



OFF-GRID SOLAR-PLUS-STORAGE SYSTEM

# Maximizing Savings and Sustainability for Coffee Farm Owners in Hawaii

## PROJECT

Kona Rainforest Coffee

## LOCATION

South Kona, Hawaii

## APPLICATION

Off-Grid

## PRODUCT

Blue Planet Energy  
Blue Ion 2.0

After nearly fifteen years of successfully running an 80-acre certified organic coffee farm in South Kona, Hawaii, Robert and Dawn Barnes and Craig and Mary Kay Wattles decided to build a new 8,000 square foot mill to keep up with the high demand for their products. The owners sought to power their farm, mill and roastery entirely from renewable sources to align with their core company principle of sustainability.

## BATTERY SYSTEM

(5) Blue Ion 2.0 cabinets,  
60 kWh capacity total

## POWER CONVERSION

(4) OutBack Radian GS8048A  
Inverters  
(7) OutBack FM100 Charge  
Controllers

## SOLAR

39 kW PV Array

## GENERATOR

48 kW Generac



When researching how much it would cost to connect to the local utility as opposed to using renewable sources, the owners discovered the large amount of power they required would cost twice as much from the utility. At their last farm, the owners used heavy, short-lived lead acid batteries to store their solar energy as well as a diesel powered generator. However, their lead acid battery bank could only be discharged half way to not damage the batteries. Even by doubling battery capacity, their battery

bank couldn't meet the high power needs of their business, and they were forced to turn on their generator. The noisy, polluting generator, however, was often distracting to tourists during farm tours and stood in direct conflict with the sustainable focus of their brand.

"We selected the Blue Planet Energy systems because they are the safest, most reliable option on the market and also because of their sleek design. We continue to be impressed with their long-lasting power throughout the day as well as their extremely fast recharge time. They've performed flawlessly."

—Robert Barnes

Kona Rainforest Coffee Owner



“Given the intermittent cloud cover in many areas of Hawaii, Blue Planet Energy’s quick recharge time is critical, particularly for fully off-grid businesses like Kona Rainforest Coffee.”

—Lori Ann Saunders  
Blue Planet Energy

The owners first considered Tesla batteries, but Blue Planet Energy’s lithium battery chemistry made it the safest choice to install near staff and tourists. Knowing the batteries would be on display for farm tours, they also preferred the sleek aesthetics of the Blue Ion 2.0. Additionally, the Blue Planet Energy system came with a 15-year warranty and could be fully discharged, unlike their old lead acid batteries, meaning the owners would not have to worry about replacement costs while simultaneously having double the energy with a much smaller footprint.

#### Highly Efficient and Long-Lasting Power

Working with Solar Advantage, a local solar-plus-storage installation company led by Joe Bruno, the owners were able to leverage their newly installed microgrid to aid in the construction of the mill.

Due to Blue Planet Energy’s quick recharge ability, the Blue Ion 2.0 batteries remained fully charged at the end of each day, despite consistent and repetitive daily use. Fast charge times are particularly important in the high altitude climates of Hawaii, where cloud coverage can occur unexpectedly. This fully off-grid system now powers dehumidifiers, air conditioners and a large coffee dryer that runs twenty-four-seven, a wet mill that runs several hours a day, electric water heaters and lighting for on-site accommodations. Even with several high power items running day and night, the Blue Planet Energy systems are fully charged every morning so the owners never have to endure any unnecessary delays in work. “We’re regularly pulping coffee in the late afternoon and into the late evening,” said Robert. “We continue to be impressed by the fact that we deplete the batteries every night, but by 9 am, they’re always fully charged again and ready for another full day’s use.”

#### Minimal Carbon Emissions and Built-In Expandability

In line with the sustainable ethos of Kona Rainforest Coffee, the owners plan to use their excess energy to power a drone that assists with organic spraying of their coffee plants as well as three 4x4 electric farm vehicles. Replacing their fossil fuel powered farm vehicles will ensure the entire business adheres to the highest environmental standards and minimizes carbon emissions.

The owners’ choices to produce only certified organic coffee and solely use renewable energy has directly benefited their business. Their coffee tours, for example, originated when people across the world began seeking them out for their specific organic coffee and sustainable business practices. Kona Rainforest Coffee then gained publicity, featured in the Washington Post, Hana Hou, the Magazine of Hawaiian Airlines and landed a partnership to sell coffee in highly popular Los Angeles restaurants. Unsurprisingly, the owners have been selling out of coffee year after year.

In the likely possibility that the owners’ energy use continues to grow, given the substantial growth of their business, their battery systems can be easily expanded. Solar Advantage installed the system with room for additional battery capacity so the owners’ energy storage system can increase in size incrementally, anywhere from 60 kWh up to 80 kWh. No additional equipment needs to be added to increase the battery bank size other than additional battery modules, as all conduit and wiring is already in place.

Thanks to Solar Advantage’s expertise, solar power and reliable, long-lasting Blue Planet Energy storage systems, the owners have been able to maximize savings, increase their annual revenue and drastically reduce the carbon footprint of their organic coffee business.