U.S. ARMY

**Ms. Christine Ploschke**

**Acting Deputy Assistant Secretary of the Army for Energy and Sustainability**

# Energy and Water Security

U.S. ARMY
HQDA | ASA(IE&E)

# The Missions of Army Installations

BE ALL YOU CAN BE.

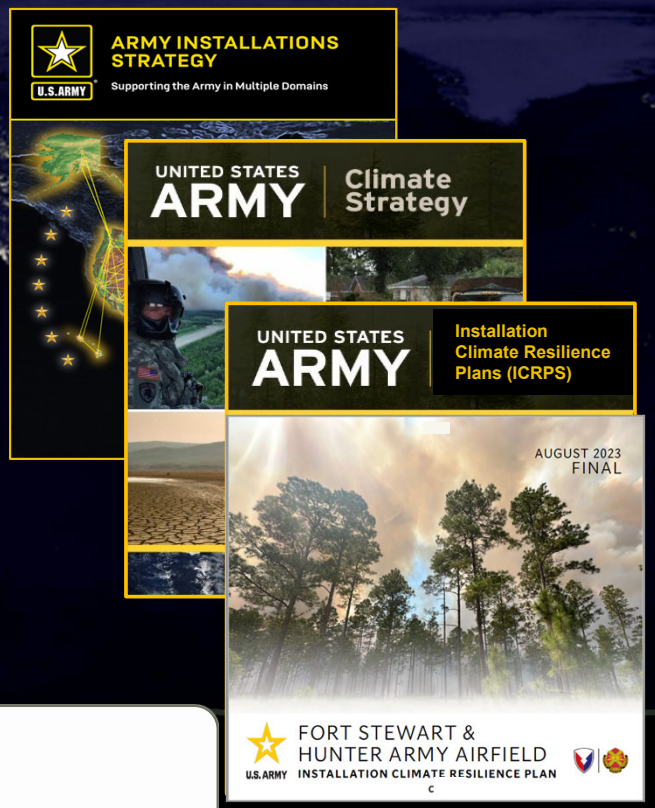
**134** Installations

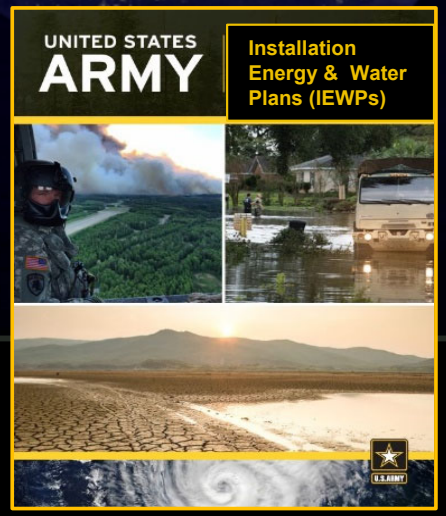
**>2.5K** Army Guard & Reserve Centers

**>5.7M** Supported Population

**>351K** Facilities

**>1.5B** Square Ft




**Take Care of PEOPLE**

- Quality and Functional Facilities
- Modern Services
- Safe Operations

**Strengthen READINESS and RESILIENCE**

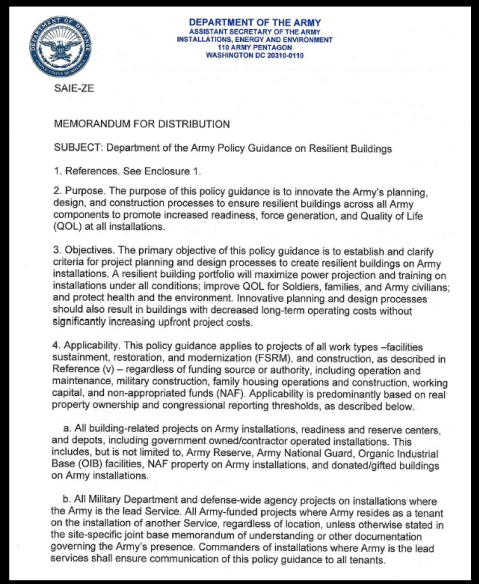
- Operationalize Installations
- Expand Protections
- Resilient Systems
- Training

**MODERNIZE and INNOVATE**

- Information Backbone
- Support Army Modernization Systems
- Installation Operations
- Innovation

**Promote STEWARDSHIP**

- Natural Resources/Sustainability
- Remediate Contaminants
- Risk-Informed Metrics/Modern Technologies



DEPARTMENT OF THE ARMY
ASSISTANT SECRETARY OF THE ARMY
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SAIE-ZE

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Department of the Army Policy Guidance on Resilient Buildings

1. References. See Enclosure 1.

2. Purpose. The purpose of this policy guidance is to innovate the Army's planning, design, and construction processes to ensure resilient buildings across all Army components to promote increased readiness, force generation, and Quality of Life (QOL) at all installations.

