



Hawai'i Natural Energy Institute Research Highlights

International Support

Energy Security and Resilience in Caribbean Islands

OBJECTIVE AND SIGNIFICANCE: In February 2023, HNEI was contracted by Deloitte & Touche LLP (Deloitte) to deliver technical assistance under the U.S. Department of State’s Power Sector Program Technical Assistance to Support the Partnership to Address Climate Change 2030 (PACC 2030). This initiative serves as the framework for U.S. government support of energy security and resilience in the Caribbean islands, with HNEI’s activities concluding in 2025.

BACKGROUND: The Caribbean region faces significant energy challenges, with the highest dependency on imported liquid fuel for power generation and the highest average electricity prices in the Western Hemisphere.

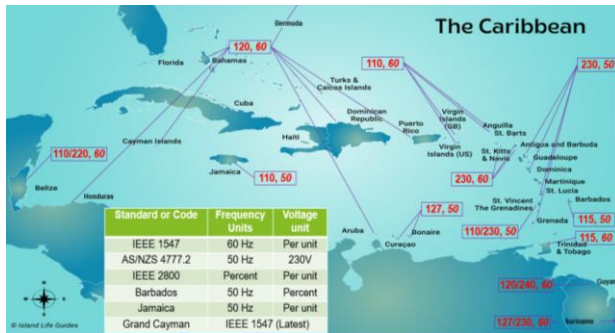


Figure 1. Caribbean electricity voltages and frequencies.

This situation creates vulnerability to global supply shocks and unreliable electricity service. Following years of energy engagement under the Caribbean Energy Security Initiative (CESI), the federal government announced PACC 2030 during the U.S.-hosted Summit of the Americas in June 2022. PACC 2030 was designed to drive results and outcomes across Caribbean energy security, resilience, and energy integration, focusing on geothermal development, regulatory capacity, and technical innovation as regional priorities.

PROJECT STATUS/RESULTS: From 2023 through early 2025, HNEI GridSTART provided analytical and advisory support to enhance regional capacity for energy integration, utility regulation and power sector resilience in the Caribbean.

Key activities and deliverables included:

- Six days of virtual training on the integration of high levels of variable generation, covering

topics such as planning, operational design, power system management, grid codes, and energy resource forecasting for the Caribbean Electric Utility Services Corporation (CARILEC) and Organization of Caribbean Utility Regulators (OOCUR);

- Four days of in-person and hybrid training in Trinidad and Tobago focused on grid flexibility and procurement of grid services;
- A technical report for Saint Kitts and Nevis outlining grid code recommendations, reliability benchmarks, criteria, and integration of distributed generation;
- Two technical reports for Trinidad and Tobago: one report provided technical assistance for PV system integration, including planning, interconnection requirements, and procurement, while the other addressed risk management and infrastructure preparedness, discussing resiliency solutions, strategies, planning, and relevant case studies; and
- Facilitating the launch of the Caribbean Grid Code Accelerator at CARILEC’s annual conference in October 2024, supporting the development of a unified regional grid code standard.

In January 2025, the team delivered a technical report for Jamaica Public Service (JPS) offering recommendations on EV strategy and planning, grid readiness, analytical tools for system planning, variable and intermittent energy integration, distributed resources, battery energy storage systems adoption, tariff modeling, smart metering, and lessons learned from advanced utility analytics.

Activities for PACC 2030 ended in early 2025 as the contract was completed.

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