



**Hawaiian
Electric**

Microgrid Services Tariff (MST) Phase 2: Working Group Meeting #5

Docket No. 2018-0163

August 9, 2022

Agenda

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|---------------|---|
| 10:00 – 10:05 | Review of Objectives & Ground Rules |
| 10:05 – 10:40 | Guest Speaker: Allan Schurr, Enchanted Rock CCO |
| 10:40 – 11:15 | Guest Speaker: Greg Barbour, NELHA Executive Director |
| 11:15 – 11:20 | BREAK |
| 11:20 – 11:50 | Case Study Evaluation Framework Discussion |
| 11:50 – 12:00 | Review Work Plan and Confirm Next Meeting |



Objectives

PUC Phase 2 Objectives:

1. Continue development of the Tariff
 - ❖ Promote self-sufficiency and resiliency among microgrid project operators
 - ❖ Streamline MST
2. Enhance Tariff to support broader use of microgrids in non-emergency situations
 - ❖ At minimum, enable voluntary islanding
3. Further explore opportunities to support resilience through microgrid development
 - ❖ Encourage development of microgrids that can provide power to remote communities and critical facilities such as schools, shelters, and hospitals
4. Identify grid services that can be provided by microgrids
 - ❖ Explore ways related exchanges between the utilities and microgrid operators could happen

Working Group Objectives:

1. Coordinate and align with other Dockets to leverage resources and streamline efforts
2. Focus on resiliency
 - ❖ Microgrids and/or other tools/programs
 - ❖ “Low-hanging” fruit, with such considerations as Act 200 goals, practical implementation, “real-world” goals, technical, costs, etc.
3. Understand how the tariff could support microgrid operations in non-emergency situations
 - ❖ Existing microgrid operations
4. Keep costs to all customers in mind (cost equity)
 - ❖ Compensation (e.g., rates, standby rates, exit fees, etc.)
5. Encourage development of grid services



Ground Rules

- ◆ Members will maintain an open mind and be respectful of all views
- ◆ Members will review meeting agenda in advance and complete any pre-reads prior to the meeting
- ◆ Discussion will be kept on agenda topic

