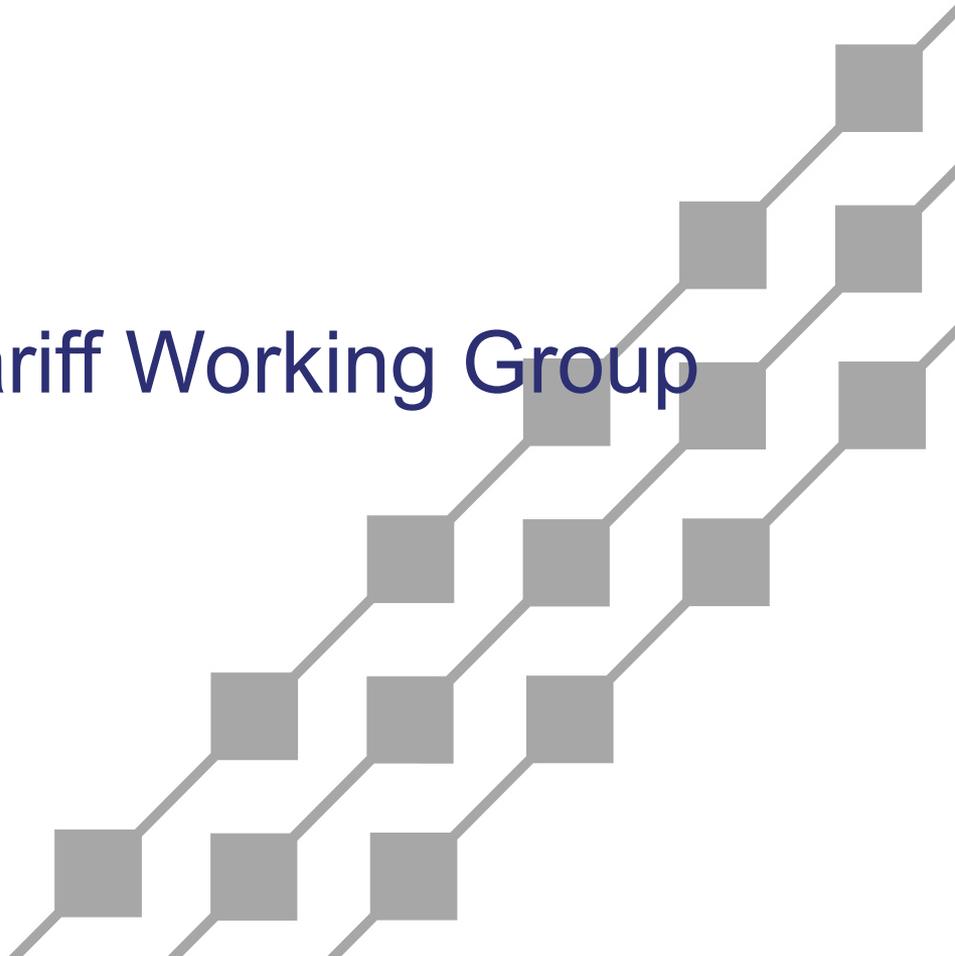




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Microgrid Services Tariff Working Group

January 20, 2021



Agenda

- ◆ Jan. 25 Filing and Next Steps
- ◆ Hybrid MG Interconnection Agreement Walk-Through
- ◆ Microgrid Services Tariff
 - Hybrid Compensation
 - Applicability of other Tariff Rules
- ◆ Next Steps



Action Item List (Highlighted to be discussed)

#	Title	Owner	Action	Status	Comments
1	Customer MG Interconnection Agreement	n/a	None	n/a	n/a
2	Definition of Customer	ALL	WG Discuss	Open	For Review (Tariff)
3	Applicability of other Tariffs (i.e., Rule 15)	MRC	Present to WG	Open	
4	Indemnification	HECO	Review and propose changes	Open	For Review (Tariff/IA)
5	Data set for feasibility analysis	HECO	Develop list	Open	Closed
6	Hybrid MG Compensation	MRC/Ulupono	Present to WG and provide redlines for discussion	Open	MRC Redlines Rcvd 1/18/21
7	Hybrid MG App Interconnection Queue	n/a	None	n/a	
8	Project/Program Caps, Rated Power	HECO	Review and provide redlines	Open	Comments in Redline
9	Anti-Islanding Provisions	HECO	Review and provide redlines	Closed	
10a		ALL	Review MRC Comments – IA Walk-through	Open	
10b	Hybrid MGO Interconnection Agmt	HECO	Clarify phoneline and soft-start ramp rate	Closed	For Review (IA)
10c		CA	Present position regarding checklist	Open	
11	Draft Mod to Rule 24 and other DER pgms	HECO	Provide draft of all Tariffs w/ revisions	Open	For Review (except Hawaii Is. Rule 14H)



