FROM THE DEPUTY ASSISTANT SECRETARY OF THE ARMY (ENERGY AND SUSTAINABILITY)

ENERGY & SUSTAINABILITY NEWS | SPRING 2020

Budgets: Past and Future Successes

Installation Energy and Sustainability

ARMY DIRECTIVE 2020-03
INSTALLATION ENERGY AND WATER RESILIENCE POLICY

Cutting the Cord To Test Resilience

Inside this Edition:

Energy and Sustainability

From The Acting Deputy Assistant Secretary Of The Army (Energy and Sustainability)

J.E. "Jack" Surash, P.E.
Acting Deputy Assistant Secretary of the Army (Energy & Sustainability)

Army Directive 2020-03 (Installation Energy and Water Resilience Policy) has been signed by the Secretary of the Army.

This action updates directive 2017-07, based on lessons learned in assessing and implementing energy and water resilience at Army installations. It empowers Senior Commanders to set the energy and water requirements to support critical missions and requires Land Holding Commands to work to meet the requirements.

The directive will help ensure that facility investment is focused on addressing deficiencies to energy and water supplies, facilities, and infrastructure that support critical missions.

The Army is working to implement Congressional Authority that allows us to capture energy cost savings and split those funds between a centrally managed energy projects account and the installation responsible for the energy savings.

The Army Energy and Sustainability mission carries on. We've gone to 100% offsite operations, and our team remains available to support you. Please contact **usarmy.pentagon.hqda-asa-iee.mbx.energy-initiatives1@mail.mil**.

The Office of the Assistant Secretary of the Army for Installations, Energy and Environment just completed the fiscal year 2021 Budget Brief to Congressional Professional Staff Members.

Meanwhile, the Office continues to explore new approaches to securing adequate and accurate budgeting to support ongoing and future programs for Installation Energy and Operational Energy.

In this issue, we take the opportunity to discuss not only the progress we have made over the past few years, but also provide insight into where Installation Energy and Sustainability Programs are headed.

One of our recent successes has been implementation of a disciplined capability to conduct Energy Resilience Readiness Exercises (ERREs) at several installations, including Fort Stewart, Georgia; Fort Greely, Alaska; Fort Knox, Kentucky; and Fort Bragg, North Carolina.

The Army began testing installation energy resilience through planned exercises of purposely disconnecting from the electric grid. These exercises reveal the installations' abilities to maintain operational capabilities during an extended utility outage and reveal opportunities to improve in real-world ways.

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An **Industry Day at Camp Roberts, California** was conducted March 11, 2020 to discuss the Army's Energy Resilience Project with developers interested in the Request For Proposal (RFP). Registered participants were given the opportunity to learn more about the project by visiting proposed sites and participating in a question and answer session.

The project may include development, operation, and maintenance of an energy production facility to deliver energy security and resilience in support of mission-critical facilities during a commercial grid outage.

Upcoming

The **Army Energy Managers Training** (August 10, 2020) and the Department of Energy's **Energy Exchange** (August 11-13, 2020) are currently scheduled in Atlanta, Georgia. Due to COVID-19, more information about these valuable training sessions will be provided in mid-June.

We will again update Members of Congress, Professional Staff Members, and Members' Staff in October during **Energy Action Month (EAM)**, including information about your associated plans and events.

The Association of the United States Army Annual (AUSA) Symposium is currently scheduled for October 12-14 in Washington DC.

During AUSA, many of the ODASA (ES) Staff, including myself, will be on the Exhibition Floor and available to meet with attendees. More information on meeting opportunities will be distributed in late September.

Farewell

Congratulations to Hon. Jordan Gillis, former PDASA-IE&E, on his new appointment as the Assistant Secretary of Defense for Sustainment (ASD-S).

Since 2017, he has done a phenomenal job championing efforts across the Assistant Secretary of the United States Army - IE&E portfolio to ensure Army's installations and power projection platforms are providing our military forces with the Power to Win. We wish him well in his new role with the U.S. Department of Defense!