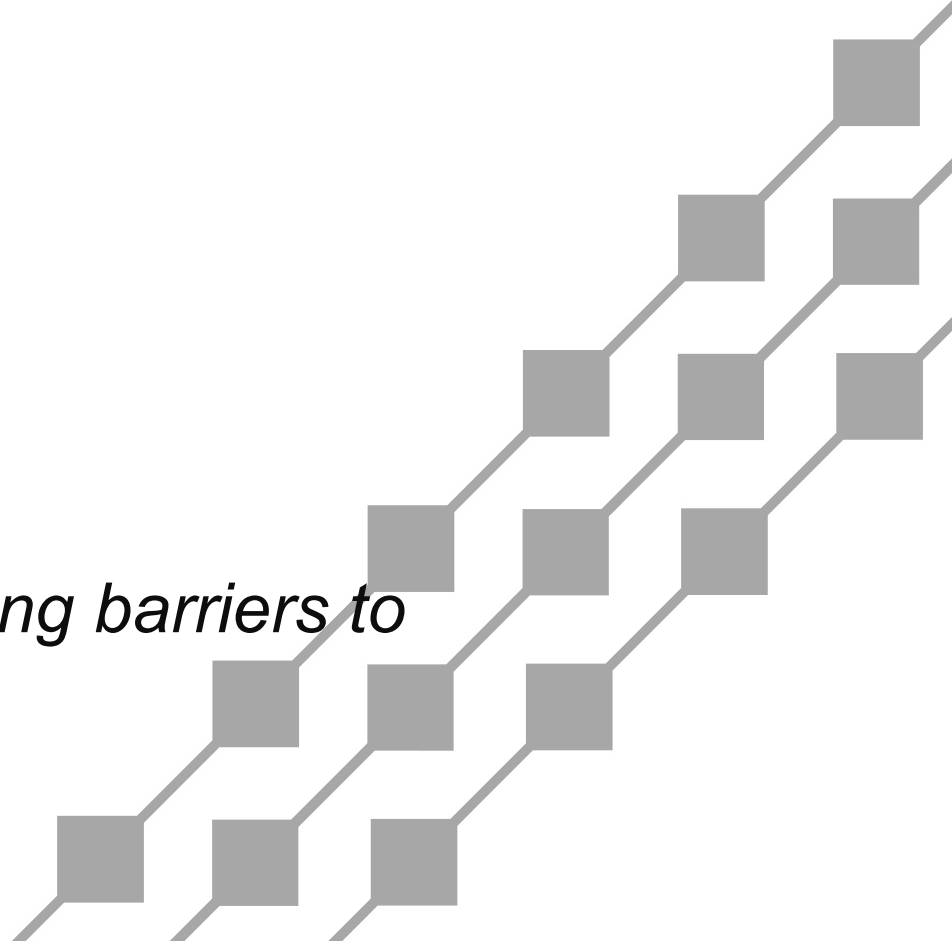


Guest Speaker:

Allan Schurr

CCO, Enchanted Rock

*Topic: Better understanding barriers to
microgrid development*





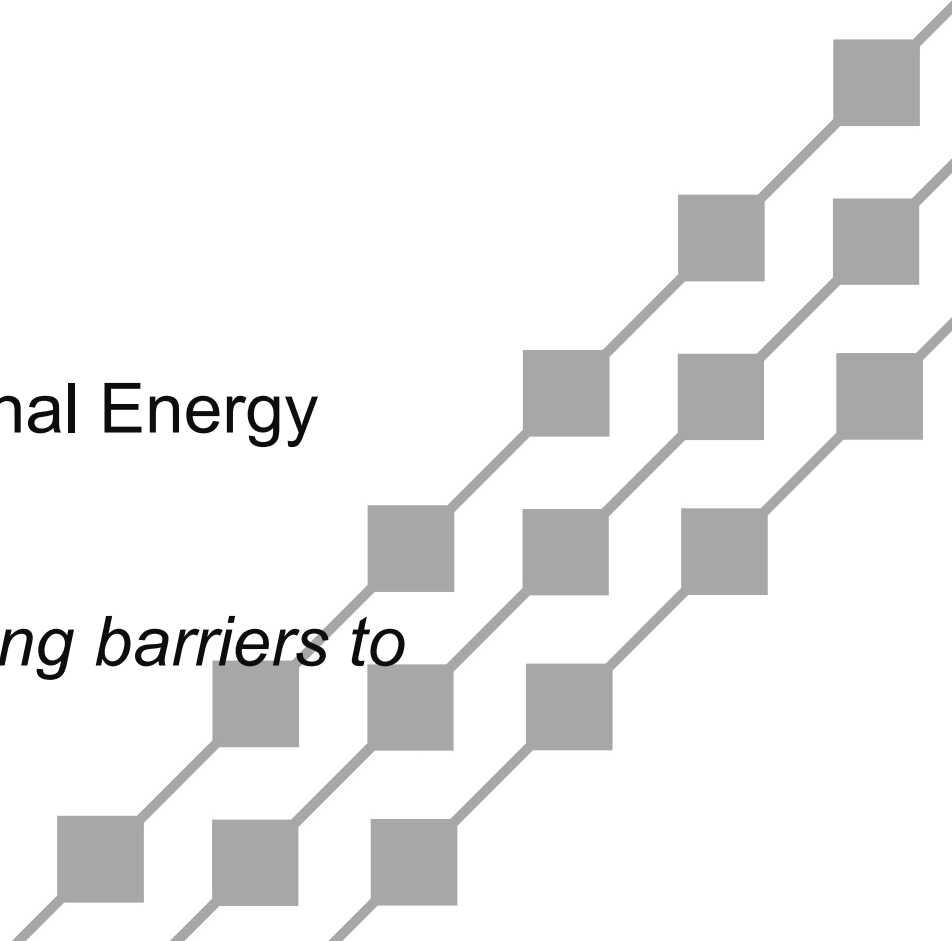
Q&A

Guest Speaker:

Greg Barbour

Executive Director, National Energy
Laboratory of Hawaii

*Topic: Better understanding barriers to
microgrid development*





Q&A



BREAK (5 min)

Case Study Evaluation Framework

- ◆ Motivation for Hybrid Microgrid
 - Situational context for initiating microgrid study
 - What were the primary factors? (e.g., resilience, economics, research, other)

- ◆ Proposed Hybrid Microgrid Scope
 - Number of critical facilities
 - Number of customers
 - Disadvantaged population

- ◆ Proposed Hybrid Microgrid Design
 - Generation resources
 - Storage resources
 - Microgrid Controller (who owns, controls?)
 - Configuration
 - % load served when islanded and duration capability

- ◆ Ownership Model (examples below)
 - Private owner/operator – City/County or Customers resilience service counterparty
 - Private owner/operator – Utility resilience service counterparty
 - City/County owner/3rd party operator - Customers resilience service counterparty
 - City/County owner/3rd party operator - Utility resilience service counterparty
 - Utility owner/3rd party operator - Utility resilience service counterparty



Case Study Evaluation Framework

- ◆ **Economics (as available)**
 - **Revenue Model(s)**
 - Energy sales
 - Avoided retail tariff charges (e.g., demand charges)
 - Bulk power and distribution grid services
 - Resilience service contract between microgrid operator (third party or utility) with customers
 - Resilience service contract with grid operator (third party or utility)
 - **Expenditures (lifecycle)**
 - Project development (incl. feasibility studies and preliminary design)
 - Project Implementation (incl. equipment & installation, land acquisition, system testing, operational training, etc.)
 - Microgrid Operations (incl. ongoing maintenance and operations)
 - **Funding**
 - Project Revenue
 - 3rd Party Financing
 - Federal & State Grants
 - City/County funds
- ◆ **Enabling Regulatory Mechanisms**
 - Applicable tariffs, rules, markets, programs
 - Barriers identified
- ◆ **Decision Considerations & Outcomes**
 - Key considerations for Hybrid MG decision makers (developer/owner/off-takers)
 - Proposal outcome(s)
- ◆ **Applicability to Hawaii**
 - Relevant takeaways for Hawaii & MST Ph2 issues
 - Are there any tariff improvements that would further support this project?
 - Is there a benefit for voluntary islanding during non-emergency situations?
 - How could the tariff further promote resiliency for remote communities and critical facilities?
 - What grid services are being provided?



Remaining Work Plan

Meeting / Deadline	Date	Priority Issues
WG Mtg #6	Aug 30, 2022	<ul style="list-style-type: none"> • MG Compensation and Grid Services (cont.) / Utility Compensation/Standby charges, exit fees, and/or other charges – Guest Speaker from CPUC • Identifying a variety of funding mechanisms for microgrid development – Potential Guest Speaker from HSEO • Continue case study discussion on barriers and lifecycle project costs • Review draft consensus list and identify areas of disagreement
WG Mtg #7	Sep 20, 2022	<ul style="list-style-type: none"> • Identifying critical facilities – Potential HECO update on Resilience Application Filing / IGP RWG Next Steps • Discuss best regulatory framework and identify areas for tariff revisions • Review draft consensus list and identify areas of disagreement for final report
WG Mtg #8	Oct 11, 2022	<ul style="list-style-type: none"> • Review and discuss draft report and tariff revisions
Status Conference	Oct 27, 2022	
WG Mtg #9	Nov 8, 2022	<ul style="list-style-type: none"> • Finalize report and tariff revisions
Parties to file Phase 2 WG Report	Nov 23, 2022	
Technical Conference	Dec 8, 2022	



Mahalo for your time.

Any questions?