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Jan. 25 Filing and Next Steps

Discussion





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Hybrid MGO IA Walk-Through

Discussion with Word Doc

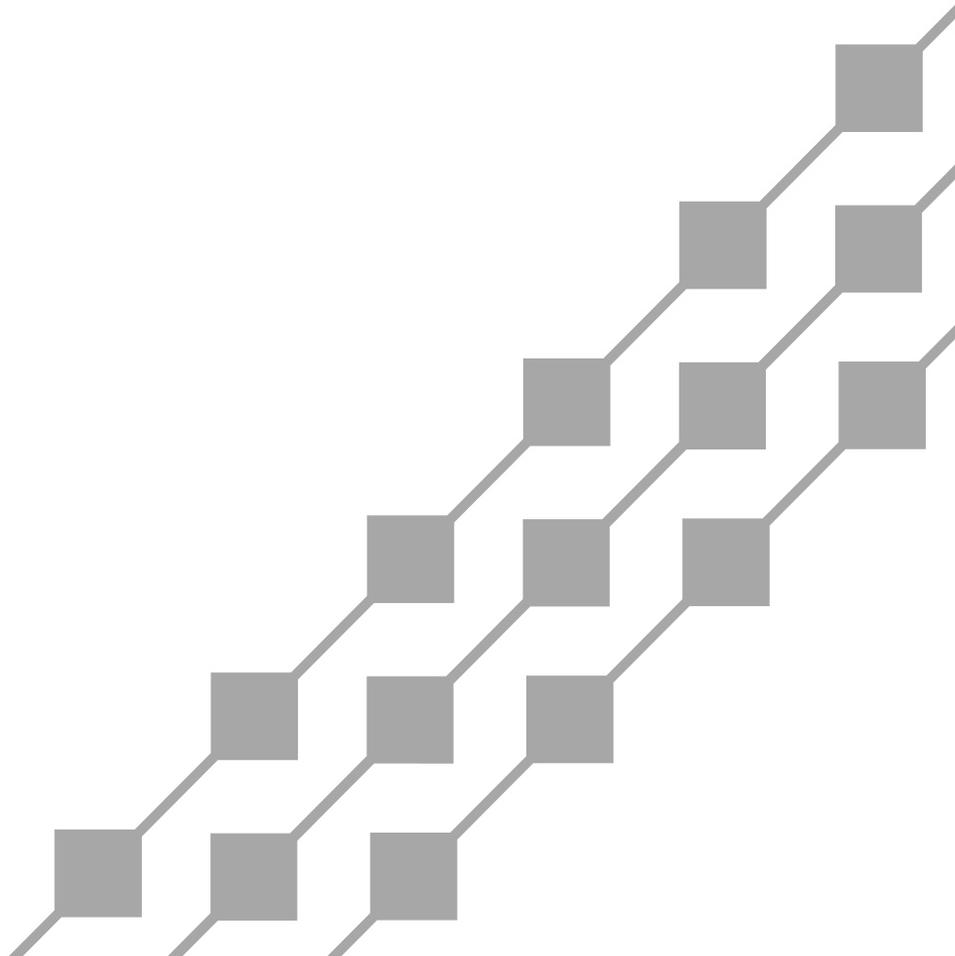




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Hybrid Microgrids

Opening Discussion



Hybrid Microgrids

- ◆ The objective of microgrids in Hawaii is to address identified resilience needs by enabling all customers' greater options
- ◆ The majority of Hybrid MG development in the US to-date has been pursued by communities – not large Commercial & Industrial customers
- ◆ Concerned that the discussion is ignoring community interests and a large group of typically underserved customers
- ◆ Resilience WG identified a multi-tier set of priority customers
 - The majority of Tier 1 customers are governmental organizations motivated by resilience and access to federal (e.g., DoD DCEI Program) and state government funding for MG project development (e.g., Schofield)
 - Examples of State/Local efforts at Hybrid Microgrids
 - NY Prize Program
 - California Community Microgrid Enablement Programs (CPUC Track 2)
 - Individual cities/communities, such as city of Bridgeport, CT & Ann Arbor, MI



Exhibit 2: RWG Recommended Customer Classifications by Tier

Tier 1	Tier 2	Tier 3
<ul style="list-style-type: none">• Military• Telecommunications• Hospitals and critical healthcare• Water and wastewater• Emergency management and first responders	<ul style="list-style-type: none">• Transportation• Hospitality• Banking and finance	<ul style="list-style-type: none">• Remaining customers

Hybrid Microgrids

- ◆ Discussion of Hybrid Compensation Models is insufficient in its scope and has centered exclusively on a small set of private developers' interests
 - Hawaii currently has a greater range of DER opportunities to realize its value potential through tariffs, programs and procurements than any other state
 - There is also another ongoing proceeding discussing opportunities to maximize the value of DER