Welcome

As you may be aware, Dr. Bret Strogen, P.E. has been with the team for a while as a Special Assistant to the ASA (IE&E) and the ODASA (ES). We also welcome Ms. Kylee Moore, Project Director for the OEI Opportunity Development team; and Ms. Stephanie Kline, Project Director for OEI large scale energy opportunities. Ms. Christine Ploschke will be joining the ODASA (ES) team in June.

Army Strong!

J. E. "Jack" Surash

U.S. Army Revises Installation Energy and Water Resilience Policy

On 31 March 2020, the Secretary of the Army signed Army Directive 2020-03 (Installation Energy and Water Resilience Policy) to help strengthen energy and water resilience and reduce disruptions to critical Army missions, missions which are essential to the Total Army's ability to deploy, fight, and win in a complex world.

The directive establishes energy and water resilience requirements for Army installations, while supporting the 2018 National Defense Strategy and Army Vision.

It updates Army Directive 2017-07 based on lessons learned in assessing and implementing energy and water resilience ☒at Army installations.

The directive will help reduce mission risk, as it requires the Army to prioritize providing resilient energy and water supplies, facilities, and infrastructure that support critical missions.

Further, it requires the Army to reduce risk to all other missions when it is lifecycle cost-effective.

Directive 2020-03 empowers senior commanders, in coordination with Army commands, and mission owners, to set the energy and water requirements to support critical missions.

Resilient energy and water systems directly affect the success of the strategic support area in multi-domain operations.

This update requires that Army facility investments are targeted on addressing deficiencies to energy and water supplies, facilities, and infrastructure that support critical missions.

ENERGY AND WATER RESILIENCE

ENABLES ARMY READINESS

AND GIVES US ALL THE POWER TO WIN!

Energy and Sustainability Budgets

An Opportunity to Reflect on Past Successes and Future Goals

With the Pentagon budget season concluded, the Army is busy preparing funding requests for fiscal years 2022 and beyond.

The Program Objective Memorandum (POM) is the primary document used by the Army to submit programming proposals. The POM includes an analysis of missions, objectives, alternative methods to accomplish objectives, and allocation of resources.

Installations Energy

The Army's Energy and Sustainability program budget is focused on Readiness. Funding efforts will strengthen and reinforce energy resilience to promote power capabilities that enhance the current force and set conditions for the future. In fiscal year 2022, the Army's main budgetary focus will shift from Readiness to Modernization in order to improve force capability to conduct multi-domain operations in a single theater by 2028.

The Army must ensure adequate funds are available to support reliable energy and water supplies at installations. The Army is the largest utility consumer in the federal government. Last year the Army paid $1.25 billion in utility bills. Total Army energy costs in fiscal year 2019, which included liquid fuel, equaled $5 billion.

The proposed fiscal year 2021 Installation Energy budget reflects a 6% increase ($116 million) over fiscal year 2020.

Operational Energy

Operational Energy initiatives are focused on increasing warfighting capability by extending range and endurance; enabling lethality, mobility, protection, and mission command; and reducing sustainment needs to support freedom of action.

The Army's operational energy program is working to improve combat capabilities and experimenting and prototyping future capabilities while upgrading our fleet.

The Army is preparing to field upgraded M1A2C Abrams main battle tank. The upgrades will result in an 8% fuel savings.

The Army is also preparing to field M2A4 Bradley infantry fighting vehicle with increased horsepower and onboard electrical power. This upgrade will result in a 3% fuel savings.

The M109A7 Paladin self-propelled howitzer entered full rate production with an upgraded electrical system, resulting in 50% more power with only 25% more weight.

The Stryker infantry carrier vehicle's new engine adds 100 horsepower and 4 kilo-watts of exportable power.

