Microgrid operation micronesia

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A new hybrid minigrid that will provide clean, reliable and efficient energy supply to residents of Tonga was recently commissioned for the Polynesian island nation.

Located on Niuafo’ou, the northernmost island in Tonga and home to one of the country’s four active volcanoes, the $53.2 million minigrid will provide reliable power 24 hours a day to residents and businesses.

Minigrids, sometimes referred to as remote microgrids, are typically constructed in remote areas that do not have access to a central grid. Minigrid systems use software to control distributed energy resources like solar panels and battery storage, providing remote communities with reliable, clean and affordable power.

“Tonga is obviously preparing for a renewable energy future by reducing dependence on fossil fuels and initiating projects like the Tonga Renewable Energy Project,” Keiju Mitsuhashi, director of ADB’s Energy Sector Group, said in a statement. “ADB will continue to support Tonga’s energy transition ambition through accelerating renewable energy investment and strengthening the transmission and distribution network.”

The Kingdom of Tonga is an archipelago nation of 171 islands in Polynesia – 36 of which are inhabited. Located southeast of Fiji, the country’s islands are divided into three main groups including the central Ha’apai islands and Vava’u to the north. The Tongatapu group to the south includes the 100.6 square mile Tongatapu island, home to two-thirds of the country’s roughly 104,000 residents and the capital city of Nuku’alofa.

Tonga Power Limited (TPL), the country’s sole electricity utility, is largely reliant on diesel fuel for energy generation. Driven by the government’s goal of achieving 70% renewable energy penetration by 2025, investments in solar, funded by the government organizations like the ADB and the private sector, are on the rise.

The ADB worked with Tonga on the development of a hybrid minigrid on Vava’u in 2023, including a 0.3 MW solar generation system and a 1 MW/2 MWh battery energy storage system. That same year, a $6 million minigrid project serving four islands in the Ha’apai group was commissioned.

The Tonga Renewable Energy Project also provided funds for a battery energy storage system and the modernization of TPL’s central control center on Tongatapu.

About 2,600 miles northwest of Tonga, the Yap State Public Service Corporation (YSPSC) has issued an invitation to bid (ITB) for the supply and delivery of solar and energy storage minigrids systems.

Questions must be submitted between October 21 and November 21, 2024, and all bids must be received by January 28, 2025. The YSPSC has not announced when it will award the contract.

I work as a writer and special projects editor for Microgrid Knowledge. I have over 30 years of writing experience, working with a variety of companies in the renewable energy, electric vehicle and utility sector, as well as those in the entertainment, education, and financial industries. I have a BFA in Media Arts from the University of Arizona and a MBA from the University of Denver.

Looking at photos of Earth at night, glowing with the footprints of giant electric grids and ever-lit cities, it is hard to imagine that there are still 1.2 billion people without access to electricity on our planet. But it is true – still. For over a decade, HOMER(R) Energy has been working with countries all over the world to bring electricity access to these populations through the creation of hybrid microgrids or "mini-grids" as they are known in some countries.

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