UNISON ENERGY

Case Study

FedEx Lehigh Valley Distribution Hub: On-Site Power Delivering Resilience

Eastern, U.S.

With an 850,000-square-foot facility capable of processing up to 45,000 packages per hour, the FedEx Ground distribution hub in Lehigh Valley serves as a critical node in FedEx's Eastern U.S. operations.

Ensuring uninterrupted operations at this facility is vital to meet customer expectations and maintain the efficiency of the broader distribution network. To achieve this goal, FedEx partnered with Unison Energy to install a resilient on-site microgrid that supports continuous operations, even during grid outages.

- Distributed generation microgrid covering over 80% of facility's electric load, operating at 45% efficiency
- 1 × Pad Mount 2000 KVA Transformer
- 1 × Generator Breaker added to existing switchgear
- Load-following and island mode capabilities

Project Details

Unison Energy installed a cogeneration-based microgrid at the FedEx Lehigh Valley distribution hub to improve energy resiliency and reduce utility costs. The on-site power system enables the facility to maintain operations even in the event of a utility outage, providing critical backup power and supporting FedEx's mission of uninterrupted delivery services.

FedEx

"This new installation from Unison helps strengthen the resiliency of our local operations through an on-site power source that can operate independently of the grid, while also providing cost savings and the future flexibility to operate the system with lower-carbon fuels."

Lonnie Mattison, Manager, Sustainability, FedEx

By operating in island mode, the microgrid can cover the majority of the facility's base electric load, allowing FedEx to continue its distribution activities without relying on the grid. This behind-the-meter system also reduces grid congestion by generating and distributing power locally.

The microgrid's high electric efficiency—between 40% and 45%—surpasses the Pennsylvania grid's typical efficiency of 30%–35% after accounting for transmission losses. In addition, the system reduces environmental impact by offsetting the need for water-intensive thermoelectric power plants, helping to conserve water resources.

FedEx leveraged Unison Energy's Energy as a Service (EaaS) model to deploy the Lehigh Valley microgrid with no upfront capital investment. Under this model, Unison handled the design, engineering, procurement, and construction of the energy system and continues to own, operate, and maintain it for the long term. This approach allowed FedEx to avoid the financial and operational risks typically associated with building and managing complex energy infrastructure.

Unison's in-house operations team will service and monitor the system for the next 15 years, providing the FedEx Lehigh Valley distribution hub with consistent, predictable energy cost savings while improving reliability. This partnership enables FedEx to focus on its core logistics operations while still advancing its sustainability and resiliency goals.

The FedEx Lehigh Valley project qualified for a $500,000 incentive through the PPL Business Energy Efficiency Program administered by Clear Result. These incentives were designed to encourage deployment of high-efficiency distributed energy resources that reduce demand on local utilities and improve overall grid performance. Unison Energy collaborated closely with Clear Result to evaluate the project's technical specifications and successfully navigate the incentive process. This grant directly offset the cost of the installation and highlights how strategic use of available funding can accelerate the transition to cleaner, more resilient energy solutions.

Most importantly, the microgrid provides FedEx operations staff with greater peace of mind, knowing that package processing and distribution can continue uninterrupted—even during utility grid outages.

Who We Are

We own and operate distributed generation systems that operate as microgrids.

We operate systems in CA, MD, NJ, and NY, with additional projects underway.

We finance projects on our balance sheet, with no outside capital required.

We design and implement our systems using internal engineering and project management teams.

We operate our sites using in-house field service technicians, engineers, and a 24/7 staffed monitoring center.