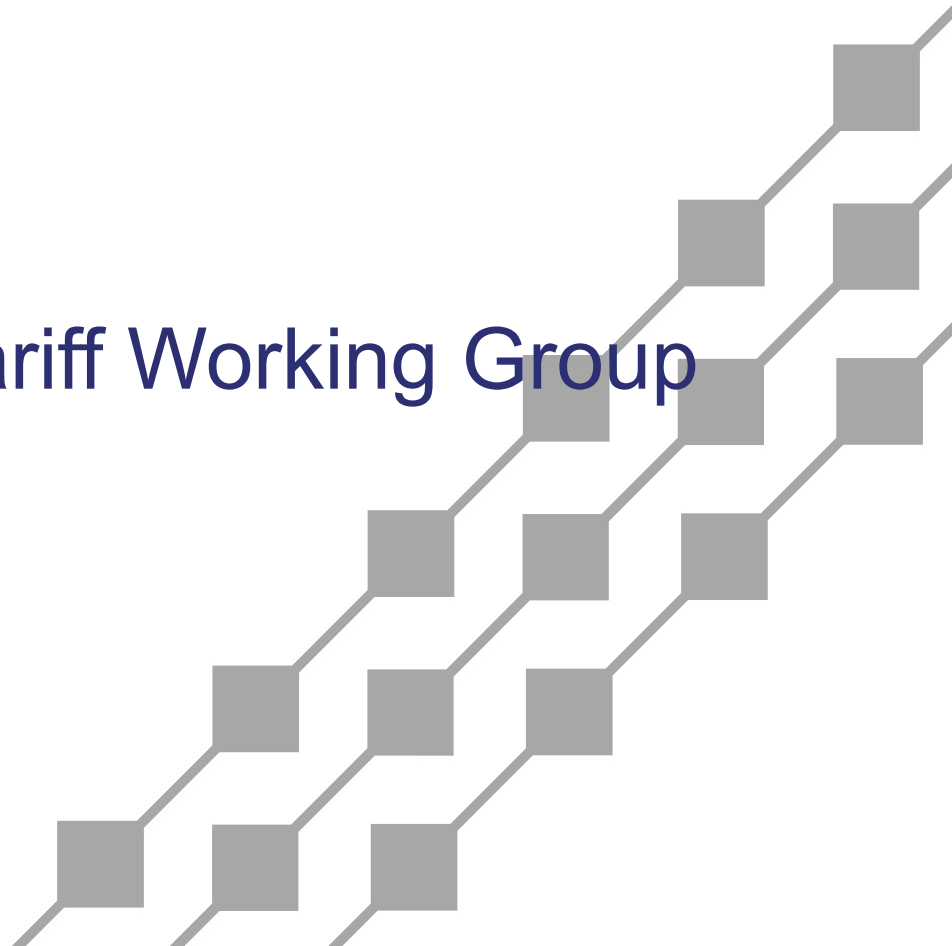




**Hawaiian
Electric**

Microgrid Services Tariff Working Group

January 5, 2021



Agenda

- ◆ Revisit Action Item List
- ◆ Customer Definition (discussion)
- ◆ Applicability of other Tariffs (MRC presentation)
- ◆ Indemnification (HECO redlines)
- ◆ Anti-Islanding (HECO redlines)
- ◆ Hybrid Interconnection Agmt (Discuss plan to resolve)
- ◆ Next Steps



Action Item List

#	Title	Owner	Action	Target	Status
1	Customer MG Interconnection Agreement	n/a	None	n/a	n/a
2	Definition of Customer	ALL	WG Discuss	1/5	
3	Applicability of other Tariffs (i.e., Rule 15)	MRC	Present to WG	1/5	
4	Indemnification	HECO	Review and propose changes	1/5	
5	Data set for feasibility analysis	HECO	Develop list	1/11	
6	Hybrid MG Compensation	MRC/Ulupono	Present to WG and provide redlines for discussion	1/11	
7	Hybrid MG App Interconnection Queue	n/a	None	n/a	n/a
8	Project/Program Caps, Rated Power	HECO	Review and provide redlines	1/18	
9	Anti-Islanding Provisions	HECO	Review and provide redlines	1/5	
10a	Hybrid MGO Interconnection Agmt	ALL	Review MRC Comments	1/5	
10b		HECO	Clarify phonenumber and soft-start ramp rate	1/11	
10c		CA	Present position regarding checklist	1/11	
11	Draft Mod to Rule 24 and other DER pgms	HECO	Provide draft of all Tariffs w/ revisions	1/11	