Working Group Progress - Discussion Takeaways

Priority Issue	Discussion Takeaways	Guest Speaker(s)
<p><i>e. iv. Better understanding barriers to microgrid development and what would make the microgrid tariff more attractive for developers</i></p>	<ul style="list-style-type: none"> Barriers include C&C permitting process, supply chain issues, and overall project economics (i.e. avoiding high demand charges for customer microgrids) Barriers did not include interconnection or tariff improvements 	<p>Ted Peck, Holu Hou Aiden Coyle, Ameresco</p>
<p><i>a. iii. Resilience services and compensation, including societal and environmental value, to inform development of a resilience tariff</i></p> <p><i>e. ii. Identifying a variety of funding mechanisms for microgrid development. Including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects</i></p>	<ul style="list-style-type: none"> A “technology-neutral” perspective may not include a MG to get to the same resiliency objective (one size does not fit all) MG projects will likely use a “best-fit, most-reasonable-cost” cost-effectiveness method In some cases, the customer should pay for a MG; need to determine if there is a benefit to the grid or not (i.e. a university MG) Infrastructure Investment and Jobs Act (IIJA) federal funding available allocated to states to support resilience investments 	<p>Joe Paladino, Office of Electricity US Department of Energy</p>
<p><i>e. iii. Identifying community needs</i></p> <p><i>e. iv. Customer education and outreach</i></p>	<ul style="list-style-type: none"> ETIPP final report due in December 2022, will include a map of potential sites for hybrid microgrids on Oahu under 3MW and community outreach with HNEI Map inputs include existing DER, supporting infrastructure, as well as area vulnerability, criticality, and societal impact 	<p>Katy Waechter, NREL & Ken Aramaki, Hawaiian Electric</p>

Open Questions

Phase 2 Priority Issue	Questions
a. Microgrid Compensation and Grid Services	<ul style="list-style-type: none">• Who should get compensation and why?• Aside from resilience service, are there any energy and grid services not already available to MGs through PPA, tariff or program?
c. Customer Protection and Related Considerations	<p>For Hybrid MGs that may island voluntarily:</p> <ul style="list-style-type: none">• Who is protecting the customer if 100% of load not met during blue-sky conditions (MGs typically are not designed for 100% of load, or long duration if renewable energy based)?• What is the benefit of voluntary islanding for customers and how does this support the original intent of Act 200 to promote microgrids for resiliency purposes?
e. ii. Identifying a variety of funding mechanisms for microgrid development, including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects	<ul style="list-style-type: none">• State access to IIJA funding potential for hybrid MG, what is the potential? Also, DOE's Loan Program Office funding potential.• How much funding would be needed to support Hawaii's community resilience goals (how many projects)?• Should there be a focus on disadvantaged and vulnerable communities at risk to address equity issues?• How to address preliminary engineering, implementation costs and ongoing operational costs for a third party owned & operated Hybrid MG?
e. v. Customer education and outreach	<ul style="list-style-type: none">• What types of Customers are interested in Customer MGs or Hybrid MGs and why?
Overall	<ul style="list-style-type: none">• What are the "low-hanging fruit" that can result in a tangible Hybrid MG project to help critical infrastructure and vulnerable communities as soon as possible?

MST Phase 2 Priority Issues (Order No. 38293)

a. Microgrid Compensation and Grid Services

- i. Harmonization with other programs' grid services mechanisms
- ii. Customers with existing DER/DR grid service agreements
- iii. Resilience services and compensation, including societal and environmental value, to inform development of a resilience tariff

b. Utility Compensation

- i. Standby charges, exit fees, and/or other charges

c. Customer Protection and Related Considerations

d. Interconnection

e. Working group coordination with related microgrid and resilience initiatives at Hawaiian Electric and government agencies

- i. Identifying critical facilities
- ii. Identifying a variety of funding mechanisms for microgrid development. Including possible state and federal funds that can be leveraged to support pilots and/or demonstration projects
- iii. Identifying community needs
- iv. Better understanding barriers to microgrid development (e.g., economic, project opportunities, technical expertise) and what would make the microgrid tariff more attractive for developers
- v. Customer education and outreach



Procedural Timeline

