



Meeting Name	Date of Meeting
Microgrid Services Tariff (MST) Phase 2 Working Group (WG) Meeting #5	August 9, 2022

Agenda

Meeting Objective(s)	<ul style="list-style-type: none"> Better understand barriers to microgrid development from a developer’s perspective Receive update on NELHA’s microgrid projects and long-term goals Review case study framework
Review of Objectives & Ground Rules	<ul style="list-style-type: none"> No additional feedback received on WG objectives or drafted ground rules
Guest Speaker: Allan Schurr, Enchanted Rock	<ul style="list-style-type: none"> Enchanted Rock is a leading microgrid developer with 276 operational microgrid sites with 11,000+ hours of utility outages covered (~50% from 2021 Winter Storm Uri in Texas) and 99.9998% combined reliability (not a 100% due to 10 second start) for long-term outages (average outage lasted 101 hours or ~4 days) Customer considerations for back-up power solutions include performance, cost, emissions/ESG goals, footprint, and noise; solutions include diesel generators, solar + storage, fuel cell, and natural gas generators Solar + storage is the most expensive solution primarily due to large footprint (400x more space than diesel) required to provide utility-grade power for resilience purposes, doesn’t work for most businesses (makes sense more for residential) Enchanted Rock utilizes “rich burn” engine that allows lower emissions and smaller footprint than typical natural gas solutions; utilizes grid stability services (MISO/ERCOT market participant) to lower net cost and become cheaper than the traditional diesel back-up generator Customers include grocery/food distributors, healthcare, critical infrastructure (i.e. water pumping/treatment), manufacturing, utilities, data centers, higher education, automotive, and Dept of Defense (with utility as customer) Case study of Buc-ee’s convenience stores during Hurricane Harvey in 2017 showed individual commercial customer microgrid solutions serving as a community resource (used as National Guard and first responder headquarters) Q: Does Enchanted Rock have any hybrid/community microgrids and if not, what are the barriers? A: Bronzeville Community Microgrid (Chicago, IL) is a demonstration project that powers 1,000 households (no compensation or fees), funded by \$4M DOE grant and can island during emergencies. Most likely customers for a hybrid microgrid would be a single buyer with multiple meters (i.e. hospital complex), but it’s not cost-effective and takes utility investment to do switching/protection equipment upgrades; islanding only during emergencies; if microgrid is used for “prime power” (“blue sky” mode), then utility needs to consider distribution of sales. If hybrid microgrid customers are non-homogenous off-takers, then who pays for the assets and switching equipment? Tariff works best if you can aggregate off takers to prevent free ridership. Q: What is Enchanted Rock’s primary fuel source? A: Natural gas



	<ul style="list-style-type: none"> • Q: What is the typical scale of Enchanted Rock projects? • A: 1 – 60 MW (primarily Commercial & Industrial customers) • Q: How does Enchanted Rock keep costs competitive with diesel? • A: All projects are behind the meter and customer provides land, so there are no land or right of way costs which is a typical barrier for any project development
Guest Speaker: Gregory Barbour, NELHA	<ul style="list-style-type: none"> • Natural Energy Laboratory of Hawaii Authority (NELHA) acts as a “seawater utility” as it pumps sea water for various ocean animals (cannot survive if flow is stopped for more than two hours) • Leon Roose at the Hawaii Natural Energy Institute (HNEI) was principal investigator that researched how to maximize renewable energy and resilience at NELHA; found that utility service reliability at HOST Park “considerably better” than average HELCO customer which reduces value for a microgrid • Current MG project for 55” pump station in progress, received approval from Hawaiian Electric through SIA (Standard Interconnection Application) and funded by \$2M grant from Korean government for battery efficiency testing • Next potential microgrid project would be to consolidate existing MGs (55” Pump, Booster Pump, and Research Campus) plus Farm Compound (no existing MG) for an extended (multiple day) HELCO outage; previously received verbal support from Hawaiian Electric; requires additional funding and evaluation to determine which loads should be served by microgrid during emergencies • Q: Has NELHA considered pursuing a hybrid microgrid that could potentially serve some load at the airport? • A: No, this has not been considered for a while (possibly 10 years ago) mainly because the HNEI study found that utility service reliability was above average • Q: Has NELHA considered any other fuel sources besides diesel for backup? • A: No, because it’s not cost-effective. Long-term could use OTEC (Ocean Thermal Energy Conversion), currently requesting a \$15M federal grant for testing but this would be a multi-year effort. • Q: What is additional funding needed for? • A: Mainly to move lines from right side to left side; this is an unknown cost but can be done by the utility (Hawaiian Electric has provided verbal support already)
Case Study Framework/ Open Discussion	<ul style="list-style-type: none"> • See slides for proposed framework questions • No additional feedback received on case studies presented at July 28 Status Conference (Calistoga Community Microgrid and North Kohala RFP); will provide documents to Working Group two weeks in advance of next meeting to review responses together • Clarified revenue models could include contracts with a third party or utility
Review Work Plan	<ul style="list-style-type: none"> • Next meeting will have a guest speaker from California Public Utilities Commission to discuss their Microgrid Incentive Program, potential guest speaker from Hawaii State Energy Office to provide an update on MG funding using IJJA funds • Remaining time will be used for the case study discussion with focus on economics first, then enabling regulatory mechanisms, decision considerations & outcomes, and applicability to Hawaii potentially in subsequent meeting • No additional feedback received
Next Meetings	<ul style="list-style-type: none"> • Confirmed next WG meeting on Tuesday August 30 at 10:00am-12:00pm



Working Group Chairs:

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Attendees:

Alan Lee, HE
Allan Schurr, Enchanted Rock
Anand Samtani, Hawaii PUC
Andrew Nojiri, HE
Andrew Okabe, Hawaii PUC
Ashley Agcaoili, Hawaii PUC
Blaine Hironaga, HE
Bryant Komo, HE
Ellyse Mazzi, HE
Eric Kunisaki, HE
Gerald Sumida, Carlsmith Ball (Ulupono)
Gina Yi, Hawaii PUC
Gregory Barbour, NELHA
John Cole, Hawaii AG (NELHA)
Kaiulani Shinsato, HE
Kale Nakata, HE
Ken Aramaki, HE
Kevin Oda, HE
Kevin Tanigawa, HE
Paul De Martini, Newport Consulting (HE)
Reid Ueda, HE
Samantha Ruiz, Ulupono
Tracie Black, HE
Yoh Kawanami, HE