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Customer Definition Discussion



2) Definition of Customer

12/10/20 Letter

2. Definition of the Customer (Tariff Sections A.1.g and E.1.a)

MRC explained that its proposed edits to the Tariff section A.1.g stem from concerns about variety of different relationships that a Microgrid Operator could have with Microgrid Participants, and that so long as the definition does not preclude a third party Microgrid Operator that is different than the Microgrid Owner the definition does not need to be updated. MRC agreed that this concept should be clarified in Section E.1.a. Ulupono Initiative stated that the definition of customer may still be problematic, but agreed that Section E.1.a needed further clarification. The Parties should discuss MRC's redlines to the definition of Customer in the Draft Tariff (which includes the Microgrid Operator of a Customer Microgrid in the definition) and revise the definition accordingly. In doing so, the Parties should consider the roles of the owner of a Microgrid and the Microgrid Operator, any applicable laws in Hawaii, and determine whether a distinction should be made between these roles in the Tariff.

MRC's Redline

g. "Customer" or "Customers" used herein is as defined in Company Rule No. 1. and includes the Microgrid Operator of a Customer Microgrid.

Proposed Actions

- WG members to discuss at next meeting



HECO's Proposed Changes

- “Customer” definition to remain as is to maintain consistency with Tariff Rules
- Added “Customer-Generator” consistent with DER Rules and HRS269-101
- Added “Microgrid Aggregator”
- Included “Customer-Generator” and “Microgrid Aggregator” to MGO
- Alignment with Section E Billing and Compensation



<p><u>g. “Customer” or “Customers” used herein is as defined in Company Rule No. 1.</u></p>	<p>A Author For MRC: what is the reason for proposed changes to definition of “Customer”?</p>
<p><u>h. “Customer-Generator” or “Eligible Customer-Generator” means a metered residential or commercial customer, including a government entity, of an electric utility who owns and operates a solar, wind turbine, biomass, or hydroelectric energy generating facility, or a hybrid system consisting of two or more of these facilities, that is:</u></p> <p><u>a. Located on the customer's premises;</u></p> <p><u>b. Operated in parallel with the utility's transmission and distribution facilities;</u></p> <p><u>c. In conformance with the utility's interconnection requirements provided in Rule 14, Section H; and</u></p> <p><u>a-d. Intended primarily to offset part or all of the customer's own electrical requirements.</u></p>	
<p><u>W-X. “Microgrid Aggregator” means a third-party aggregator that coordinates control of distributed resources, including project resources and any demand side management resources, consistent with relevant provisions of Rule No. 2, including frequency and voltage and other power quality requirements established within applicable interconnection agreements.</u></p>	
<p><u>W-Z. “Microgrid Operator” means the operator of a Customer Microgrid or Hybrid Microgrid. A Microgrid Operator may include a Customer-Generator or Microgrid Aggregator, as defined in this Rule.</u></p>	
<p>E. BILLING AND COMPENSATION</p> <p>1. Compensation for Customer Microgrids.</p>	
<p><u>a. For a Customer Microgrid, the Microgrid Operator is a Company Customer and all applicable energy credit rates and compensation under existing applicable programs, Customer tariff(s), and rate schedules will apply to the Eligible Customer-Generator Microgrid Operator of the Customer Microgrid during Grid-Connected Mode.</u></p>	<p>A Author Is this applicable if the Microgrid Operator is third party contracted by Customer?</p>

Hawai'i Public Utility Commission
Microgrid Services Tariff Working Group

Proposed Tariff Section B. 3.

Presentation on behalf of:

Microgrid Resources Coalition

C. Baird Brown
eco(n)law

Tariff Section B.3.

3. For Customer Microgrids and Hybrid Microgrids, existing tariffs and programs shall also be applicable. **However, a Customer Microgrid shall not be subject to Rule 15.** In addition, any Company Rule which requires that Generating Facilities be owned by a Customer or located on Customer premises to be eligible shall be deemed to include all Generating Facilities that are behind the Point of Common Coupling of a Customer Microgrid and under the operating control of the Microgrid Operator.

Problems with the Draft

- Rule 15 can prevent operation of multi-facility or third party operated microgrid if it imports any power.
- Other rules that authorize purchases of power from a distributed generator are limited to resources owned or leased by a customer and located on customer's premises.

Rule 15

A. SEPARATE PREMISES

Where the Company has adequate service facilities to supply separate premises, two or more separate premises, even though owned, leased or operated by the same customer, will not be supplied with electric energy through the same meter.

