Eaton Arecibo: A Post-Maria Microgrid Story

How Enel X and Eaton are Teaming Up to Deploy Resilient Microgrid Solutions in Puerto Rico

Location
Arecibo, Puerto Rico

Solution
5 MW solar PV array + 1.1 MW battery storage microgrid

Capacity
13 MW of available load, including site's existing 8 MW backup generation

Sustainability
4,500 MT annual GHG emissions reduction

The Challenge: Resilient Energy for a Puerto Rico Facility

In 2017, Hurricane Maria devastated Puerto Rico, causing $90 billion in damage and leaving much of the island without power. Among the affected was Eaton, a global power management solutions and services provider with ~1,500 employees across four manufacturing facilities on the island.

While Eaton was fortunate that the facilities—mainly manufacturing low- and medium-voltage circuit protection components—experienced only modest damage, the experience prompted a deeper look into how to bolster their critical operations in Puerto Rico and similar severe weather-impacted locations. In the years since, Eaton has re-focused on investing in business continuity and reducing demand on local energy infrastructure, all while committing to reduce carbon emissions from its operations by at least 50 percent by 2030.

The Solution: Solar + Storage Microgrid with Enel X and Eaton

Eaton and Enel X partnered to develop and finance a solar + storage microgrid at Eaton's Arecibo manufacturing site by leveraging their respective intelligent power management capabilities.

Eaton, as a global power management solutions and services provider, will design and build the project as well as contribute electrical equipment, including its intelligent microgrid controller. Enel X, as a leader in decarbonization solutions, will leverage its market expertise to unlock additional revenue streams for the energy assets and provide project financing without any up-front capital. Together, they will step up to the challenge of delivering resilient, clean energy on the island grid.

> *"... a postcard from the future for islands and other centralized grid systems transitioning toward more distributed resources."*
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> —Wood Mackenzie analyst Isaac Maze-Rothstein, commenting on the microgrid project in Greentech Media

The Benefits

Large, Resilient Microgrid

The microgrid, which includes Enel X Distributed Energy Resources Optimization Software (DER.OS) and Eaton's Power Xpert Microgrid Controller, will be one of the largest microgrids on the island, providing 13 MW of available power. The microgrid will ensure the power stays on for the manufacturer's strategic island site, even during periods of local grid instability or damaging hurricanes.

Turnkey Solution and No-Capex Financing

The microgrid—financed, owned, and managed by Enel X—incorporates a turnkey energy storage and solar photovoltaic system that will interconnect to the site's electrical infrastructure. The system supplements Eaton's existing 8 MW of backup generation, and is designed to withstand Category 5 hurricanes.

Reduced Greenhouse Gas Emissions

Using its 5 MW solar array and 1.1 MW battery storage, the project is projected to reduce 4,500 MT of GHG emissions annually and provide renewable energy for over half of the site's annual consumption.

Helping the Community

With the microgrid, Eaton will be positioned to provide excess power back to the grid, which benefits the local community and reduces demand on the island's electric utility. In the future, Eaton and Enel X will seek opportunities to expand their clean microgrid solution across the island, helping Puerto Rico rebuild its electric grid on the bedrock of renewable and resilient energy. Already, they have teamed up to jointly develop a second microgrid at Eaton's Las Piedras manufacturing facility.

A Model for the Future

Commenting in a Greentech Media article, Wood Mackenzie analyst Isaac Maze-Rothstein called the Puerto Rico microgrid project a "postcard from the future for islands and other centralized grid systems transitioning toward more distributed resources."