3. Objectives. The primary objective of this policy guidance is to establish and clarify criteria for project planning and design processes to create resilient buildings on Army installations. A resilient building portfolio will maximize power projection and training on installations under all conditions; improve QOL for Soldiers, families, and Army civilians; and protect health and the environment. Innovative planning and design processes should also result in buildings with decreased long-term operating costs without significantly increasing upfront project costs.

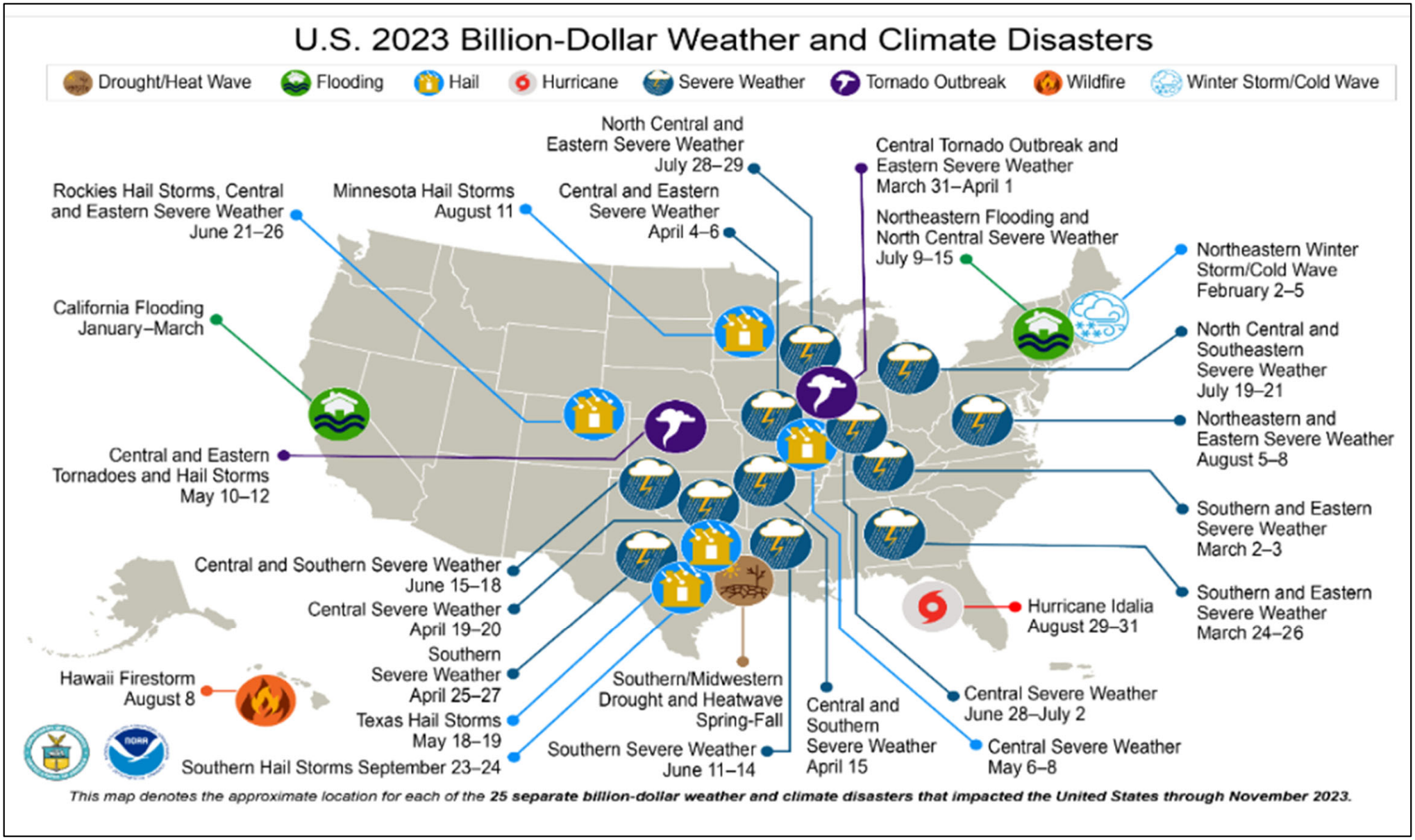
4. Applicability. This policy guidance applies to projects of all work types –facilities sustainment, restoration, and modernization (FSRM), and construction, as described in Reference (v) – regardless of funding source or authority, including operation and maintenance, military construction, family housing operations and construction, working capital, and non-appropriated funds (NAF). Applicability is predominantly based on real property ownership and congressional reporting thresholds, as described below.