* * * *

B. RESALE OF ELECTRIC ENERGY

The customer shall not resell any of the electric energy received by him from the Company, except for use solely as motor fuel for light duty plug-in electric vehicles. A light-duty vehicle is defined as a passenger car or passenger car derivative capable of seating 12 passengers or less.

Rule 22 (and 23, 24, 25, 27)

A. ELIGIBLE CUSTOMER-GENERATOR

Customer Self-Supply service is available to permanent customers (“Eligible CustomerGenerator”) who **own (or lease from a third party)** and operate (or contract to operate with a third party) a solar generating facility (“Generating Facility” or “Self-Supply System”), with a capacity of not more than one hundred kilowatts (100 kW), and where:

1. The Generating Facility, which may include an energy storage system, **is located on the Eligible Customer-Generator’s premises. . . .**

Tariff Section 3 Revised Proposal

3. For Customer Microgrids and Hybrid Microgrids, existing tariffs and programs

shall also be applicable subject to the following:

- a. Notwithstanding Rule 15, A Microgrid Operator may resell electric energy received from the Company to (i) other persons within the electrical boundaries of the microgrid who have contracted to receive regular service from the microgrid and (ii) the Company; and
- b. Any Company Rule or program which requires that Generating Facilities be owned or leased by a Customer or located on Customer premises to be eligible shall be deemed to include all Generating Facilities that are (i) behind the Point of Common Coupling of a Customer Microgrid and under the operating control of the Microgrid Operator and (ii) otherwise comply with the requirements of the rule or program.

Other Questions

- What happens if a microgrid contains resources that are program-eligible and others which are not, such as fossil fuel supplemental power?
- What happens if behind the meter battery storage is charged with grid power?
- Is there a way that non-utility scale distributed resources can sell power or services to the grid?

Discussion

C. Baird Brown

eco(n)law LLC

230 S. Broad Street, 17th Floor

Philadelphia, PA 19102

p. 215-586-6615

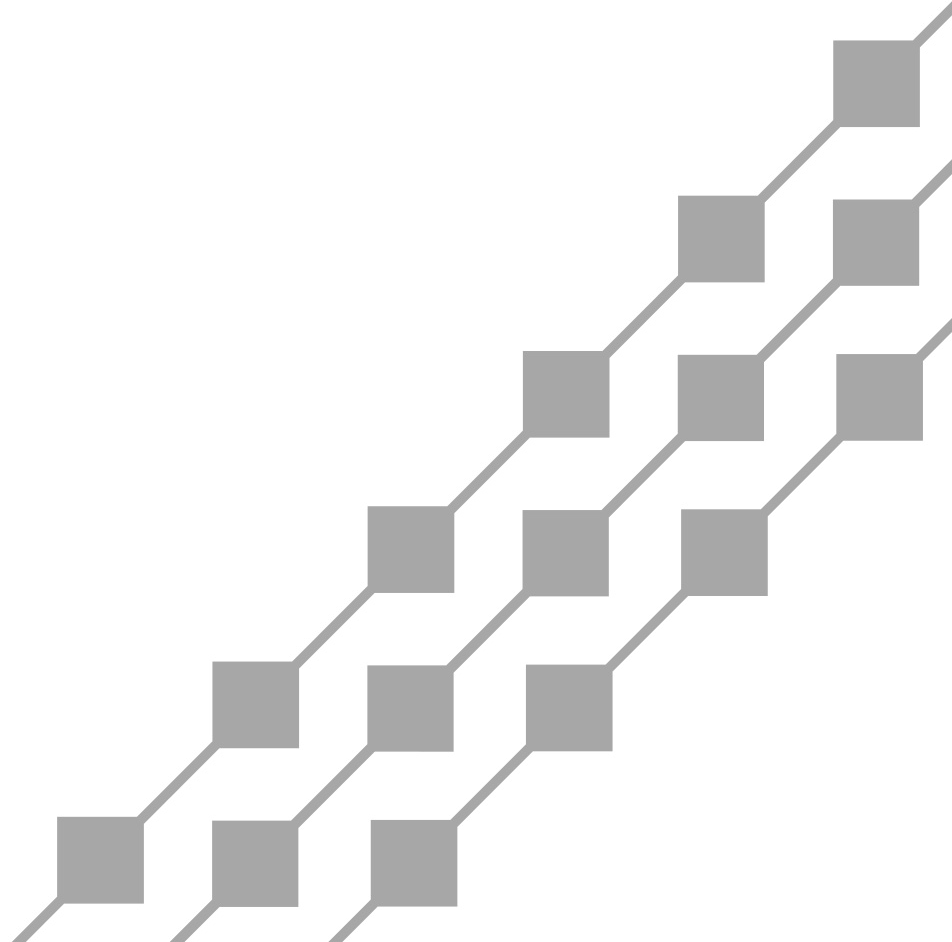
baird@eco-n-law.net

“The economy is a subset of the ecology”



