

UNCLASSIFIED

Air Force Office of Energy Assurance

Building Energy Solutions. Powering Mission Success.

*Association of Defense Communities, Installation Innovation Forum:
Aiming High To Provide Mission Assurance
through Energy Assurance*



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AIR FORCE OFFICE OF
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U.S. AIR FORCE

Air Force Office of Energy Assurance

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Mission

Identify installation energy needs and deliver innovative energy resilience solutions that ensure Department of the Air Force (DAF) installations worldwide have dependable access to power and water.

Vision

Secure Department of the Air Force warfighter superiority with the world's most resilient energy and water infrastructure through innovative, cost-effective, and climate-informed solutions.



Department of Air Force Energy: Current Landscape

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DAF By the Numbers

- Number of installations: **177**
- Total footage: **547M sq ft**
- Energy Use: **56M MBTUs**
- Vehicles: **52,147**
- Total Air Force-owned/managed land: **8.5M acres**

Policies Driving Execution

- Energy-independence from Russian-derived sources by 2027
- 99.9% energy resilience for critical missions by 2030
- 50% carbon pollution-free electricity by 2030
- 7 days of islanding capability for critical missions
- DAF Climate Action Plan
 - Cleaner, climate-informed technologies and energy sources
 - Fleet electrification
 - Net-zero emissions portfolio

Accelerating Energy Assurance

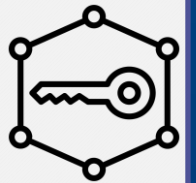
Innovation Principles

- Mission focused
- Leverage all acquisition tools
- Combine fundings for comprehensive solutions
- Long-term planning with short-term goals
- Teaming for success



Key Strategies

- Execute utility-scale projects that address several challenges
- Drive mutually-beneficial industry partnerships for third-party financing and maximum use of available land
- Pilot and adopt innovative and groundbreaking technologies



“We view all our efforts through the lens of resilience.”

*– Air Force Office of Energy Assurance
(AF OEA)*



What's New?

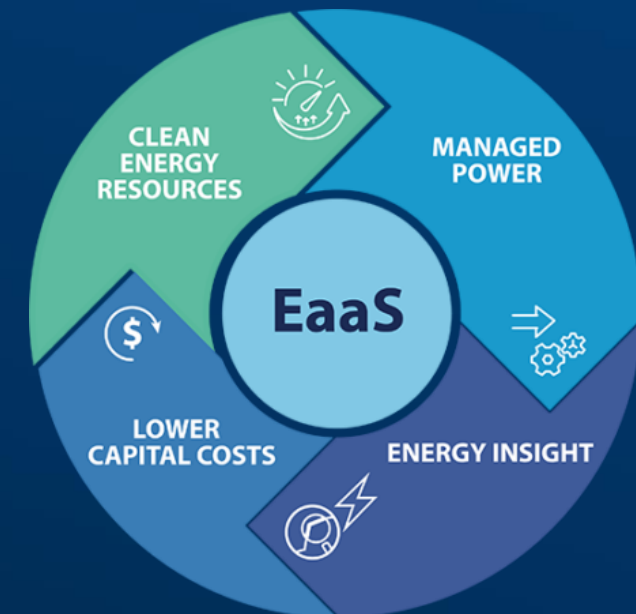
Let's talk exciting updates

Energy-as-a-Service (EaaS)

- Allows utility/ESCO partners to integrate, manage, and update the energy delivery chain while providing reliable energy service for a monthly fee.
- Service model relying on industry, academia, and financiers to solve energy resilience challenges with speed, scale, and cost-effectiveness.

Benefits of EaaS

- ❖ Increase focus on purchasing mission capability rather than energy commodities
- ❖ Reduces capital investment costs
- ❖ Streamlines energy operations through a single industry provider



- Involves soliciting potential partners earlier in the planning process to leverage industry knowledge and capital planning for project solutions
- Partner decides the funding mechanism and the project parameters

Benefits of Finance First

- ❖ Optimal resilient solutions
- ❖ Ideal financial terms for procurement delivery
- ❖ Rapid project delivery
- ❖ Effective risk management



Defense Energy Consortium (DECo)

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- Builds a public-private partnership that will bring government, finance, and the energy industry together through a consortium.
- Relies on industry, academia, and financiers to solve energy resilience challenges with speed, scale, and cost-effectiveness.

Benefits of DECo

- ❖ Address largest energy transition issues at-scale
- ❖ Maximize capability and accelerate project completion
- ❖ Reduce capital costs through utility-scale project execution



Operating Solutions Currently Moving Towards Development

Distribution (27):

- Electric Distribution* (12)
- Microgrid* (6)
- Substation (4)
- Switchgear* (2)
- Transmission Line (2)
- Flightline Distribution (1)
- Switching Station (1)
- Utility Peaker (1)

Electrification (3):

- Electric Vehicles (2)
- Electrification (Undefined) (1)

Generation (8):

- Undefined (6)
- Microturbine (1)
- Spinning Generation* (1)
- Nuclear Power* (1)

Natural Gas (2):

- Natural Gas Backup Generators* (1)
- Natural Gas Loop (1)

Renewables (20):

- Solar* (14)
- Geothermal (2)
- Renewables, Undefined (1)
- Floating Solar (1)
- Offshore Floating Wind Generation (1)
- Wind* (1)

Resilience (20):

- Conservation Resilience* (12)
- Energy Conservation Measures* (5)
- Decentralization* (1)
- Electric Redundancy (1)
- R22 Replacement (1)