a. All building-related projects on Army installations, readiness and reserve centers, and depots, including government owned/contractor operated installations. This includes, but is not limited to, Army Reserve, Army National Guard, Organic Industrial Base (OIB) facilities, NAF property on Army installations, and donated/gifted buildings on Army installations.

b. All Military Department and defense-wide agency projects on installations where the Army is the lead Service. All Army-funded projects where Army resides as a tenant on the installation of another Service, regardless of location, unless otherwise stated in the site-specific joint base memorandum of understanding or other documentation governing the Army's presence. Commanders of installations where Army is the lead services shall ensure communication of this policy guidance to all tenants.

# Threats to Energy and Water Resilience



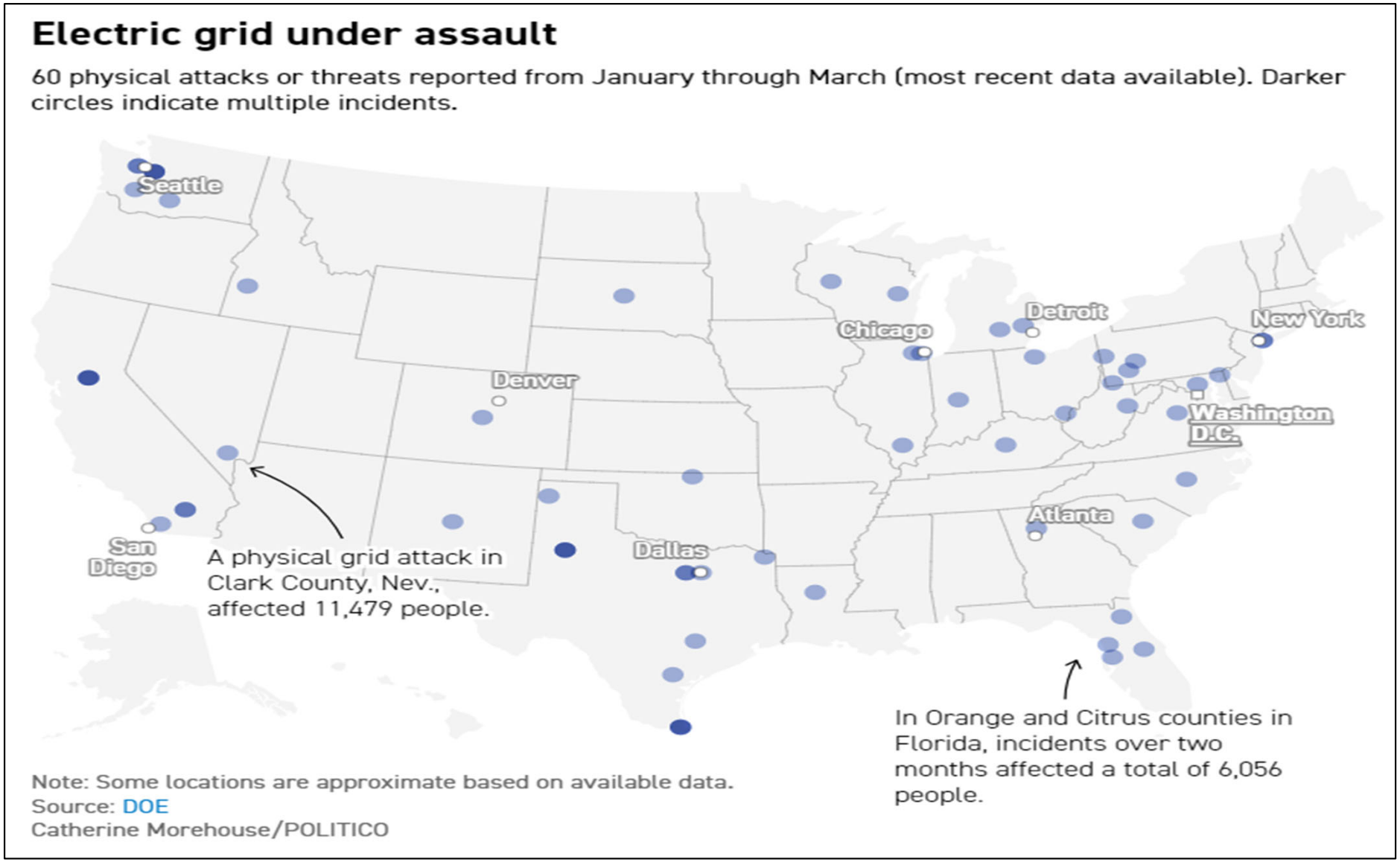



Map Credit: NOAA – National Centers for Environmental Information

**Natural, Cyber, and Physical Threats to Energy and Water Utilities Continue to Increase in Frequency and Sophistication**

# Threats to Energy and Water Resilience






Map Credit: POLITICO