**Hawaiian
Electric**

Indemnification



4) Indemnification

4. Indemnification (Tariff Sections C.1-2)

Hawaiian Electric favored including indemnification language in the tariff, at least as a starting point, in order to account for the variety of possible structures behind the meter and corresponding relationships. However, Ulupono asserted that having the indemnification language in the tariff would not necessarily provide the desired flexibility

and recourse; Ulupono instead suggested that having the indemnification language in the interconnection agreement would allow for negotiating and tailoring the language to each unique project. Hawaiian Electric raised additional concerns that interconnection agreements under other tariffs may need to be rewritten to account for customer microgrids specifically.

The Commission recommends that the Parties decide whether further edits are necessary in the indemnification sections of the Draft Tariff and determine whether indemnification language should be removed from the tariff and instead be included in only the Hybrid Microgrid Operator Interconnection Agreement. The Parties should also evaluate and propose any other necessary changes needed other tariffs to account for customer microgrids.

Proposed Action

- Hawaiian Electric to review and propose changes (if any) for discussion



HECO Proposed Changes (Tariff)

- **Pink** – Commission Edits
- **Blue** – HECO Proposed
- Section C to remain in Tariff and Interconnection Agreement
 - Inclusion in Tariff will help to set non-negotiable items
- Revision to Sec. C.3 and C.4



C. RESPONSIBILITIES AMONG THE PARTIES

1. A Microgrid Operator of a Customer Microgrid shall at all times indemnify, defend and hold harmless Company from any and all damages, losses, claims and actions, including, without limitation, reasonable attorneys' fees and costs, and all expenses incidental to such losses, damages, claims or actions, based upon or arising out of damage to property or injuries to persons (including death) in any way arising out of or related to the Customer Microgrid, except to the extent that such damages, losses, claims, or actions were directly caused by the negligence or willful misconduct of the Company.
2. A Microgrid Operator of a Hybrid Microgrid shall at all times indemnify, defend and hold harmless Company from any and all damages, losses, claims and actions, including, without limitation, reasonable attorneys' fees and costs, and all expenses incidental to such losses, damages, claims or actions, based upon or arising out of damage to property or injuries to persons (including death) in any way arising out of or related to the Hybrid Microgrid Facility, Microgrid Operator's performance of its obligations under the Interconnection Agreement, the operation or maintenance of the Hybrid Microgrid during Island Mode, and/or

Company's actions taken in accordance with the Interconnection Agreement, except to the extent that such damages, losses, claims, or actions were directly caused by the negligence or willful misconduct of the Company.

- ~~3. Limitation of Liability - Customer Microgrids. The Company shall not be responsible for claims and/or damages arising out of or related to the Customer Microgrid, except to the extent directly caused by the negligence or willful misconduct of Company; provided that the Company is not excused for failure to perform in accordance with its contracts, tariffs or applicable law.~~
Limitation of Liability - Customer Microgrids. The Company shall not be responsible for claims and/or damages arising out of or related to the Customer Microgrid, except to the extent directly caused by the negligence or willful misconduct of Company.
- ~~4. Limitation of Liability - Hybrid Microgrids. The Company shall not be responsible for any claims or damages of any Participant or Microgrid Operator arising out of or related to (a) the Hybrid Microgrid Facility and/or the operation or maintenance of the Hybrid Microgrid occurring during Island Mode, and/or (b) Company's exercise of rights and obligations with respect to any Generating Facility and/or Customer within the Hybrid Microgrid, whether in Grid-Connected or Island Mode, except to the extent directly caused by the negligence or willful misconduct of Company; provided that the Company is not excused for failure to perform in accordance with its contracts, tariffs or applicable law.~~
Limitation of Liability - Hybrid Microgrids. The Company shall not be responsible for any claims or damages of any Participant or Microgrid Operator arising out of or related to (a) the Hybrid Microgrid Facility and/or the operation or maintenance of the Hybrid Microgrid occurring during Island Mode, and/or (b) Company's exercise of rights and obligations with respect to any Generating Facility and/or Customer within the Hybrid Microgrid, whether in Grid-Connected or Island Mode.

