



Hawai'i Natural Energy Institute Research Highlights

International Support

Sustainable Energy for Indonesia's Advancing Resilience (SINAR) Program

OBJECTIVE AND SIGNIFICANCE: HNEI's Grid System Technologies Advanced Research Team (GridSTART) has partnered with Tetra Tech ES to support the Sustainable Energy for Indonesia's Advancing Resilience (SINAR) program. The initiative aims to accelerate advanced energy development, enhance utility performance, implement transparent procurement practices, and strengthen the energy sector's institutional framework in Indonesia.

BACKGROUND: Despite Indonesia's abundant alternative energy resources, their utilization remains limited due to the country's heavy reliance on fossil fuels and limited experience with integration of variable and intermittent energy resources. In recent years, Perusahaan Listrik Negara (PLN), Indonesia's government-owned power distribution company, has prioritized de-dieselization and grid modernization as crucial elements of the nation's energy transition. Through the SINAR partnership, HNEI GridSTART is providing wide-ranging capacity building support to facilitate this transformation.

DEDIESELIZATION PHASE I (2 CLUSTERS: 94 LOCATIONS)

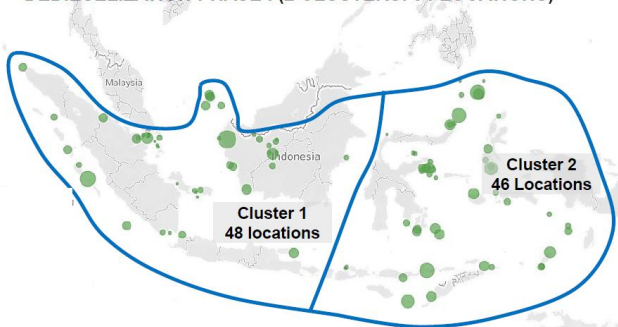


Figure 1. Planned De-Dieselization in Indonesia.

PROJECT STATUS/RESULTS: In February 2022, HNEI GridSTART conducted a three-day webinar on Hawai'i's energy transition for Indonesia's Directorate General of Electricity (DGE) and Ministry of Energy and Mineral Resources (MEMR). In May 2023, HNEI GridSTART conducted training for Setjen DEN (the National Energy Council of Indonesia) in Jakarta, as well as a three-day workshop on small island grid planning for PLN in Bali.

Building on discussions with key Indonesian energy stakeholders in 2023, GridSTART coordinated and hosted a Hawai'i Smart Grid Benchmarking Study Tour in February 2024, wherein a delegation of

Indonesian utility executives and stakeholders visited O'ahu and Kaua'i to learn more about Hawai'i's energy transition. On O'ahu, GridSTART conducted classroom and in-the-field training on alternative energy integration, and coordinated meetings with the Hawai'i Public Utilities Commission (PUC), State Energy Office and Hawaiian Electric Company.



Figure 2. Indonesian delegates at Hawai'i PUC.

On Kaua'i, GridSTART coordinated visits with the Kaua'i Island Utility Cooperative (KIUC), which provided further classroom training and also hosted visits to various KIUC facilities, including field trips to: KIUC's Kapaia Power Station, which features a General Electric combustion turbine that has been modified to also operate as a synchronous condenser; Tesla's hybrid PV + battery energy storage system (BESS) plant; and KIUC's Port Allen control center. Throughout the study tour, the PLN delegation gained valuable insights into Hawai'i's alternative energy strategies, innovations, regulations and infrastructure.



Figure 3. SINAR's Visit to KIUC on Kaua'i.

Funding Source: USAID SINAR Program; Office of Naval Research

Contact: Leon Roose, lroose@hawaii.edu

Last Updated: May 2025