

DAF is electrifying its installations, buildings, non-tactical vehicles, and flightline equipment to modernize infrastructure, reduce risks to operations, and bolster energy resilience.



Plugging in hybrid vehicle, Hanscom AFB
Photo By: Linda LaBonte Brit

Approach to Electrification

Why it Matters

Ensuring mission readiness and strengthening resilience at installations, the Department of the Air Force (DAF) is pursuing electrification as one of several key strategies to reduce operational risks associated with emissions and climate impacts. To better understand electrification complexities, DAF is conducting a series of pilot programs focused on base, fleet, and flightline electrification with cutting-edge, all-electric technologies. Insights from the pilots will inform future DAF policy approaches and investment needs to meet mid- and long-term resilience goals.

Policy Drivers

Aligned with the Administration's priorities and national security imperatives, the Department of Defense issued *Electrification of Standard Building Operations*, a memorandum requiring all services to maximize the use of all-electric technologies where market-ready technologies exist. In response, the Office of the Deputy Assistant Secretary of the Air Force for Environment, Safety, and Infrastructure (SAF/IEE) is preparing guidance for DAF installations on maximizing use of market ready, all-electric technologies in building design, construction, repair, and operations.

SAF/IEE is also leading several pilot programs in alignment with the DAF Climate Action Plan (CAP) to understand electrification and modernization requirements and inform future policy. Key targets include:

- A **net-zero** emissions building portfolio by Fiscal Year (FY) **2046**, including a **50%** emissions reduction from 2008 levels by **FY33**
- **100%** carbon pollution-free electricity (CFE) on a net annual basis by **2030**, including **50% 24/7** CFE
- **100%** non-tactical zero-emission vehicle acquisitions by **FY35**



Overview of Pilot Programs

The DAF is modernizing installations by electrifying buildings, non-tactical vehicles (NTV), and flightline equipment. These initiatives will reduce risks to operations, bolster energy resilience, and achieve objectives outlined in the DAF CAP by creating energy redundancies, reducing emissions, and domesticating fuel supply for immediate energy delivery.

Base Electrification Pilot Program

SAF/IEE launched the Base Electrification Pilot Program in 2023 to evaluate electrification opportunities and impacts. These pilots serve as “pathfinders” to analyze how installations can continue to meet mission requirements and DAF objectives while integrating all-electric technologies into energy infrastructure and mobile operations.

NTV Fleet Electrification Pilot Program

SAF/IEE, Headquarters Air Force, Logistics (AF/A4L) and the Air Force Civil Engineering Center Office of Energy Assurance (AFCEC/CN) are collaborating under the NTV Fleet Electrification Pilot Program to evaluate fleet electrification opportunities and potential impacts at pilot installations. The program will support the development of a NTV Fleet Electrification Framework to guide installations through fleet electrification.

The pilot program launched in December 2021 with two initial pilots and has since expanded to include 45 installations. These installations represent a diverse scope of geographic conditions, missions, sizes, and tenants.

Flightline Electrification Pilot Program

Installation flightlines are essential for enabling operations and securing mission success. Electrifying installation flightline equipment can lead to multiple benefits, such as:

- Reduced fuel consumption and associated emissions
- Reduced flightline noise and improved Airmen communication
- Reduced generator maintenance and manpower hours
- Cost effective charging from engines and grids

All-electric versions of flightline support equipment and vehicles will be used, where possible. The Air Force Research Laboratory is leading several DAF pilots to develop and test prototypes including:

- Flightline generators
- Mobility aircraft cargo loaders
- Light carts



Hybrid Aircraft Loader, Dover AFB
Photo by: Jamie Cooper



The Department of the Air Force is taking a resilience-focused approach to future energy and water projects concentrated on providing strategic agility for missions and installations.

For more information:

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