HECO Proposed Changes (Hybrid MG Int Agmt)

- Pink – Commission Edits
- Purple/Brown/Blue – HECO Proposed
- Sec. 13.a.i and 13.a.iii strike-through
 - failure to perform is negligence or willful misconduct.



13. Limitation of Liability: Indemnification

(a) Limitation of Liability

- (i) Company shall bear no liability and shall have no responsibility to Microgrid Operator or any Hybrid Microgrid Participant for any action(s) taken by Company in accordance with this Agreement, including without limitation, Section 10 (Continuity of Service) or Section 11 (Personnel and System Safety), or in accordance with Company's Customer Interconnection Agreement with respect to any Generating Facility within the Hybrid Microgrid, except to the extent of damages directly caused by the negligence or willful misconduct of Company; provided that the Company is not excused for failure to perform in accordance with its contracts, tariffs or applicable law.
- (ii) Notwithstanding any other provision in this Agreement to the contrary, with respect to Company's provision of electric service to any Customer including the Microgrid Operator, any Company liability to such Customer shall be limited as set forth in the Company's tariffs and terms and conditions for electric service, and shall not be affected by the terms of this Agreement.

~~(iii)~~ The Company shall not be responsible for any claims or damages of any Participant or Microgrid Operator arising out of or related to (a) the Hybrid Microgrid Facility and/or the operation or maintenance of the Hybrid Microgrid occurring during Island Mode, and/or (b) Company's exercise of rights and obligations with respect to any Generating Facility and/or Customer within the Hybrid Microgrid, whether in Grid-Connected or Island Mode, except to the extent directly caused by the negligence or willful misconduct of Company; provided that the Company is not excused for failure to perform in accordance with its contracts, tariffs or applicable law.

(b) Indemnification

- (i) Microgrid Operator shall at all times indemnify, defend and hold harmless Company from any and all damages, losses, claims and actions, including, without limitation, reasonable attorneys' fees and costs, and all expenses incidental to such losses, damages, claims or actions, based upon or arising out of damage to property or injuries to persons (including death) in any way arising out of or related to the Hybrid Microgrid Facility, Microgrid Operator's performance of its obligations under ~~the~~ this Agreement, the operation or maintenance of the Hybrid Microgrid during Island

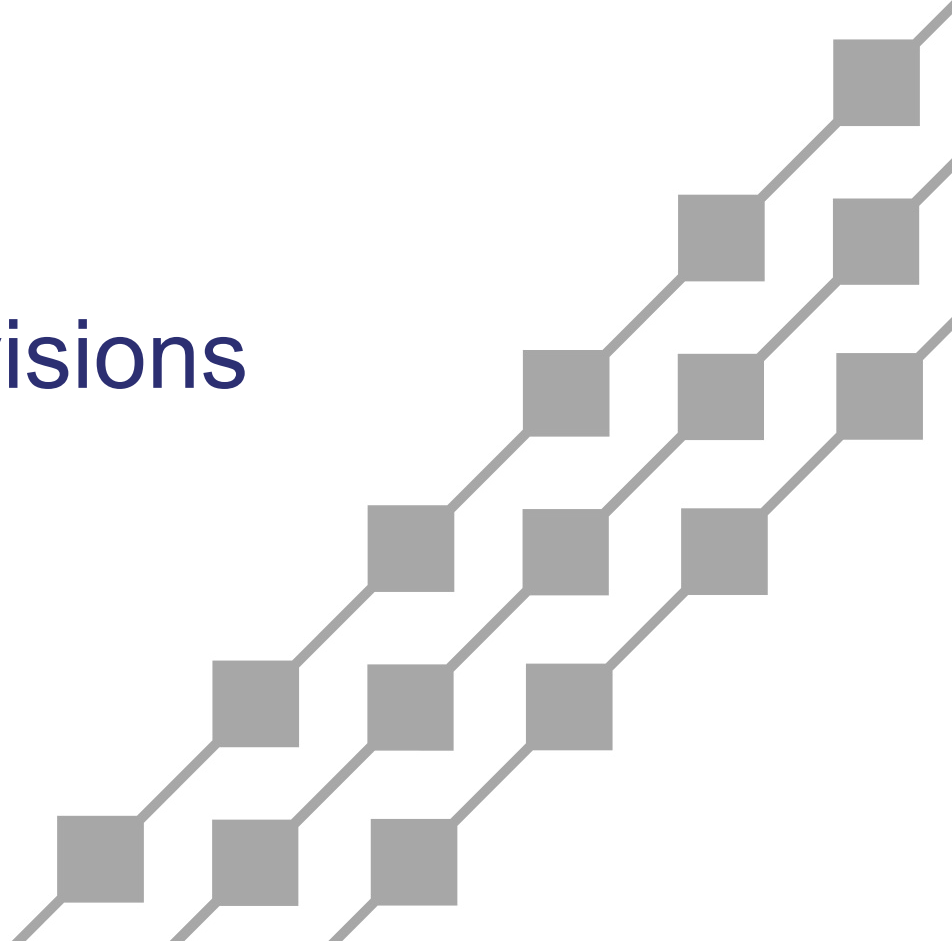
Mode, and/or Company's actions taken in accordance with this Agreement, including Section 10 (Continuity of Service) or Section 11 (Personnel and System Safety), except to the extent that such damages, losses, claims, or actions were directly caused by the negligence or willful misconduct of Company.