Storage (4):

- Storage, Undefined (3)
- Battery Energy Storage Systems (BESS)* (1)

Water (7):

- Water Distribution (3)
- Wastewater Improvements (1)
- Water Desalination (1)
- Water Wells (1)
- Redundancy Resilience (1)

Total Operating Solutions Moving Toward Development:

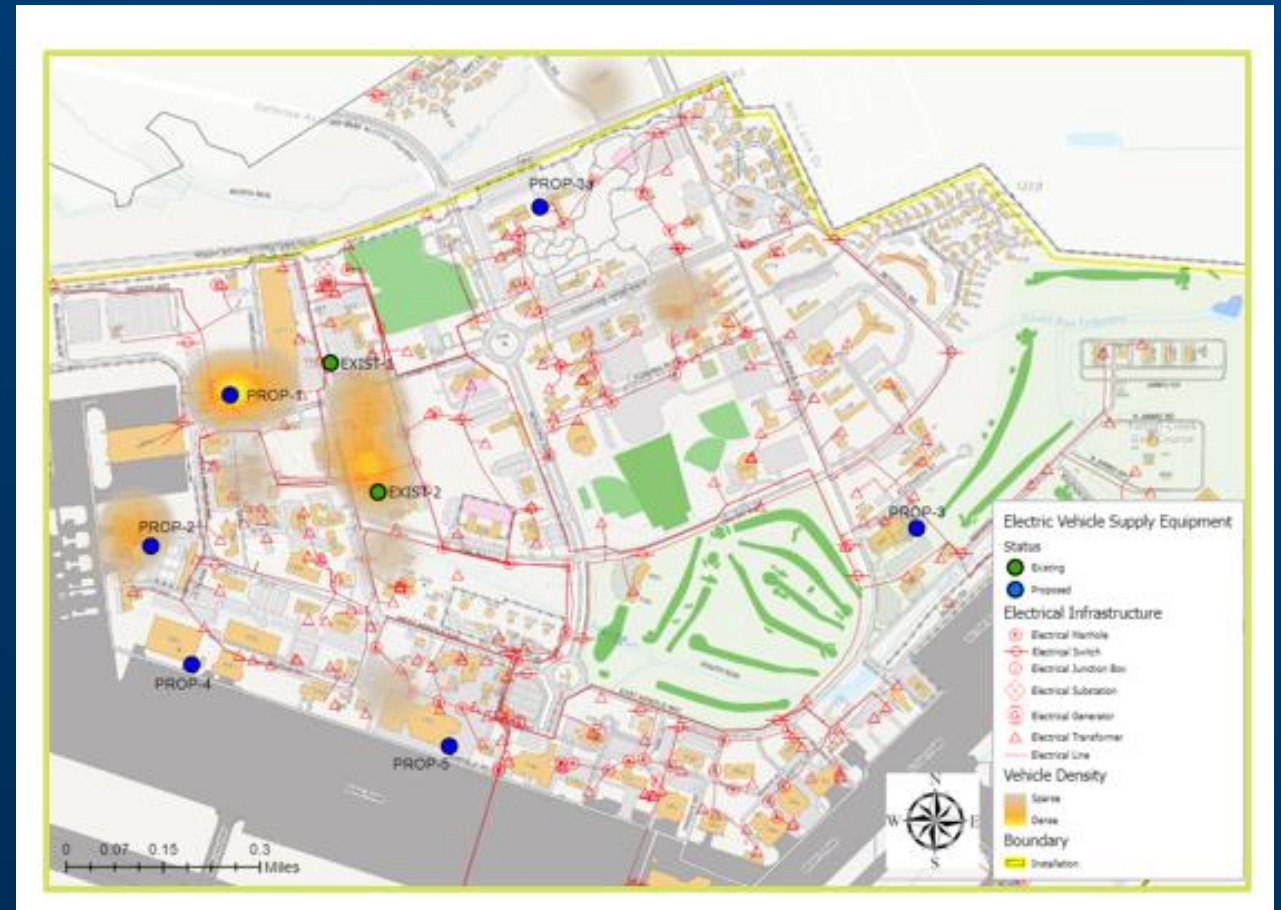
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*** Have potential for a third-party financed component**

Electric Vehicle Supply Equipment: Rapid Innovation

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- Supported EV project design and acquisition for more than \$70M across 51 DAF installations
- Utilized engineering models to evaluate grid congestion from electrification and EV charging processes
- Developed a "Ready EV" tool to right-size infrastructure based on mission criticality and vehicle utilization
- Prepared projects in such a way that it positions DAF installations to take advantage of V2G in the future



Key Project Highlights

Microgrid & Community Solar

- Tyndall AFB is first microgrid produced via Energy Assurance Lease
- Supports operations of AFNORTH buildings
- Explores large-scale community solar project



Microreactor

- DAF selected Eielson as the preferred location for a pilot program
- AF OEA is exploring other installations where nuclear is a viable technology
- Once complete, first microreactor in the DoD, serving as a platform to replicate at others



Geothermal Energy

- FE Warren to create the first DoD carbon-free microgrid
- Investigating locations for utility-scale geothermal energy projects that will support critical mission loads



Wind & Battery Storage

- Capitalizes on Eareckson Air Station's rich wind source
- Meets installation redundancy requirements
- AF OEA engaged as a potential ERCIP submission



Thank you!



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Questions?

