



Case Study: St. Kitts Island Workshop

OutBack Off-Grid Power System Installation



Overview

Solar Nexus International sells **customized solar power systems for delivery and installation anywhere in the world**. The Washington State-based company provides solar, micro-hydro and wind energy solutions for individuals, institutions and non-government organizations with a **particular focus on remote locations and emerging markets**.

In 2007, Solar Nexus International began developing a solution for a customer who owned a former sugar plantation on St. Kitts Island in the West Indies. The original project focus was a stone building on the property that the owner wanted to convert into a woodworking shop. While the customer had access to island utility power, it was too unreliable to support the power requirements of electric band saws, table saws and other high-current consumption woodworking equipment. To solve the problem, he hired Solar Nexus International to design and install a more independent, renewable power solution.



I've known OutBack Power from the very beginning, and I didn't consider anyone else for the project. For solar power in remote locations, OutBack is the best in the business, especially in providing renewable power options that make the most efficient use of all energy sources available."

Eric Youngren

CEO and Founder, Solar Nexus International

System Specifications

Location: St. Kitts Island, West Indies

System Power: 12kW PV Solar Array

Components: FX Inverter/Chargers and FLEXmax Charge Controllers





Objectives

- Design and build a reliable, off-grid electrical system incorporating renewable resources to power a woodworking shop on St. Kitts Island.
- Engineer the photovoltaic array for safe disassembly in less than two hours to prevent damage to critical components in the event of an approaching hurricane.
- Build a system capable of withstanding the harsh daily conditions of a marine environment, including salt air and high humidity exposure.

Solution

Having worked with OutBack Power products while at other companies, Solar Nexus International CEO Eric Youngren based his St. Kitts solution on a design using four OutBack Power **FX inverterchargers** and four **FLEXmax charge controllers** to work with a 12kW Mitsubishi photovoltaic (PV) panel array. The resulting system, which is constructed from aluminum and stainless steel to protect it from the marine environment, includes four panels per string, with each string mounted on a pair of rails. If the system needs to be removed due to impending extreme weather conditions, each string of four modules can be quickly dismantled and easily transported to safety. While the installation was initially designed to support only high-powered woodworking and electrical equipment in one building on the plantation, it had enough capacity for the owner to later use the system to power the entire property as an alternative to unreliable grid power.

Benefits

- OutBack Power's pre-wired FLEXware power panel saved installation time and made it easier for electricians without solar experience to install and maintain a PV system.
- OutBack Power's HBX mode lets the customer use the grid as a backup generator as needed during reduced-sun periods to prevent the batteries from being discharged, while running day-to-day operations on solar energy.
- Unlike his neighbors, the estate's owner is no longer reliant on the sporadic service of the island's utility grid.