~~(iii)~~ (ii) Company shall at all times indemnify, defend and hold harmless Microgrid Operator from any and all damages, losses, claims and actions, including, without limitation, reasonable attorneys' fees and costs, and all expenses incidental to such losses, damages, claims or actions, based upon or arising out of damage to property or injuries to persons (including death) in any way arising out of or related to the Company's Hybrid Microgrid Facility, Microgrid Operator's performance of its obligations under this Agreement, the operation or maintenance of the Hybrid Microgrid during Island Mode, and/or Company's actions taken in accordance with this Agreement, including Section 10 (Continuity of Service) or Section 11 (Personnel and System Safety), except to the extent that such damages, losses, claims, or actions were directly caused by the negligence or willful misconduct of Microgrid Operator and/or Participant.



**Hawaiian
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Anti-Islanding Provisions



9) Anti-Islanding Provisions

12/10/20 Letter

9. Anti-Islanding Provisions (Tariff Section H.3 paragraph 4)

Hawaiian Electric explained that these provisions were included to allow a transition to island mode whenever the system would otherwise trip offline and stated that it was willing to re-write item (2) to be clearer. The Company should provide its revisions to the Parties for review.

Commission's
12/10/20
Redline

A Customer Microgrid may disconnect from the Company System and transition from Grid-Connected Mode to Island Mode, (1) under any of the Trip or Cease to Energize conditions as required by Rule 14H, Appendix I (e.g., Table 4A-1, Table-4A-4, and Table 4A-5 of Rule 14H, Appendix I) or (2) where anti-islanding conditions are present and where the Generating Facility is required to Cease to Energize and Trip within two seconds where an island may be detected on the Company System. In either of these cases, the Customer Microgrid may transition to Island Mode provided that the Customer Microgrid does not energize any part of the Company System.



Author
Please clarify this provision. Is the intent to refer to anti-islanding provisions of Rule 14H?

Proposed Action

- Hawaiian Electric to provide revision to WG.



HECO Proposed Changes

<p>A Customer Microgrid may disconnect from the Company System and transition from Grid-Connected Mode to Island Mode, (1) under any of the Trip or Cease to Energize conditions as required by Rule 14H, Appendix I (e.g., Table 4A-1, Table-4A-4, and Table 4A-5 of Rule 14H, Appendix I) or (2) where anti-</p>	<p>Author Please clarify this provision. Is the intent to refer to anti-islanding provisions of Rule 14H?</p>
<p>islanding² conditions are present and where the Generating Facility is required to Cease to Energize and Trip within two seconds where an island may be detected on the Company System. In either of these cases, the Customer Microgrid may transition to Island Mode provided that the Customer Microgrid does not energize any part of the Company System.</p>	

- Added footnote to reference IEEE 1547-2018. No other changes to Commission's redlines.