# What is Carbon Free Energy?

- Electricity generation which does not utilize fossil fuels nor emits carbon, such as clean energy real-life examples as depicted on the left:
  - **Wind Turbine on Tooele Army Depot**
  - **Fort Carson lithium-ion battery energy storage system**
  - **Rig at Fort Irwin planned to search for geothermal target areas**
  - **Fort Liberty floating solar array**

# Microgrids



## ACS Intermediate Objective 1.1: Install a Microgrid on every installation by 2035

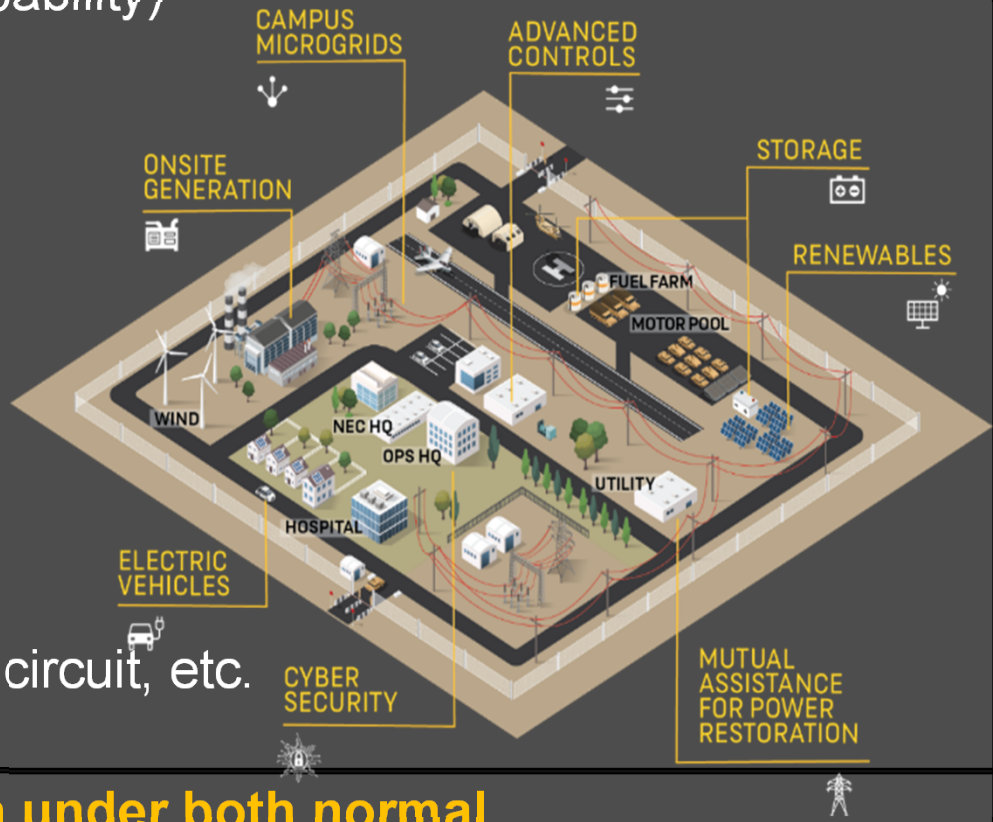
Microgrid Definition (FY22 NDAA; PL 117-81, Sec. 2844): An integrated energy system consisting of interconnected loads and energy resources, with the ability of functioning separate from the local utility grid (islanding capability)

**Scoping:**

- Supporting critical loads
- Minimizing fossil generation
- Integrating Carbon Free Energy/batteries
- Advanced controls

**Advanced Electrical Studies:**

- One-line diagrams
- Modeling and Simulation like load flow, short circuit, etc.