BRADLEY INFANTRY FIGHTING VEHICLE

ENERGY & SUSTAINABILITY

SUCCESSES

The Army's forward-thinking financial planning and budgetary requests have helped the Energy and Sustainability program realize many successes.

- Publication of Army Directive 2020-03, Installation Energy and Water Resilience Policy, establishing energy and water resilience requirements for Army installations.
- Conducting Energy Resilience Readiness Exercises at Fort Stewart, Georgia; Fort Greely, Alaska; Fort Knox, Kentucky; and Fort Bragg, North Carolina. Several other installations have initiated planned power outages to test their energy resilience as well.
- Completing Installation Energy and Water Plans at 21 installations.
- Reducing the Army's energy use intensity by 4% since fiscal year 2015.
- Reducing potable water intensity by 29% since fiscal year 2007.
- Adding 9.3 megawatts of renewable energy capacity across Army installations for a total of almost 527 megawatts. This year, 7.5% of the Army's electricity came from renewable sources.
- Privatizing four additional utility systems, bringing the total to 155 privatized systems Army wide.
- Collaborating with the Department of Energy to complete an energy and water resilience study.
- Deploying a Climate Assessment Tool that can identify climate hazards unique to installations and help guide garrisons' planning and preparation efforts.

Ft. Carson Battery Energy Storage System (ESPC)

Private Sector Investments

The Army is a longtime user of Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs). In ESPCs, the Army collaborates with Energy Service Companies (ESCOs), and UESCs collaborate with utility companies. These contracts require the ESCOs or utility to pay the upfront costs for energy efficiency projects. In return, the Army agrees to repay the initial investment using the savings from decreased utility costs. These budget-neutral processes reduce utility consumption improve infrastructure and enhance resilience.

The Army has the largest ESPC program in the federal government, awarding more than $3 billion of ESPC investments since 1996 and over $679 million in utility service contracts since 1992. In all, the Army has issued 657 task orders/modifications at 97 installations, saving nearly 14.5 billion BTUs per year. A great recent example is the ESPC at Fort Carson, Colorado, which involved installing a Battery Energy Storage System. The system enabled the installation to reduce peak electricity use costs by approximately $500,000 per year.

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Private Sector Investments

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The Army's fiscal year 2021 ESPC and UESC budget request is $166 million, an increase of $8 million over last year and a reflection of the Army's ability to capitalize on third-party financing contracts.

The Army is also leveraging private sector expertise and financing to improve utility systems, reduce consumption, improve resilience and efficiency, and save money through ESPCs and UESCs.

In fiscal year 2020, we project awarding approximately $160 million for ESPCs and UESCs.

Fort Campbell, Kentucky: Resilience through redundant water supply and elimination of water leaks (UESC)

Rock Island Arsenal, Illinois - Joint Manufacturing Technology Center Modernization (ESPC)

Bottom Line

The Army's Energy and Sustainability program prioritizes reliable, uninterrupted utility supplies to support Readiness and Modernization efforts. Strategic and programmatic efforts to provide a reliable supply of energy and water on Army installations promote resilience and warfighter readiness. The Army is advancing in the direction of a ready and resilient force through diverse investment programs.

U.S. Army Energy Resilience

By Hon. Alex Beehler
Assistant Secretary of the Army (Installations, Energy and Environment)

Current multi-domain operations require U.S. Army installations to have secure and reliable access to energy to achieve mission objectives. The Army installation objectives of maintaining world-class training facilities, the ability to project power or surge the industrial base, and command and control are not achievable without secure and resilient access to energy.

