the Army has worked with industry to facilitate approximately \$627 million of private sector investment in capital assets provided through OEI projects.

Assistant Secretary Beehler further noted the critical role OEI plays in helping the Army develop strong projects, such as those proposed through the Department of Defense's Energy Resilience and Conservation Investment Program (ERCIP). Under ERCIP, each military service brings forward energy resilience projects to enable installations to support mission readiness. The program is funded through Congressional appropriations, requires strong resilience components to compete for funds, and is managed by the Deputy Assistant Secretary of Defense for Energy.

From the team at OEI, welcome Hon. Beehler! ■

## ARMY TESTS ENERGY RESILIENCE AT INSTALLATIONS

The 2018 National Defense Strategy highlighted that the homeland is no longer a sanctuary. Installations and the local power grid that the Army relies upon are targets of multiple threats, which can affect the mission.

To test potential impacts and the installation's ability to respond to such threats, at Fort Knox, Fort Greeley, Fort Stewart, and Fort Bragg, installation leaders intentionally "unplugged" from the electrical grid during an Energy Resilience Readiness Exercise (ERRE). ERREs replicate a widespread utility power loss to an entire installation or a subset, where backup generation must run the full operational load for an extended period.

At Fort Bragg, spokesperson Tom McCollum said equipment and power

systems were cut off in April 2019 to identify shortcomings in infrastructure, efficiency of emergency generators and responses to the situation. "In today's world, cyber-attacks are very likely," McCollum said. "This exercise is exactly what we needed to do to identify our vulnerabilities and work to improve our security and deployment posture. The exercise was not announced so that it would replicate "real-world" reactions," McCollum said.

Exercising an installation's energy resilience is vital to inform Army commanders and other leaders of energy resilience capability gaps and highlight where the Army needs to modernize.

Power to Fort Knox was intentionally cut off the morning of October 24, 2018. For the installation, the potential benefits from exercises like these was made obvious when an ice storm in 2009 knocked out power across Kentucky for days. "Last time there was an outage, there were Army families affected, critical missions affected," Fort Knox Public Works Director Patrick Walsh said. "We don't want to get in that position again."

Effective ERREs also drive meaningful conversations between installation personnel, energy managers and resilience planners about priorities, equipment concerns, and procedures for response and recovery.

"One of the things to gauge was - do we have the infrastructure and the services in place to handle family members, if there's a situation where all of a sudden we do have a complete loss of power on Fort Bragg," McCollum said. "How are we going to handle family members? How are we going to handle their needs and medical needs and personal needs? So hopefully any needed resources [identified through the exercise] will be provided so we can correct problems so that we can remain mission capable," McCollum said. "Because no matter



what, even though it was inconvenient, Fort Bragg's main priority is remaining mission capable."

The Senior Commander for Fort Knox, Maj. Gen. John Evans said, "Pretty exciting ... Until someone explains to you the nuances of what's going on with the power you don't understand it. To watch "them" turn off their power to our installation and then see us bring those sub stations up and start distributing power, it's pretty impressive."

Resilience exercises are an opportunity for improvement. While several installations perform tabletop exercises, operational shortcomings are often still unknown until installations test full functionality.

The Army's Office of Energy Initiatives (OEI) gathers information about an installation's resilience posture during the Assessment project phase. Regular and prolonged systems, testing and the insights, such as from ERREs, can also inform future energy resilience projects, to help ensure enhanced energy resilience.

Additionally, monthly testing of all generators and annual prolonged or extended testing of uninterruptible power supply systems can help pinpoint systems failures and highlight deficiencies.

The Army recognizes the direct value of testing energy systems that support readiness and is considering additional installation-wide testing. ■

# PURSuing AN OPPORTUNITY WITH THE ARMY TO ENHANCE INSTALLATION ENERGY RESILIENCE

The Office of Energy Initiatives (OEI) collaborates with industry, public utilities, and other stakeholders to improve energy resilience on installations by implementing projects that include energy generation, energy storage, and energy control capabilities as well as other power infrastructure.

When carefully planned to unlock additional benefits, a collaborative approach can result in a project that can deliver increased value to utilities, communities, private investors and the Army, in a "win-win" manner.

The OEI works with installations to determine the feasibility of large-scale energy resilience projects on or near Army land, prioritizing addressing emergency power capability gaps for high priority missions. The OEI then seeks to develop "islandable" projects that can include power generation, energy storage, and control system components to maintain operations if the electric grid experiences an emergency. The OEI's dedicated technical, business and acquisition expertise works to expedite project development timelines to ensure the highest and best value to collaboration partners and the Army.

Industry plays an integral part in helping the OEI fulfill the Army's

commitment to address energy security and resilience challenges on Army installations. The Army's desire to diversify energy sources and improve energy resilience stands as a unique business opportunity for investors with energy expertise and capital investment objectives.

The Army has potentially available, underutilized, non-excess land, a significant demand for power, and a need to improve energy resilience and security on installations to sustain critical missions.

Private industry can potentially utilize underutilized, non-excess Army land for positioning of rate-based or revenue-generating energy assets in exchange for providing the Army with first right to power from the assets in the event of an electrical grid outage, specifically at the time when the assets are likely to not otherwise be able to serve their primary function for the regional electrical grid.

