



# Hawai'i Natural Energy Institute Research Highlights

## International Support

### Energy Security and Resilience in the Caribbean Islands

**OBJECTIVE AND SIGNIFICANCE:** In February 2023, HNEI's Grid System Technologies Advanced Research Team (GridSTART) was contracted by Deloitte & Touche LLP (Deloitte) to deliver technical assistance under the U.S. Department of State's (DOS) 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 climate and clean energy engagement.

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

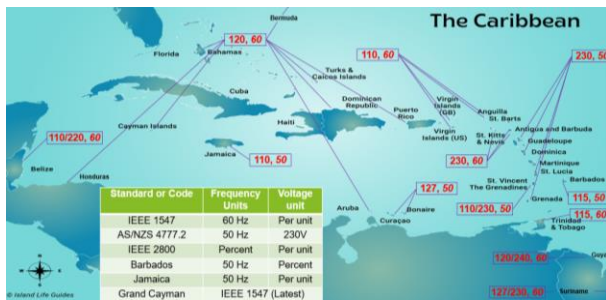


Figure 1. Caribbean electricity voltages and frequencies (Excerpted from Island Life Guides).

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 Biden-Harris Administration announced PACC 2030 in June 2022 during the U.S.-hosted Summit of the Americas. PAC 2030 focuses on enhancing regional energy security through initiatives including geothermal development in the Dominican Republic, building regulatory capacity, and strengthening technical capabilities in renewable energy integration, electric mobility (e-mobility), and power system resilience.

**PROJECT STATUS/RESULTS:** HNEI is providing analytical and advisory services for various activities and deliverables including conducting multiple in-person and virtual regional regulatory training sessions for members of the Caribbean Electric Utility Services Corporation (CARILEC) and Organization of Caribbean Utility Regulators (OOCUR) and preparing technical reports on a variety of topics for Caribbean energy stakeholders.

HNEI GridSTART has already delivered several of the trainings and reports outlined in its contract with Deloitte, including:

- Six days of virtual training on the integration of high penetrations of variable renewable energy (VRE) encompassing topics such as planning, operational design, power system management, grid codes and energy resource forecasting;
- Two days of in-person/hybrid training in Trinidad and Tobago on grid flexibility and procurement of grid services;
- Two reports on grid code recommendations, reliability benchmarks and criteria, and PV integration for Saint Kitts and Nevis; and
- A report on climate adaptation and resiliency for Trinidad and Tobago.



Figure 2. Homes destroyed by Hurricane Beryl in 2024.

HNEI continues its work to deliver on several PAC 2030 initiatives, including technical reports with recommendations for Jamaica Public Service (JPS) on clean energy transition needs, and further virtual regional regulatory training sessions for members of CARILEC and OOCUR. In October 2024, HNEI GridSTART also facilitated the launch of DOS's new Caribbean Grid Code Accelerator initiative at CARILEC's annual conference in the Cayman Islands, which aims to support the development of a unified, flexible, resilient, and sustainable standard grid code template tailored to the unique needs of the countries in the Caribbean region. The Caribbean Grid Code Accelerator initiative will continue into 2025 with HNEI support.

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