**A key resilience solution under both normal and contingency conditions**

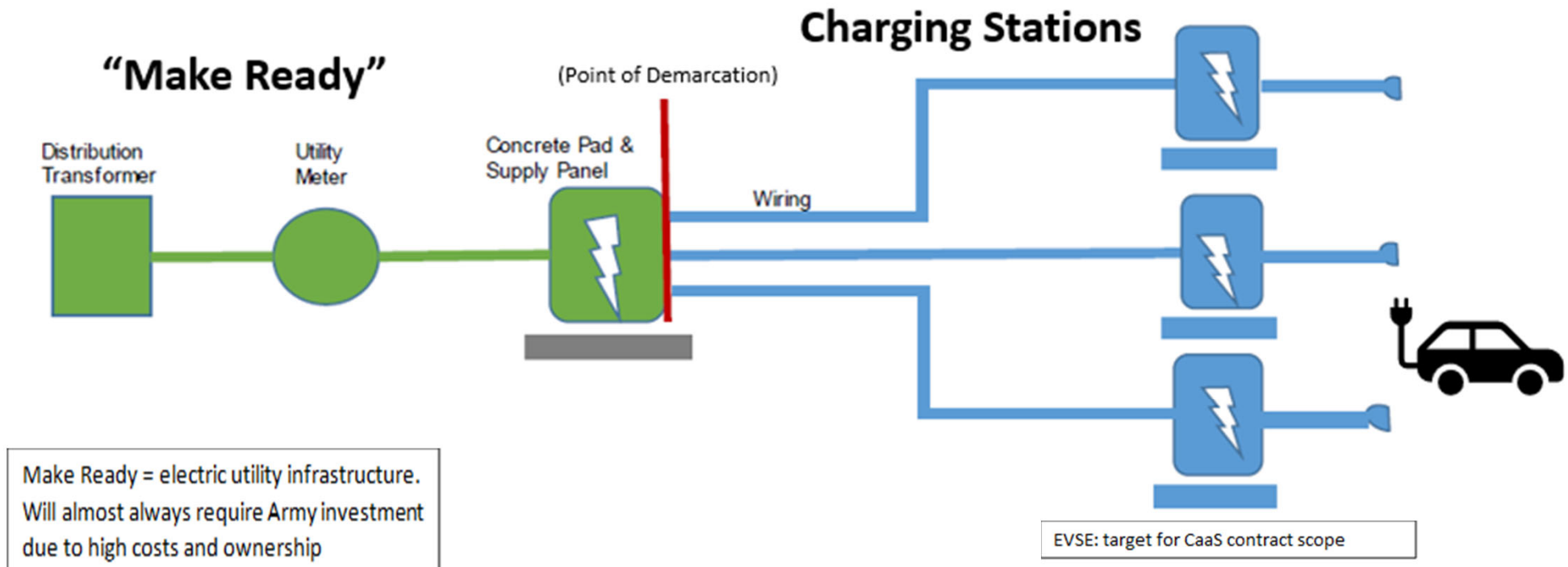


Today, the Army has 28 operational microgrids,
and an additional 9 in construction, 29 in design, and over 50 in early stages of planning

# Electric Vehicle Charging



**Purpose**: Support vehicle market transformation and ensure employee, civilian, and family charging needs can be met while on post




**What is Charging as a Service (CaaS)?**

- There is no singular, industry agreed upon definition.
- Goal is for 3rd party to own & operate the EV Support Equipment.
- Vendors paid through the price per kilowatt hour ($/kWh) charged every time a GOV or POV EV uses the equipment to charge vehicles.

Some approaches to acquiring charging capabilities:

- Army Owned/ Army Operated
- Utility Privatization Contractors
- Direct Service Contracts
- Charging as a Service (CaaS)
- Housing Privatization Contractors

**Unknowns:**

- CaaS is an emerging business model/ market.
- There are a variety of mechanisms for acquisition, with different pros, cons, and unknowns.
- Pilots will help define opportunities and shape future decisions.