The OEI weaves together statutory authorities that enable the development of comprehensive energy resilience solutions that optimize resources and are beneficial to all stakeholders.

For more information please see [asaie.army.mil/Public/ES/oei/](http://asaie.army.mil/Public/ES/oei/). ■



In line with the Army's priorities of readiness, modernization, and reform, the U.S. Army Office of Energy Initiatives (OEI) focuses on energy resilience projects in support of the warfighter and installation readiness. As the OEI's focus has evolved from energy generation projects to more comprehensive energy resilience solutions, we have updated the OEI logo to reflect this pivot to resilience. The new OEI logo "grid" background of camouflage colors represents an Army installation energy grid; the prominent blue lightning bolt symbolizes energy's critical role in Army missions. The 156 stars that encircle the logo's border represent each of the 156 Army installations and the two larger stars that frame "U.S. Army" represent the many hundreds of Army Reserve and National Guard locations. ■

Fort Hood, Texas 65 MW energy project provides onsite generation, supply diversity and long-term cost avoidance



# AWARDS HONOR U.S. ARMY ENERGY SUCCESS

2018 brought frequent recognition of the Army energy team's excellent work.

## OFFICE OF ENERGY INITIATIVES FEMP AWARD

The Department of Energy's (DOE) Federal Energy Management Program (FEMP) honored the Army OEI team's program efforts that, through the end of the fiscal year 2017, included nine operational projects and two projects under construction, with a total capacity of more than 325 megawatts (MW) of distributed energy generation. "On behalf of the many partners - Army installations, landholding commands, U.S. Army Mission and Installation Contracting Command, U.S. Army Corps of Engineers (USACE), Defense Logistics Agency, Congress, utilities, developers and other stakeholders - this award represents a true team effort to achieve Army priorities," said Mr. Mike McGhee, executive director, US Army Office of Energy Initiatives. Each year, the FEMP awards recognize individuals, groups, and agencies for outstanding contributions to energy efficiency, water conservation, and alternative energy.

## ROCK ISLAND ARSENAL, ILLINOIS FEMP AWARD

DOE FEMP honored Rock Island Arsenal Joint Manufacturing and Technology Center for completing a \$39.2 million Energy Savings Performance Contract (ESPC) project to modernize the site's energy and industrial infrastructure and improve resilience, yielding a 26 percent reduction in energy consumption and a 43 percent reduction in water consumption which saves about \$2.7 million in utility costs annually. The OEI and Assistant Chief of Staff for Installation Management

(ACSIM) are working with Rock Island Arsenal to develop a project through Utilities Privatization to retrofit, operate, and maintain an existing 8.5 MW hydroelectric facility.

## FORT HUACHUCA, ARIZONA SECRETARY OF THE ARMY ENERGY AND WATER MANAGEMENT AWARD

U.S. Army Garrison Fort Huachuca, Arizona received a Secretary of the Army Energy and Water Management Award for Energy and Water Program Effectiveness. Fort Huachuca's Energy and Water Program reduced the installation's energy and water demand, and provided an environment conducive to achieving the goal of energy and water resilience. The program includes a contract with the U.S. Army Corps of Engineers-Huntsville to execute an ESPC to construct and implement a black start capable Combined Heat and Power (CHP) plant, which was awarded in February 2018 and will generate a peak of 4 MW. In addition, Fort Huachuca, the OEI, and Tucson Electric Power are collaborating to enhance an 18 MW solar project that first came online in 2015 with potential control capabilities and microgrid.

## PRESIDIO OF MONTEREY (POM), CALIFORNIA FEMP AWARD

POM Garrison and USACE Engineer Research and Development Center received a FEMP award for a robust retro-commissioning program that improves energy operations of critical infrastructure, reduces energy and maintenance costs, and improves occupant comfort. The team provided online and hands-on training, technical guides, contracting templates, and case study reports to develop their workforce

and improve operational efficiencies.

These honors specifically underscore the Army's focus on readiness, modernization, and reform. Overall, these awards highlight tremendous achievements of energy managers, systems providers, and project managers all supporting the Army's goal of providing resilient energy for critical missions to enable readiness. ■



Principal Deputy Assistant Secretary of the Army for Installations, Energy and Environment, Mr. Jordan Gillis stands in the center of the OEI team, with acting deputy assistant secretary of the Army for energy and sustainability, Mr. J.E. "Jack" Surash (center right); to his left, Mr. Michael McGhee, executive director, Ms. Joyce VanSlyke, director, external engagement (far left), Ms. Krista Stehn, program director (center left), Ms. Monica Malia, director, business operations (center right) and Mr. David Yee, government project manager.



ACSIM, LTG Gwen Bingham is to the right of Mr. Gillis, and acting deputy assistant secretary of the Army for energy and sustainability, Mr. J.E. "Jack" Surash (far left) congratulate the Rock Island Arsenal team at the FEMP awards.



18 MW solar array provides onsite generation and supply diversity at Fort Huachuca, Arizona



Rooftop solar provides onsite generation, supply diversity and energy cost savings at Presidio of Monterey, California

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