

Funding Opportunity Announcement DE-FOA-0002740

Code: TA3-050-E

Grid Resilience and Innovation Program (GRIP)

Topic 3: Grid Innovation Program (BIL § 40103 (b))

Enabling High Penetration Renewables with Synchronous Condenser Conversion Technology

Technology - Innovative Conversion of a Stand-by Surplus Steam Turbine to Operate as a Synchronous Condenser

Impact - Enabling Effective Operation with High Penetration of Renewables by Mitigating Frequency Instability, Providing Inertia and Reactive Power

Goals - Island-Wide Renewable Resource Contributions, Advancing Energy Security and Demonstrating the Technology for Hawai'i and Others

Prime Recipient - Business, Economic Development & Tourism, Department of Hawai'i – Hawai'i State Energy Office

Project Manager - **Christopher Yunker**: Managing Director, Resilience, Clean Transportation, & Analytics (HSEO)

Key Personnel - **Donna Mau**: Managing Director, Operations (HSEO)

Parker Kushima: Outreach & Community Engagement Specialist (HSEO)

Brad Rockwell: Oversight & Project Management (KIUC)

Cameron Kruse: Engineering Management (KIUC)

Richard Vetter: Construction Management (KIUC)

Beth Amaro: Project Administration (KIUC)

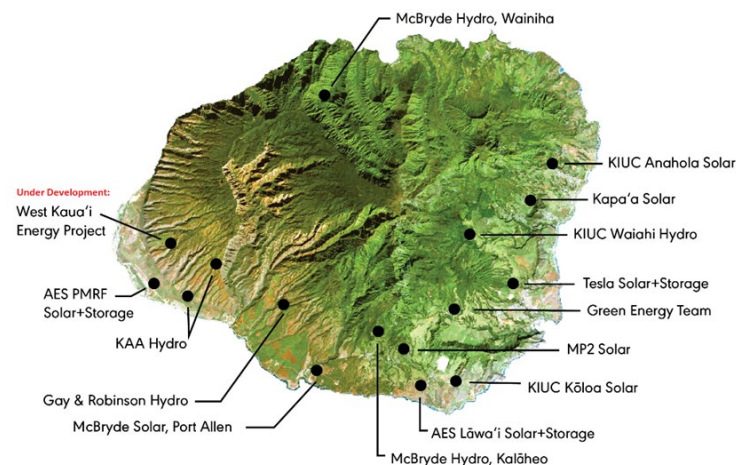
Stacie Dellamano: Project Accounting & Financial Reporting (KIUC)



Total Project Cost:	\$3,350,000
Requested DOE Funds:	\$1,675,000
Cost Share (50%)	\$1,675,000

Synchronous Condenser Conversion Technology

KIUC High Renewables Penetration: The KIUC goal is to achieve 100% renewable energy by 2033. Progress has been made, reaching nearly 60% renewable sources by 2022, from sources depicted and on-site distributed generation.

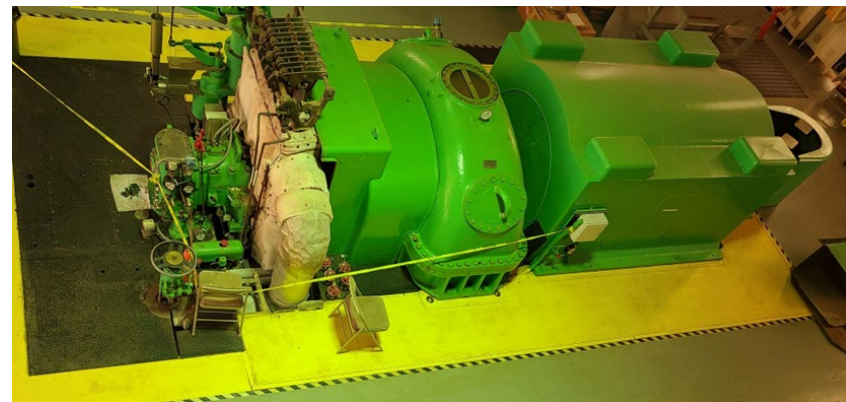


Conversion Unit Located at Transmission Hub: Steam Turbine S1, previously powered with fossil fuel, sits at stand-by at the Port Allen generating station. Conversion to a synchronous condenser provides capability for effective balancing of island-wide renewable resources on both the transmission and distribution system of Kaua'i.



Synchronous Condenser Conversion Technology

Grid Benefitting Outcomes: Reliability and resilience to disturbances by providing voltage support, with decarbonization by enabling system operability with high renewables penetration. Improved use of energy storage and combination systems of solar, storage, and pumped hydro. Immediate economic savings by off-loading reactive power from fossil units.



Key Project Idea/Takeaway: An innovative technology to effectively re-deploy displaced facilities at brownfield sites, a broadly applicable means of enhancing clean energy availability and energy security with minimal to no environmental impacts.