# Deep Energy Retrofits (DER)



**Purpose:** Reduce energy consumption and facility management costs and increase building resilience and occupant quality of life through a combination of strategies that reduce or eliminate fuel, electrify building systems, and implement CFE energy and efficiency measures to achieve net zero emission buildings to the maximum extent technically practicable.

**Deep Energy Retrofit Criteria/Definition:** *"A deep energy retrofit leverages whole building approaches and integrative design to maximize energy efficiency and emissions reductions. Under E.O. 14057,* ***a deep energy retrofit is a facility retrofit or renovation project that reduces annual site EUI by at least 40 percent from a pre-renovation, FY 2019 baseline****. A series of retrofit projects that start after FY 2019 and are implemented over several years may qualify as a deep energy retrofit if together, they result in at least a 40 percent reduction in EUI from a FY 2019 baseline. An agency may count a deep energy retrofit project toward the goal when it has completed the design phase, or, for performance contracts, at the close of the Investment Grade Audit phase."*

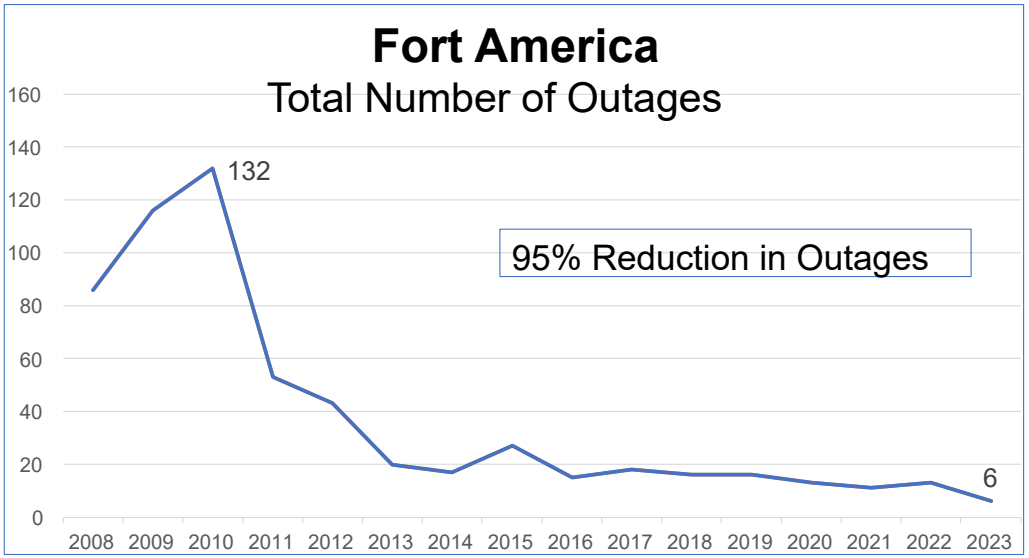
**Driver: Federal Policy (Executive Order 14057):**
**From Sec. 205, Achieving Net-Zero Emissions Buildings, Campuses, and Installations:**
*"(c) To reduce scope 1 and 2 greenhouse gas emissions, . . . to achieve* ***net-zero emissions buildings****, agencies shall (i)* ***pursue building electrification*** *strategies in conjunction with* ***carbon pollution free energy use****,* ***deep-energy retrofits****, whole-building* ***commissioning****,* ***energy and water conservation measures****, and* ***space reduction and consolidation****;… (Sec. 205(c)(i) of E.O. 14057)*

# Utilities Modernization

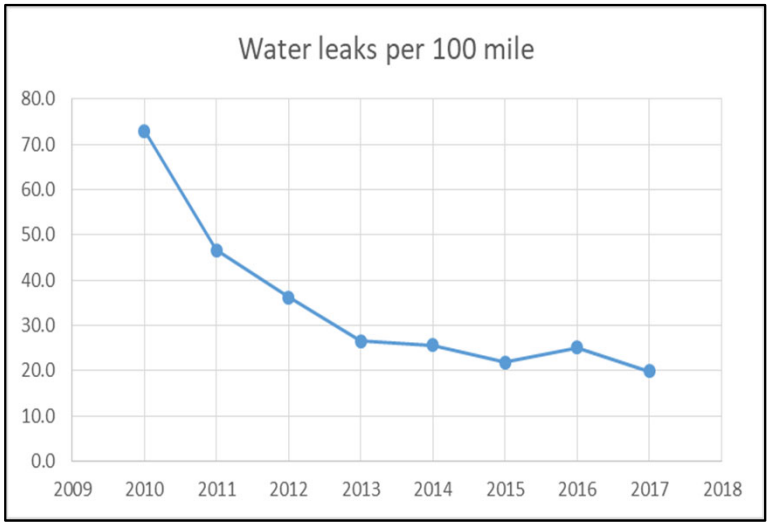


**Purpose**: Harden and modernize energy and water utilities infrastructure to ensure resource reliability and enable mission capabilities and quality of life