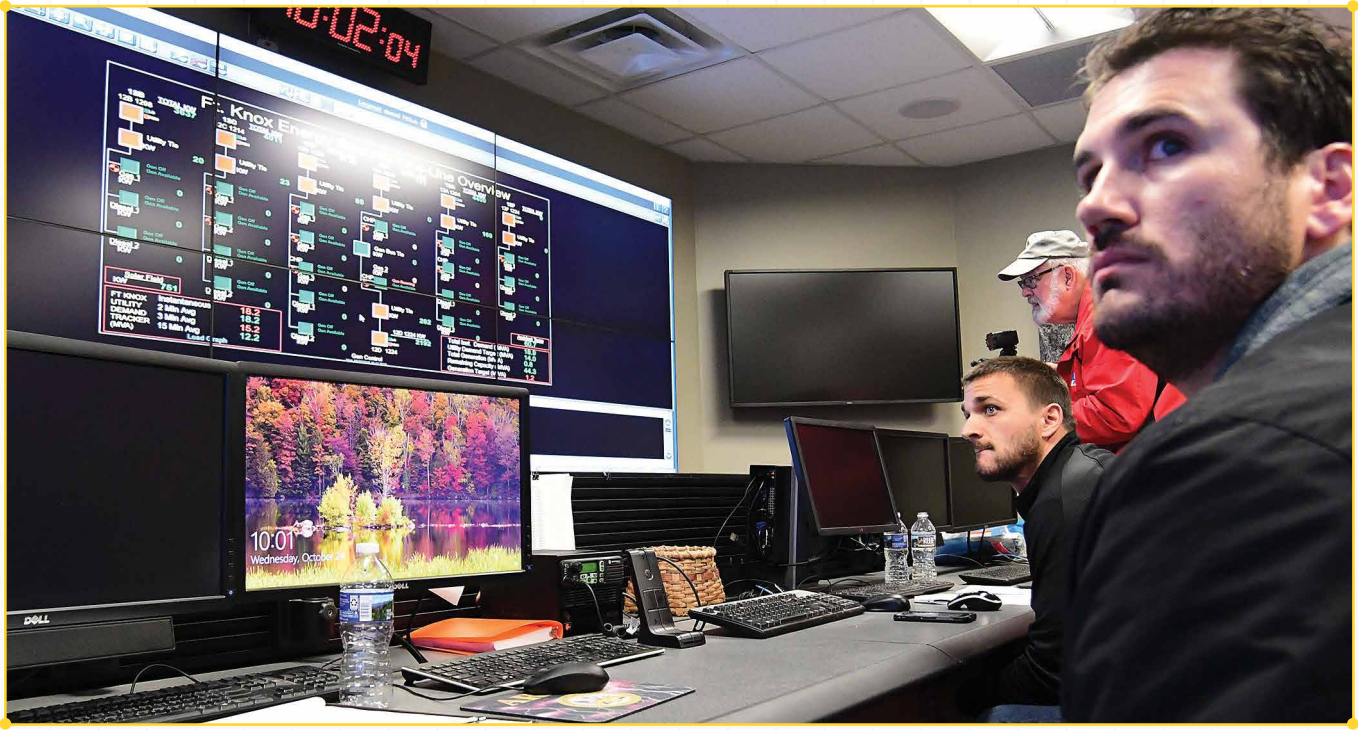
It is imperative for all Army installations to maintain a high level of energy resilience to support mission critical facilities, and thus support the Army's number one priority: **Readiness**.

Energy resilience is not only the ability to anticipate, prepare for, and adapt to changing conditions, but also to withstand, respond to, and recover rapidly from power disruptions.

With rare exception, installations rely on vulnerable commercial utilities outside the gate, which can be taken down by infrastructure failure, forces of nature, or acts of terrorism.

Testing energy resilience by cutting commercial power to the entire or segments of U.S. Army installations is an undeniable means of exposing the impact an unexpected power outage can have on an installation's ability to achieve its mission.

In collaboration with the Department of Defense, the Army began testing installation energy resilience through planned Energy Resilience Readiness Exercises (ERREs). By purposely shutting off the power, these exercises reveal an installation's ability to maintain operational capabilities during an extended utility outage.



