



Hawai'i Natural Energy Institute Research Highlights

International Support

Renewable Energy Regulatory and Technical Support for Cook Islands

OBJECTIVE AND SIGNIFICANCE: Under funding of the Asia Pacific Regional Energy System Assessment (APRESA) grant from the Office of Naval Research, HNEI's Grid System Technologies Advanced Research Team (GridSTART) is providing technical and regulatory/policy support to Te Aponga Uira (TAU). TAU serves as the government-owned electric utility on Rarotonga, the capital of the Cook Islands nation in the South Pacific.



Figure 1. Muri Lagoon on Rarotonga.

BACKGROUND: The Cook Islands Economic Development Strategy 2030 has a renewable energy (RE) target of 60% by 2030. TAU on Rarotonga has approximately 5,000 customers and is responsible for approximately 90% of the Cook Islands' electricity generation. The power grid on Rarotonga serves a peak demand of approximately 5.5 megawatts (MW). Approximately 85% of the energy comes from diesel generation, while the remaining 15% is generated from biomass and solar photovoltaics (PV), including a significant number of rooftop PV systems owned by customers who are credited for the electricity that they export to the grid. In addition, several utility-scale PV and battery energy storage system (BESS) projects on Rarotonga have been and are being financed by international funding sources.



Figure 2. Te Mana o Te Ra PV + BESS project (1 MW, 5.6 MWh) at the Rarotonga International Airport.

Once placed in service, the projects currently in the queue will increase TAU's RE percentage to approximately 30%. TAU also provides technical support to smaller power systems on the Pa Enea (Outer Islands) and is wholly owned by the Cook Islands Investment Corporation (CIIC).

PROJECT STATUS/RESULTS: In September 2023, HNEI hosted a one-day training program in Honolulu for senior management and a board member of TAU, focusing on experiences and lessons learned from Hawai'i's energy transition. Discussions between GridSTART and TAU on potential topics for additional support continued over the following months and, in July 2024, HNEI conducted a week of capacity building presentations and meetings on Rarotonga with TAU management, the TAU and CIIC boards of directors, and Prime Minister Mark Brown.



Figure 3. HNEI and TAU leadership with Prime Minister Brown.

Building on its discussions with TAU, HNEI GridSTART is continuing to support the Cook Islands' clean energy transition in key areas including:

- Distribution feeder analysis to determine the "hosting capacity" for distributed PV;
- Sharing Hawai'i's experience with customer programs to enable customer choice;
- Strategic measures to support and improve utility financial integrity; and
- Planning for and procurement of future RE projects.

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Contact: Leon Roose, lroose@hawaii.edu

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