



GRID-INDEPENDENT ELECTRICITY SYSTEM

Blue Planet Energy Creates Resilience Hubs at Puerto Rican Schools

PROJECT

Martín García
Middle School

LOCATION

Toa Baja, Puerto Rico

APPLICATION

Microgrid Systems

PRODUCT

Blue Planet Energy
Blue Ion 2.0

After Hurricane Maria struck Puerto Rico in 2017, the American Red Cross implemented over one hundred solar-plus-storage school microgrids in each of Puerto Rico's seventy-eight municipalities. Totalling over 11 MWh of energy storage and 6 MW of solar power, these microgrids now provide long-term resilience to tens of thousands of people seeking shelter during emergencies.

BATTERY SYSTEM

(7) Blue Ion 2.0 cabinets,
112 kWh capacity total

POWER CONVERSION

(6) SMA Sunny Boy 7000
(6) SMA Sunny Island 6048

SOLAR

23 kW Q Cells PV Array
27 kW Q Cells PV Array



Like many schools when Hurricane Maria struck, Martín García Middle School (MGMS) in Toa Baja depended on unreliable, high maintenance diesel generators for backup power. The noisy, polluting fuel-based generators had to be constantly refueled and often failed during an outage due to improper maintenance throughout the year. In these scenarios, community members sheltered in the dark for

days on end. MGMS sought a reliable, long-lasting source of backup power that would not require burdensome maintenance throughout the year. Due to the hot climate and close proximity to children, safety of the power systems was paramount.

“Blue Ion 2.0 was carefully selected due to its long cycle life, robust warranty and its ability to be easily installed. It’s expected to last for several decades. It’s also very quiet and doesn’t require any maintenance. We never notice when there’s an outage anymore.”

—Yamil Pagan

Co-founder & VP Business Development
Alten Energy





“Our robust energy storage solution transforms this school into a resilience hub for first responders.”

—Gabriel Perez
Caribbean Regional
Manager
Blue Planet Energy

Reliable and Safe Emergency Power

Knowing that tens, if not hundreds, of people would be depending on MGMS for shelter during an emergency, seven Blue Ion 2.0 energy storage solutions were selected to be paired with solar power due to their proven reliability in myriad critical infrastructure projects and their inherent safety. Blue Ion 2.0 has zero maintenance requirements and comes with a fifteen year warranty, ensuring that MGMS will not have to worry about replacement costs or sacrificing time on maintenance that would otherwise be spent tending to community members.

Yamil Pagan, Co-Founder and President of Alten Energy, an experienced local solar-plus-storage installation company, was chosen by the American Red Cross to install this micro-grid at MGMS. Yamil appreciated that Blue Ion 2.0 was very easy to install, as MGMS was just one of thirty-four schools Alten Energy installed Blue Ion 2.0 at throughout 2018 and 2019 as part of the larger American Red Cross Solar Schools project.

Yamil could also feel confident about system safety as the Blue Ion 2.0 uses a benign battery chemistry, lithium iron phosphate, which is not prone to thermal runaway. This is particularly important given Puerto Rico's hot climate as well as the fact that these systems will be operational near school children and local community members.

The projects required that Alten Energy install two micro-grids at MGMS. One area is focused on providing power for critical infrastructure such as kitchens, refrigeration and water pumping. A second area is focused on lights and

plug loads that allow community members to charge their phones and computers.

Long-Term Energy Resilience and Savings

Community members who shelter at MGMS will now be able to reliably communicate with loved ones as well as receive news updates around-the-clock. This robust solar-plus-storage system will also serve as a mission control center for non-governmental organizations in future disaster relief scenarios, allowing first responders to reliably communicate about supplies and recovery plans.

Beyond providing reliable backup power for communities sheltering during an emergency, MGMS students will also no longer lose classroom time as a result of a power outage. This is significant, as Toa Baja experiences at least thirty power outages per year due to the unreliability of the utility grid.

Additionally, the kitchen at MGMS can now be used reliably year-round to serve food to low income families. During the earthquakes and coronavirus pandemic in 2020, it has already been used on a daily basis to serve food to those hardest hit by these emergencies.

MGMS is also now saving \$1,800 a month on its electric bill as a result of this microgrid, which has provided additional funds for school supplies and activities. This is on top of the savings MGMS has realized by completely eliminating its use of diesel fuel. Each Solar School in Puerto Rico now provides critical backup power for entire communities while saving on their electric bill year-round.