Panama island microgrids

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The solar array powers all appliances, lighting, air conditioning and systems on the island, switching off at dusk to run only silent battery power at night. The solar array will turn on at sunrise to refuel the batteries from the night before, while continuing to run the island"s electric loads.

CBS Power Solutions approached Nuvation Energy for assistance integrating Nuvation"s high-voltage battery management system into the energy storage component of a microgrid on the remote island of Lifuka. Lifuka is a 4.4 square mile island in the the Kingdom of Tonga that had been receiving electrical power exclusively from diesel generators. In order to meet a government mandate to derive 50% of island grid power from clean energy, the Kingdom of Tonga contracted CBS Power Solutions to add solar power and 480 kW / 495 kWh of VRLA-based energy storage to their island grid.

Civic Solar chose Nuvation Energy to provide battery management solutions for Islas Secas, a 100% solar powered island resort off the coast of Panama. The island microgrid is powered by a 355 kW photovoltaic (PV) array. Nuvation Energy provided a custom energy storage system (ESS) controller to enable unified control of 27 battery banks and two diesel gensets. We also provided a battery management system to expand battery storage capacity by an additional 500 kWh. An downloadable Energy Storage Case Study is available on the Consortium for Battery Innovation"s website.

Harnessing abundant solar resources, an eco-resort located off the coast of Panama has chosen advanced lead batteries, paired with a battery management system (BMS), to power their island microgrid.

This unique project has installed new lead batteries to the existing battery energy storage system. Initially using East Penn’s Unigy II batteries, the project seamlessly incorporated GS Yuasa batteries into the project using Nuvation Energy’s BMS.

In order to enable different batteries at different states of health to be managed as a unified energy storage system, the BMS in the Unigy II batteries were replaced with the Nuvation Energy BMS, which is able to be programmed to manage cells of different capacities, chemistries and SOH as a single system.

“Nuvation Energy was pleased to provide the BMS and a customized energy controller for the Islas Secas augmentation. Our configurable BMS can support batteries of different SOH, manufacturers and

chemistries by simply altering configuration settings. This enables a seamless augmentation of existing energy storage systems, and greatly simplifies future battery changes”, said Michael Worry, CEO, Nuvation Energy, Sunnyvale, California.

Technical SpecificationThe island microgrid is powered by a 355 kW photovoltaic (PV) array, which powers all appliances and systems on the island during the day, switching off at night to utilize silent battery power.

The batteries are charged by the solar array during the day, providing a reliable and renewable 1.5 MWh energy storage solution. The island energy storage system initially installed 18 stacks of East Penn Unigy II lead batteries. When the eco-resort wanted to expand the capacity of the system by 500 kWh, they utilized Nuvation Energy’s BMS to install new additional lead batteries.

The augmentation of the existing system with 9 stacks of GS Yuasa’s batteries was a straightforward process as Nuvation’s BMS is able to be used across multiple battery manufacturers.

The eco-resort utilizes an energy management system developed by Nuvation Energy to prioritize the cycling of the new and previous batteries respectively. The Nuvation Energy BMS manages both sets of batteries, which have different charge/discharge profiles, as a single unified platform.

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