BLUE PLANET ENERGY
CUSTOMER
SUCCESS STORY

COMMUNITY RESILIENCE: POTABLE WATER PUMPING AND DISTRIBUTION

Blue Planet Energy Enables Community Water Security

In Puerto Rico's rural town of Barrio Rabanal, Blue Planet Energy's Blue Ion battery system provides water security. The system integrates battery storage, solar, and a backup generator to provide independent power for the community water system when the utility grid fails.

PROJECT
Almirante Juaguas Community Water System

LOCATION
Barrio Rabanal, Cidra, Puerto Rico

APPLICATION
Community Water Pumping

PRODUCT
Blue Planet Energy Blue Ion 2.0

BATTERY SYSTEM
(2) Blue Ion 2.0 cabinets, 20 kWh capacity total

POWER CONVERSION
(2) Schneider Electric Conext XW+ 6048 inverters, (4) Conext MPPT 80 600-volt charge controllers

SOLAR
(48) 330 W GLC modules, 15.8 kW capacity total

GENERATOR
20 kW RK Power/Stamford, diesel-fueled

In Puerto Rico, more than 200 rural communities are serviced by independent, community-operated water systems. Referred to as non-PRASA sites, these systems are not developed or maintained by the Puerto Rico Aqueduct and Sewer Authority (PRASA). While many of these non-PRASA water systems have utility power onsite, due to their remote locations, they often experience long-duration outages during utility grid failures due to extreme weather events and, more recently, earthquakes.

Blue Planet Energy has teamed up with NGOs, local community organizations, and solar-plus-storage installers to add solar-electric arrays, battery storage, and backup generators to many of these water systems.

"Barrio Rabanal was without utility power for seven months after Hurricane Maria. The installation of the Blue Planet Energy battery system, solar array, and backup generator made our community water supply reliable and independent. We selected the Blue Planet Energy system based on its 15-year warranty and reputation as a top-of-the-line product."

—Jose A. Amaro
President, Almirante Juaguas Corp

A Community Powered Water Project

One such non-PRASA water system is located in Barrio Rabanal, a town with a population of about 4,000 located in the Cidra municipality. A group of 96 families that live on the outskirts of Barrio Rabanal is serviced by a community water system operated by the local Almirante Juaguas Corp. The organization's president, Jose A. Amaro, a retired helicopter mechanic that worked for Puerto Rico's electric utility, is a resident of Barrio Rabanal. Jose understands firsthand the critical role a reliable water system plays in maintaining community health and continuity during extended grid failures. In 2017 after hurricane Maria, the water system he oversees was without utility power for seven months.

With the oversight of Jose and his business associate William Ortiz, local community members dedicated more than 1,000 hours of hands-on labor to add resilience to the Barrio Rabanal water system. With funding from the international humanitarian aid group Direct Relief, the Puerto Rico-based non-profit Por los Nuestros engaged and empowered local community members during the planning and boots-on-the-ground installation phases of the sustainable water project. AZ Engineering, a well-known solar and energy storage expert and Blue Planet Energy Certified Dealer lead the system's engineering and installation.

Building Water System Resilience

The independent power system integrates two Blue Planet Energy Blue Ion 2.0 battery cabinets with a combined energy storage capacity of 20 kWh, with space for capacity expansion. Charging sources include a 15.8 kW solar array, a 20 kW backup diesel generator, and the utility grid. Two Schneider Electric 6,000 W inverters provide 120/240 Vac output to power the well pump as well as auxiliary loads. The power system drives a 10 HP single-phase pump that lifts water almost 700 feet from the well to an above ground 33,000-gallon storage tank. The tank is located 1.4 miles away on a hillside above the town. A gravity-fed distribution system provides pressurized water from the storage tank to the dwellings of 96 families.

The community of Barrio Rabanal experienced immediate as well as ongoing benefits from the Blue Planet Energy system. When the grid is present, the system feeds clean solar energy to the utility and lowers the community's electricity costs.

When the grid fails, which it does for about eight hours once a week, the system seamlessly switches to solar and battery power to keep the pump running and water tank full. During more extreme events such as Puerto Rico's recent earthquakes, Barrio Rabanal was without grid power for three days. The independent water system provided a constant supply of clean potable water, significantly easing the impact of the extended power failure for the community and its neighbors.

"Community members in Barrio Rabanal experienced immediate benefits from their independent power system during the recent earthquakes that left much of Puerto Rico without power and clean water. Along with its partners, Blue Planet Energy empowered the communicty to add resilience to its water supply. I hope other mountain communities in Puerto Rico will develop similar systems and ensure their water supply."

—Gabriel Perez
Blue Planet Energy