enel x

Customer Spotlight:

Marcus Garvey Village Leverages Solar, Energy Storage, and Fuel Cell to Minimize Energy Spend and Maximize Incentive Payments

Background

The owners of Marcus Garvey Village, a 625–unit apartment complex in Brooklyn, NY, understand that the value of distributed energy resources extends beyond the confines of their buildings. As one of the most energy–intensive urban environments in the world, New York City faces a significant challenge maintaining reliable access to power during periods of high demand for electricity. An investment in distributed energy resources would not only improve the apartment complex's access to independent power, but could contribute to efforts to bolster the grid in its community.

The Challenge

New York City businesses have access to a number of programs aimed at maintaining grid reliability and keeping energy prices in control during periods of high demand for electricity. Demand response programs offered by the New York Independent System Operator (NYISO), the local grid operator, and the utility Consolidated Edison (Con Ed) compensate large energy users for their ability to reduce energy consumption during grid emergencies.

L+M Development Partners, the owners of the Marcus Garvey Village, recognized that the ability to self–generate, store, and consume power on–site would not only enable them to participate in these programs, but would also provide valuable resources when energy prices spike or to power critical equipment in the event that the grid goes down.

However, integrating the resources to accom–plish these goals is complex. Executing this project would require:

> The expertise to model the right system of distributed energy resources for their buildings

> A strategy for maximizing the system's economic performance through reduced utility costs and payments through energy market programs

> Access to financing options to offset the upfront costs of purchasing and integrating these assets

INDUSTRY

Real Estate

SYSTEM

400 kW Solar PV;
400 kW Fuel Cell;
300 kW/1.2 MWh
Lithium–Ion Battery

PROGRAMS

NYISO Demand Response; Con Ed's Brooklyn Queens Demand Mgmt.

The Solution

Self–sufficient Solar+Storage System Increases Flexibility

The Enel X North America team worked closely with L+M Development Partners to model a system consisting of a 300 kW energy storage system, a 400 kW solar photovoltaics (PV) system, and a 400 kW fuel cell.

Enel X coordinated the financing, procurement, and installation of the assets so the organization could capitalize on this opportunity without committing to significant upfront costs. Enel X also worked with the local utility on the project owner's behalf in order to finalize permitting and interconnection issues.

Furthermore, Enel X helped enroll the Marcus Garvey Village in available energy market programs, including NYISO demand response and Con Ed's Brooklyn Queens Demand Management Program (BQDM).

Intelligent Software Optimizes Incentive Earnings and Energy Savings

The combined distributed energy resources are equip–ped with Enel X's DER Optimization Software, which automates the deployment of the assets for maximum financial performance.

The software leverages machine learning and optimization technologies to learn the facility's energy consumption and operational behavior and evaluate all relevant external data, such as energy market prices, tariffs, demand charges, and energy market programs. Based on the optimal conditions at any given time, the software will automatically shift the buildings' load onto the power from the solar, storage, and fuel cell system to create maximum financial return.

Results

With Enel X's DER Optimization Software, the system enables the Marcus Garvey Village to maximize incentive payments and minimize energy spend by avoiding exposure to spikes in energy prices and reducing utility charges related to demand peaks at certain intervals.

Additionally, optimizing the system enables Marcus Garvey Village to provide valuable capacity to efforts to keep the lights on and energy prices in control in its community.