

UNCLASSIFIED

Air Force Office of Energy Assurance

Building Energy Solutions. Powering Mission Success.

*Power Up Energy Expo + Defense Innovation Forum:
Accelerating Energy Resilience for the
U.S. Air Force Installations of the Future*



Mr. Kirk A. Phillips
Director
Air Force Office of Energy Assurance
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Kirk A. Phillips

Director, AF OEA

AIR FORCE OFFICE OF
ENERGY ASSURANCE



U.S. AIR FORCE

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.



Air Force Energy: Current Landscape

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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

The U.S. Air Force

- Number of installations: **188**
- Total footage: **547M sq ft**
- Energy Use: **56M MBTUs**
- Vehicles: **52,147**
- Total Air Force-owned/managed land: **8.5M acres**



Accelerating Energy Assurance

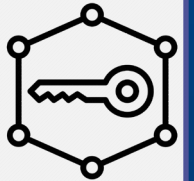
Innovation Principles

- Mission focused
- Leverage all acquisition tools
- Combine fundings for comprehensive solutions
- Move at commercial speed
- 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?

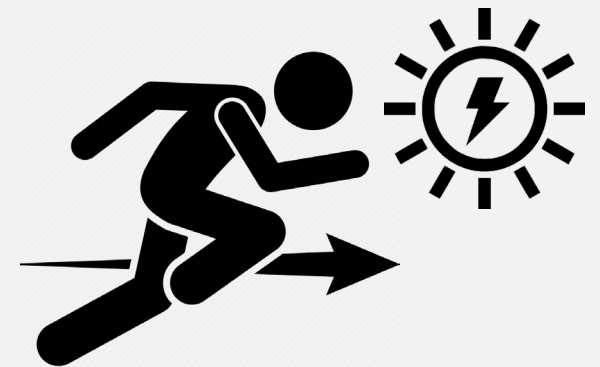
Let's talk exciting updates

- **Geothermal Energy** – *Initiative: Pilot projects in progress*
 - U.S. Air Force striving to be **first in the world** to demonstrate net positive electricity with an advanced geothermal energy system
- **Geologic Hydrogen** – *Initiative: Exploration*
 - If able to be extracted like natural gas, the cost of hydrogen fuel may become reasonable.
- **Long Duration Energy Storage (LDES)** – *Initiative: Exploration*
 - Can deliver 100+ hours of available power for connected missions
- **Multi-Fuel Capable Generator** – *Initiative: Demo. pilot in progress*
 - Ability to use any gaseous fuel will eliminate need to replace costly generator equipment.



Optimizing All Efforts

- **Community Benefits**
 - Eielson AFB (Alaska) microreactor project – Collaborating with utilities on shared nuclear power solutions that benefit the community
- **Review Pipeline for Innovative Technologies**
 - Chartering of the Installation Energy Innovation Working Group (IEIWG) determines use/impact for Air Force on new technologies
- **Standardizing Resilience into Projects**
 - Rooftop Energy Solutions: Replacement/repair to include rooftop energy generation assets in the project without separate approval
- **Rapid Innovation Approach**
 - Executing 50 simultaneous pilots exploring the details of electric vehicle infrastructure (EVSE) for answers by the end of this year instead of a series approach



Cutting Red Tape

- Closing RFPs in **2 weeks**
- Awarding contracts in **2 months**
- Executing prototypes in **12 months**



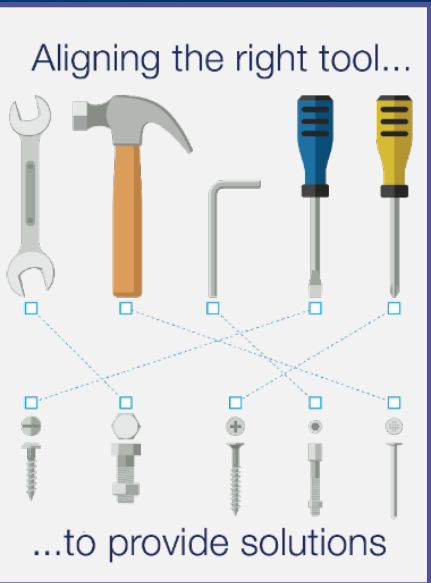


What's New?

Let's talk opportunities

Air Force Energy Toolbox

	Resilience	Physical In-Kind Consideration	Monetary Payments	Reduced Energy Bill	Reduced Energy Load	Assured Access to Power	Preservation of MILCON
Power Purchase Agreement (PPA)	✓ DoD Policy			✓		✓	✓
Energy Savings Performance Contract (ESPC)		✓		✓	✓		✓
Utility Energy Service Contract (UESC)		✓		✓	✓		✓
Energy Resilience and Conservation Investment Program (ERCIP)				✓	✓	✓	✓
Energy Assurance Lease (EAL)		✓		✓	✓	✓	✓
Enhanced Use Lease (EUL)				✓	✓	✓	✓
Utility Privatization (UP)					✓		✓
Partnerships				✓		✓	✓
Military Construction (MILCON)						✓	✓



The Future of Air Force Performance Contracting

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The U.S. Air Force is approaching performance contract methods in the most innovative, beneficial, and results-driven manner for all:

1. Energy-as-a-Service (EaaS)
2. Finance First
3. Defense Energy Consortium (DECo)



- 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

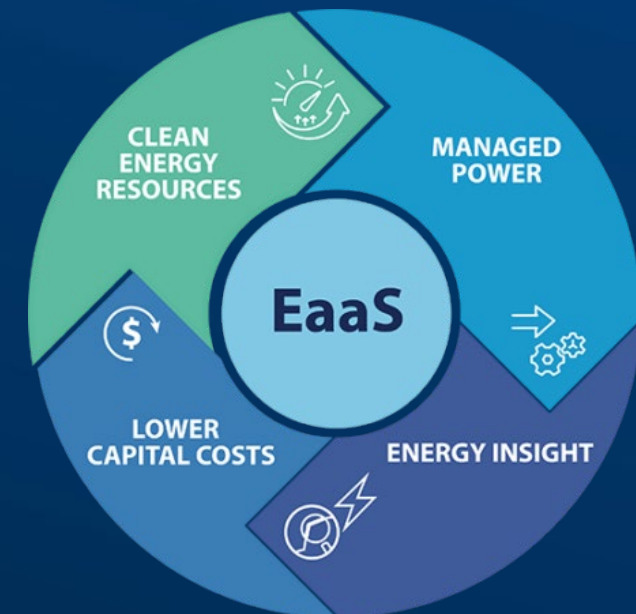


Energy-as-a-Service (EaaS)

- 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



Air Force Energy: Operating Solutions Currently Moving Towards Development

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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:**

92

* Have potential for a third-party
financed component



The United States Air Force is open for collaboration with community partners.

Let's drive energy resilience and meet our goals together.

Let's Connect on Energy Resilience

AIR FORCE OFFICE OF
ENERGY ASSURANCE



Mr. Kirk A. Phillips
Director
kirk.phillips.3@us.af.mil



Lt Col Nussbaum
Deputy Director
Rachael.Nussbaum@us.af.mil



Ms. Lucy Notestine
Special Projects Division Chief
lucinda.notestine@us.af.mil

Ms. Miranda Brannon
Project Development
Division Chief
miranda.brannon@us.af.mil



Email Us: AF.Energy.Assurance@us.af.mil

Thank you!



Kirk A. Phillips

Director
Air Force Office of Energy Assurance (AF OEA)



Questions?