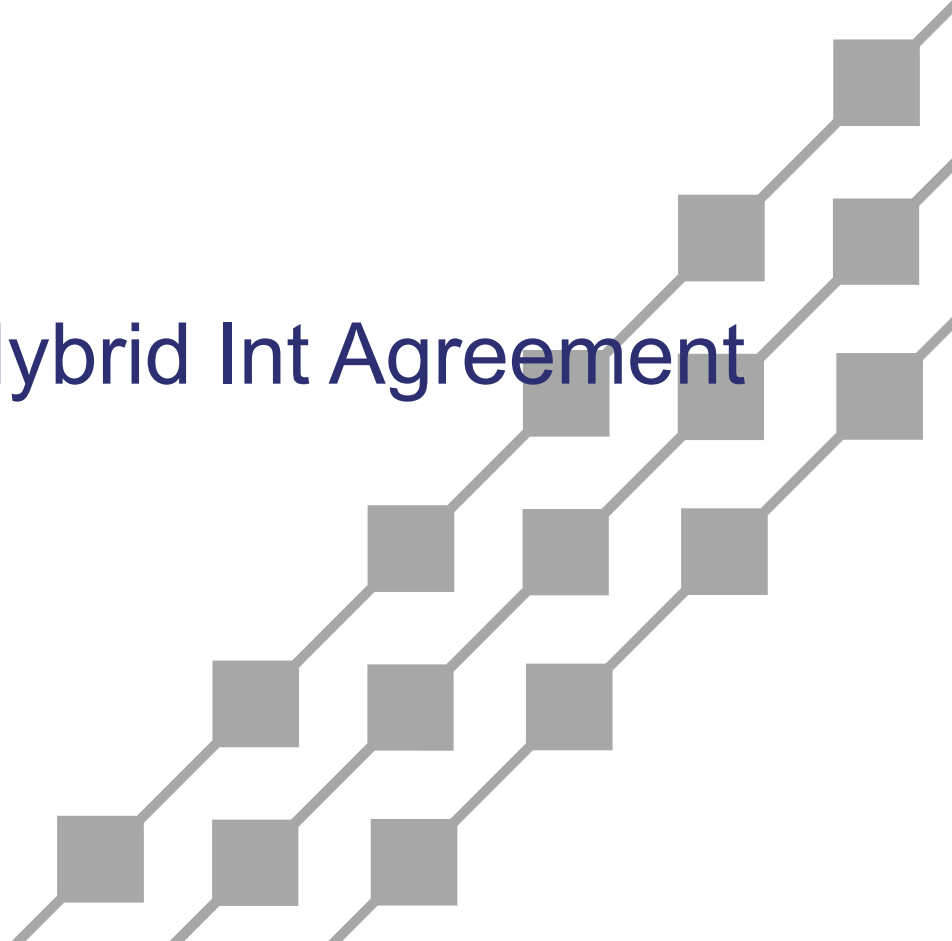
² Per Section 8.1 of IEEE 1547-2018, "For an unintentional island in which the DER energizes a portion of the Area EPS through the PCC, the DER shall detect the island, cease to energize the Area EPS, and trip within 2 s[seconds] of the formation of an island."





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MRC Comments to Hybrid Int Agreement



Proposal

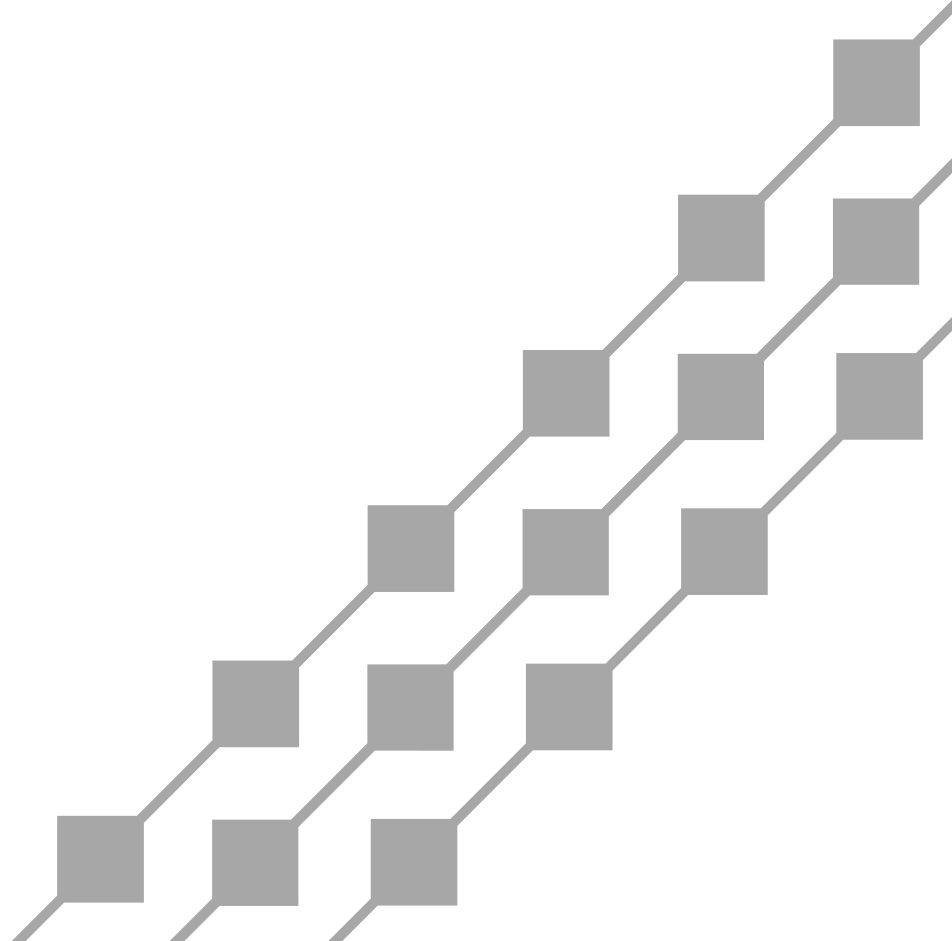
- ◆ Line by Line review of Hybrid MG Interconnection Agreement to discuss MRC's comments
- ◆ To be scheduled in future WG meeting – Jan. 14?





