

**MARCUS GARVEY VILLAGE
MICROGRID PROJECT**

First self-sufficient residential microgrid in New York City

NUMBER 1
FEBRUARY 2018



Case

The city of New York is one of the most energy-consuming places in the world, with an ever-increasing demand for energy and a consequent **overloading of the grid**. Located in Brooklyn, the residential complex Marcus Garvey Village is made up of 625 apartments.



Objectives

- Reduce peaks in energy demand
- Integrate distributed generation systems like photovoltaic systems and domestic energy storage systems
- Increase energy supply security in an area subject to frequent blackouts
- Reduce energy expenditure for the customer



Solution

A **smart microgrid that integrates:**

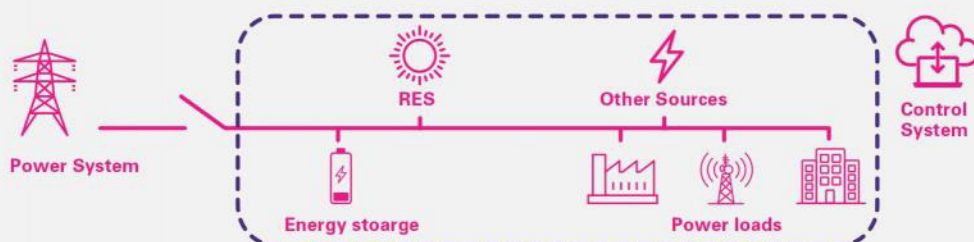
- A solar photovoltaic system with **400 kW**
- A **400kW** fuel cell
- An energy storage system of **300 kW / 1.2 MWh**

The microgrid is managed by the **smart software DEN.OS (Distributed Energy Network Optimization System)**, developed by Demand Energy Network, which is able to manage the energy resources of distributed generation. The DEN.OS software, which combines renewables and storage in a smart distributed generation system, is able to predict peaks in demand, satisfy the grid load and guarantee that the apartments completely consume the energy produced.



Microgrid

The microgrid is a system characterised by an interconnection between loads and distributed generation sources and by the ability to function both on the grid and alone. It's an integrated ecosystem that manages energy resources simultaneously and optimises their functioning.



BUSINESS CASE #1

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Benefits

- Reduction of greenhouse gases
- Reduction of energy costs for residents
- Total consumption of the energy produced by the apartments
- Simplified management of the energy load for the local distributor
- Stability of energy supply in an area with frequent blackouts



Economic Advantages

The project largely pays for itself thanks to a combination of incentives and impacts generated through the participation in programs of **Demand Response** and **Peak Shaving**. The owners of the apartments have agreed to an operational model that calls for the subdivision of savings generated by the project in order to cover the costs of installation and finance the initiative.

Highlights



First experiment of industrial storage in New York using lithium ion batteries



Complete solution for energy efficiency and resilience



Replicable model

Enel X is Enel's new Global Business Line, focused on electric mobility, vehicle to grid projects, recharging infrastructure, energy efficiency management, batteries and energy optimization platforms, public lighting and distributed generation systems. Enel X aims to capitalize on the transformation of the energy industry, understanding and servicing the needs of Enel's global customer base by exploring opportunities, developing customer-centric, innovative products using digital solutions.