- Reliability and resilience – significant decreases in systems outages and service restoration time
- Commodity cost savings due to infrastructure replacements
- Enhanced readiness and resilience
- Cyber-secure systems IAW NIST 800.171 standards




Fort America Electric (2008-2023)




Fort America Water and Wastewater (2010-2017)

# Resourcing Resilience



- **Private Equity**
  - Real Estate Outgrants (lease, easement) *10 U.S.C. § 2667, 10 U.S.C. § 2668*

- **Private Equity initiated with Army repayments**
  - Power Purchase Agreements (PPA) *10 U.S.C. § 2922a*
  - Utilities Privatization (UP) *10 U.S.C. § 2688*

- **Third Party Financing (private financing initiated w/ Army repayments)**
  - Energy Savings Performance Contracts (ESPCs) *42 U.S.C. § 8287 et seq. and 10 U.S.C. § 2913*
  - Utility Energy Service Contracts (UESCs), *42 U.S.C. § 8256(c) and 10 U.S.C. § 2866 and 2913*

- **Upfront DoD or Army Appropriated Funds** *Annual Defense & MILCON appropriation laws and certain Title 10 U.S.C. Chapter 169 and 173 authorities)*
  - Operations and Maintenance (O&M) (OMA, OMNG, OMAR)
    - Base Operations Support (*SAG 131*)
    - Sustainment (*SAG 132*)
    - Restoration & Maintenance (R&M) (*SAG 132*)
    - Unspecified Minor Military Construction <$2 million (*SAG 132*)
  - Military Construction (MILCON)
    - Major and Unspecified Minor
    - Energy Resilience and Conservation Investment Program (ERCIP) *10 U.S.C. § 2914*
  - Availability and Use of Energy Cost Savings (REFoRM) *10 U.S.C. § 2912*
  - Other appropriated funds as appropriate based on the fiscal appropriation recorded in HQIIS for a facility's Sustainment, R&M, and Construction, e.g., PAA, RDTE

- **Non-Appropriated Funds**
  - As appropriate, based on HQIIS, DoDI 1015.15, and AR 215-1

- **Qualified Recycling Program Revenues** *10 U.S.C. § 2577*
  - Up to 50% of QRP revenues can be used to fund pollution abatement, energy conservation, or safety

- **Department of Energy Grants**
  - Assisting Federal Facilities with Energy Conservation Technologies (AFFECT) *42 U.S.C. § 8256 (b)*
  - Office of Clean Energy Demonstration Programs *P.L. 117-58*

- **DoD Office of Local Defense Community Cooperation (OLDCC) Grants** *10 U.S.C. §2391*
  - Installation Resilience
  - Defense Community Infrastructure Program (DCIP)

- **DoD Technology Grants** (RDTE approps)
  - Strategic Environmental Research & Development Program (SERDP) *10 U.S.C. §2901 - 2904*
  - Environmental Security Technology Certification Program (ESTCP) *10 U.S.C. §2901 – 2904*
  - National Defense Center for Energy & Environment (NDCEE) *P.L. 101-302*

- **Army Technology, Policy, Solution Studies** (OMA appropriations)
  - Installation Technology Transfer Program (ODCS, G-9)
  - Army Installation Modernization Pilot Program (AIMP2) (OASA (IE&E), SI)

- **State, Local, and Utility Company Rebates, Tax Deductions, and Grants** *(10 USC § 2913(b) and (c))*
  - Location, contract-type, or asset ownership dependent

- **Alternative Contract Execution Authorities** (using existing Appropriated Funds)
  - Utility Service Contracts (*FAR Part 41*)
  - Other Transaction Authority (OTA), *10 U.S.C. § 4022*
  - Intergovernmental Support Agreements (IGSAs) *10 U.S.C. § 2679*

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# QUESTIONS?