Hawai'i Natural Energy Institute Research Highlights

International Support

USAID Papua New Guinea Electrification Partnership (PEP) Activity

OBJECTIVE AND SIGNIFICANCE: HNEI Grid*START* is providing technical assistance to the Research Triangle Institute (RTI), the prime contractor implementing the United States Agency for International Development (USAID) Papua New Guinea (PNG) Electrification Partnership (PEP) program. USAID-PEP aims to support PNG's enhanced electric connectivity and its goal of connecting 70% of its population to electricity by 2030. By expanding reliable and affordable electricity, USAID-PEP will help advance inclusive growth, development, and empowerment in communities throughout the country.

BACKGROUND: The $57 million USAID-PEP program was launched in November 2020. HNEI Grid*START* is supporting RTI in improving PNG Power Limited's (PPL) financial viability, developing off-grid electrification models, and improving PNG's energy regulations. Specifically, HNEI Grid*START* is supporting RTI on an end-to-end utility transformation of PPL by: 1) improving competitive procurement and conducting due diligence on the existing independent power producer pipeline; 2) developing viable off-grid electrification models by developing a private sector engagement strategy; 3) building a portfolio of viable sites; participating in stakeholder groups; and 4) demonstrating measurable improvement in PNG's energy regulator, the National Energy Authority (NEA), by improving the national regulatory framework for off-grid electrification and engaging stakeholders to inform and implement enabling policies and regulations.

Figure 1. PPL's Main Power Systems, extracted from the PPL Diagnostic Assessment Report submitted in 2022.

PROJECT STATUS/RESULTS: HNEI Grid*START* has been providing extensive support to the USAID-PEP program by reviewing the draft PNG Off-Grid Regulation, evaluating IEC standards for rural electrification by PNG's National Institute of Standards and Industrial Technology (NISIT), participating in stakeholder meetings, and conducting training on HOMER software. HNEI Grid*START* also reviewed updates to PNG's Third-Party Access (TPA) Code, Electricity Industry Regulations, and Grid Code for transmission-level interconnections, as well as proposing interconnection standards for inverter-based resources connected at the distribution level.

Subsequently, HNEI prepared and delivered a four-day in-person workshop in November 2022, focusing on the PNG Grid Code and distributed energy resource (DER) interconnections, PNG TPA Code and technical regulations, and public consultation with NEA, PPL, and independent power producers (IPPs). Based on additional input from RTI (i.e., the Wiring Rules), the team provided updates to the four previously reviewed Electricity Industry Regulations. Additionally, the team initiated the development of draft Distributed Generation Unit (DGU) Interconnection Standards Technical Requirements for PNG and reviewed and/or drafted ten District Energy Plan Assistance reports in support of rural electrification objectives.

In May 2023, HNEI Grid*START* collaborated with USAID-PEP on the conceptual formulation of an off-grid code for PNG. In October 2023, HNEI also provided a briefing on the Grid Code and TPA Code for presentation to the NEA Board of Directors, including a newly added section on Distributed Generating Unit Interconnection Standards Technical Requirements.

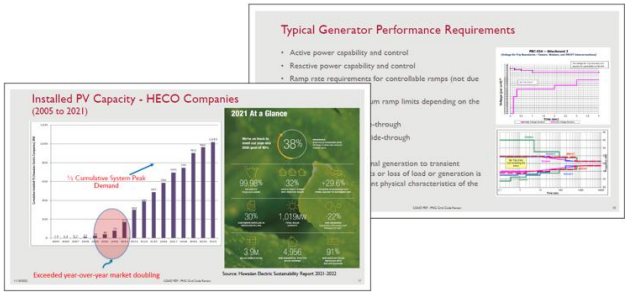

Figure 2. Sample slides from the four-day workshop in November 2022.

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