Forts Knox (pictured), Stewart, Greely, and Bragg initiated "pull the plug" exercises to test energy resilience capabilities during a power grid outage. (Photo by US Army)

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A full-scale test includes operating all associated emergency and standby energy generation systems, infrastructure, equipment, and fuel at full operational loads – while completely separated from the primary source of power.

Thus far, the Army has formally tested installation energy resilience by shutting off electric power to: Fort Stewart, Georgia; Fort Greely, Alaska; Fort Knox, Kentucky; and Fort Bragg, North Carolina. Several other installations have utilized planned power outages to test their energy resilience. Such exercises not only highlight successes, but also identify gaps in resilience, which can then be addressed. The exercises shape conversations among energy managers, garrison commanders, and Army leadership.

Army installations are not immune to energy and water grid vulnerabilities. In 2019, installations reported over 1,100 utility outage events comprising 22,082 hours – an increase of nearly 5% from hours reported in fiscal year 2018. Over 90% of the offline hours occurred during outages lasting eight hours or more. Equipment failure and acts of nature are the causes of most power disruptions.

Severe weather continues to be the most frequent cause of utility system outages. Notable storm events also continue to increase in both frequency and impact. However, as noted in the National Defense Strategy, installations are targets for terrorists and malicious cyber activity aimed at our infrastructure as well. Army installations are served by public electricity, natural gas, and water utility systems that are at risk of disruption from bad actors.

Planning, exercises, and system improvements will help mitigate the likelihood of utility outages as well as minimize their impact when they occur. Regardless of cause, emphasis on preparation is needed to reduce energy and water vulnerabilities to facilities and infrastructure supporting critical missions.

Chief of Staff of the Army, Gen. James C. McConville, in a message to the Army Team said,

> “We must be the Army of tomorrow, today. The changing operational environment is altering installation energy requirements and we must modernize our infrastructure and equipment.

Education Opportunities

Energy and Water Certification and Accreditation

Threats, both man-made and natural, can jeopardize mission capabilities, increasing the need for sustainable solutions that strengthen energy and water resilience across all Army installations.

It Starts With You

That's why the Army encourages uniformed members and civilian stakeholders in energy, water, and environmental management to seize opportunities to pursue continuing education credits and advanced training certificates related to energy efficiency, technology, management, engineering, building maintenance, and more.

Technical Training Accreditation

Each year, leaders from the federal, private, academic, and state and local government sectors convene to discuss energy topics at the **Energy Exchange**, hosted by the U.S. Department of Energy, currently scheduled for August 11-13 in Atlanta, Georgia.

The Energy Exchange event typically features over 100 training sessions across six unique areas, each accredited by the International Association for Continuing Education and Training (IACET).

Topics this year include adoption of energy and water efficiency, integrated resilience, emerging and secure technologies, and scalable renewable energy solutions.

Due to COVID-19, more information about these valuable training sessions will be provided in mid-June. Visit Energy Exchange training opportunities for updates and details **https://www.energy-exchange.com/training-agenda/**.

University Professional Education Certificate Programs

Universities and colleges offer short-course training and certificate programs to help you advance your career and develop the critical skills needed to overcome future energy challenges.

- Texas A&M Energy Institute's 10-month graduate-level program, "Certificate in Energy" (visit **https://energy.tamu.edu/education/certificate-in-energy/**).
- The University of Alabama/Alabama SafeState Energy Efficiency Training Certificate Programs (visit **https://alabamasafestate.ua.edu/education-training/energy_efficiency_certificate_programs.php**).
- The Environmental and Energy Management Institute (EEMI) at George Washington University online certificate courses, with several others coming soon (visit **https://eemi.seas.gwu.edu/professional**).

Department of Defense Schools

- Naval Postgraduate School, Energy Academic Group's Distributed Learning (DL) Certificate Program in Energy provides those working military and civilian employees of the Department of Defense the opportunity to understand the complex issues facing the Operational and Installation Energy segments of DoD. Visit: **https://nps.edu/web/dl/236-defense-eneregy-certificate**.

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