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Next Steps



Action Item List

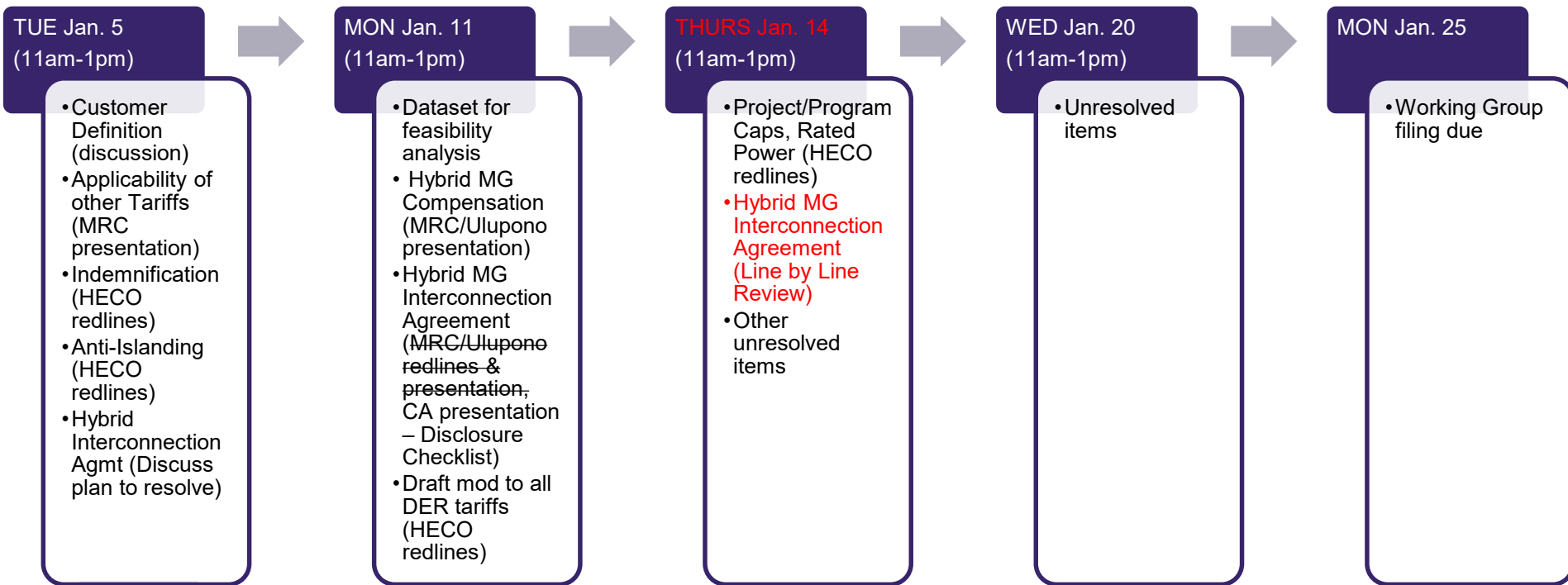
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11	Draft Mod to Rule 24 and other DER pgms	HECO	Provide draft of all Tariffs w/ revisions	1/11	

Other items not identified in Items 1-11?

- ◆ Discuss PUC Redlines
 - Removal of “emergency events” from MG definition
- ◆ What action items should be placed (back to) the “parking lot”?



Proposed Timeline





Mahalo for your time.

<https://www.hawaiianelectric.com/about-us/our-vision-and-commitment/resilience/microgrid-services-tariff>