Saint vincent and the grenadines microgrid design

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On Friday, April 21, St. Vincent Electricity Services Limited (VINLEC) and Rocky Mountain Institute and Carbon War Room (RMI-CWR) released a Request for Qualifications for interested parties to submit credentials to bid for the Engineering, Procurement and Construction contract for a solar photovoltaic (PV) and battery storage Microgrid Project on the Grenadine Island of Mayreau.

The Microgrid Project is part of St. Vincent and the Grenadines" shift toward increasing the utilization of renewable energy technologies. Currently VINLEC utilizes hydro and solar energy to provide just under 20% of electricity production on the main island of Saint Vincent. This Microgrid Project will make Mayreau the first of the four Grenadine islands served by VINLEC to utilize a high penetration of renewable energy.

Rocky Mountain Institute and Carbon War Room are independent, unbiased, technical advisors to VINLEC and the Government of St. Vincent and the Grenadines, and will manage the project bidding process.

The island of Mayreau is a tropical paradise in St. Vincent and the Grenadines. Like most Caribbean islands, electric power for the island residents comes from diesel generators, which is costly, noisy, and contribute to climate change. VINLEC, the local energy utility, worked with The Rocky Mountain Institute (RMI) to install solar PV and a battery energy storage system (BESS) for a more sustainable source of energy.

ComAp provided the microgrid control solution that enables VINLEC to maximize PV contribution and reduce diesel consumption while maintaining reliable power for Mayreau. The ComAp InteliSys NTC Hybrid controller constantly monitors the system and dispatches resources for the lowest possible fuel usage. In certain conditions, the controller can shut down all diesel gen-sets while the BESS and PV support the load. The controller will restart the diesel gen-sets when needed due to low PV production, high loads, or low battery state of charge.

This installation provides a template for renewable power generation for islands like Mayreau throughout the Caribbean and other remote areas, saving the islands on the costly use of diesel fuel for the generators while giving them a more environmentally sustainable and resilent source of power generation.

ComAp provided a flexible, user-friendly and cost-effective hybrid controls package that alleviated problems we were facing with the integration of high penetration solar PV and battery storage into the Mayreau power system. The performance of their solution has far exceeded our expectations by facilitating several hours of diesels-off time each day, an outcome that we didn"t anticipate would be possible considering the technical limitations of the battery storage system.

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ARE Member ComAp designs and delivers smart control solutions for power generation and energy management that empower the world"s transition to sustainable energy. By combining their expertise, innovative mindset and new technologies, they build highly flexible, intuitive and scalable solutions that support their customer"s power control needs anytime, anywhere.

The island of Mayreau is a tropical paradise in St. Vincent and the Grenadines. Like most Caribbean islands, electric power for the residents is produced with diesel generators, which are costly, noisy, and contribute to climate change. A hybrid microgrid is ideal for these communities, providing them with more sustainable, cost-effective power that can also significantly improve their living conditions.

The hybrid microgrid system in Mayreau was installed but didn"t operate for many years. Therefore, Rocky Mountain Institute’s Island Energy Programme engaged ComAp to get it running successfully.

ComAp worked together with the local utility, VINLEC, and local partner, Amandla Engineering to install ComAp"s InteliSys NTC Hybrid system that effectively integrates the PV and BESS with the existing diesel generators and maximises fuel savings. The system can now maximise the contribution of solar and can even shut down all diesel gen-sets in certain conditions while BESS and PV support the load, resulting in substantially reduced fuel costs.

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