- ◆ NARUC-NASEO Report on MG Funding
 - “States with successful microgrid programs have used various sources of public capital to ensure the timely development of microgrids”
 - Bridgeport MG - Connecticut Department of Energy and Environmental Protection, the State Energy Office, provided a \$2.975 million grant toward the microgrid's capital costs, with the City of Bridgeport covering the remaining \$5.3 million (NARUC-NASEO Report)

 - Coordinated funding from multiple state programs could be needed
 - ✓ Developing new rate structures that microgrids can use to develop predictable revenue streams (Already exist in HI as described by report)
 - Enabling public-private capital financing options as a first step to provide more alternatives for microgrids to source capital
 - Providing public funding at key points in the microgrid financing process to reduce private investment risk in microgrid development.
 - Providing comprehensive technical assistance and support for customers considering various funding and financing options.
 - ✓ Ensuring that regulatory certainty for microgrids is present to support investor plans (MGS Tariff addresses this issue by affirming customer and hybrid MG development opportunities)
 - Empowering underserved communities to finance microgrids to meet their needs
 - California has authorized \$30mm toward community hybrid microgrids and proposed another \$70+ mm in a current proposed decision with a focus on “vulnerable communities”





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Hybrid MG Compensation

MRC's Proposed Edits (1/18/21)



MRC's Proposed Edits (1/18/21)

- ◆ New definitions added
- ◆ Revision to Sec. E.2. Company Supplied Hybrid MG

~~e-f.~~ Company Supplied Hybrid Microgrid means a Hybrid Microgrid in which all electric energy supplied to Microgrid Participants is supplied by the Company.

~~y-bb.~~ Operator Supplied Hybrid Microgrid means a Hybrid Microgrid in which all or a portion of the electric energy supplied to the Microgrid Participants is supplied by the Microgrid Operator to the Company for the benefit of the Microgrid Participants and compensated and billed as provided in Section E.3. of this Tariff.

~~2.~~ Compensation for Company Supplied Hybrid Microgrids, Operator and Microgrid Participants.

~~2-~~

- ~~For a For Hybrid the~~ Microgrid Operator and all Microgrid Participants in a Company Supplied Hybrid Microgrid, all applicable energy credit rates and compensation will apply during Grid-Connected Mode and Island Mode. While operating in Island Mode, all existing applicable Customer tariffs and programs shall remain in effect and all energy delivered and sold within the Microgrid during the period will be deemed transacted with the Company pursuant to the tariffs.
- Any Generating Facility with an appropriate Customer Interconnection Agreement executed with the Company and supplying energy to a Hybrid Microgrid during Island Mode, and without an existing means for compensation by the utility (e.g., PPA, tariff), shall be compensated by Energy Credit Rates as defined and outlined in Rule No. 24.
- Customers within a Hybrid Microgrid shall be billed monthly for the energy supplied by the Company, in accordance with Rule No. 8, the applicable rate schedule, and Company's rules filed with the Commission.



MRC's Proposed Edits (1/18/21)

◆ Revision to Sec. E.2. Company Supplied Hybrid MG

3. Operator Supplied Hybrid Microgrids.

- a. For the Microgrid Operator and all Microgrid Participants in an Operator Supplied Hybrid Microgrid, all applicable energy credit rates and compensation will apply during Grid-Connected Mode and Island Mode except that electric energy will be supplied to and paid for by the Company and billed to Microgrid Participants as specifically provided in Section E.3.c.
- b. Any Generating Facility with an appropriate Customer Interconnection Agreement executed with the Company and supplying energy to a Hybrid Microgrid during Island Mode, and without an existing means for compensation by the utility (e.g., PPA, tariff) or the Microgrid Operator, shall be compensated by Energy Credit Rates as defined and outlined in Rule No. 24.
- c. For an Operator Supplied Hybrid Microgrid, Microgrid Participants shall be billed monthly by the Company for (i) the portion of the energy supplied to the Microgrid Participant by the Company, in accordance with Rule No. 8, the applicable rate schedule, and Company's rules filed with the Commission, and (ii) the portion of the energy supplied to the Microgrid Participant by the Microgrid Operator, in accordance with the agreement executed by the Microgrid Operator and the Microgrid Participant. The Company thereafter shall pay the Microgrid Operator for the portion of the energy supplied by the Microgrid Operator at the rate charged by the Microgrid Operator to the Customers.

4. Alternative Hybrid Microgrids. The developer of a proposed Hybrid Microgrid may make a proposal for other compensation or joint operating arrangements to the Company, which would, if acceptable to the Company, be incorporated in a separate agreement with the Company that is subject to Commission approval.

a.

3-5. Resilience. Compensation for resilience grid services may be compensable under an appropriate resiliency tariff, rate, or rider.



Company's Initial Questions

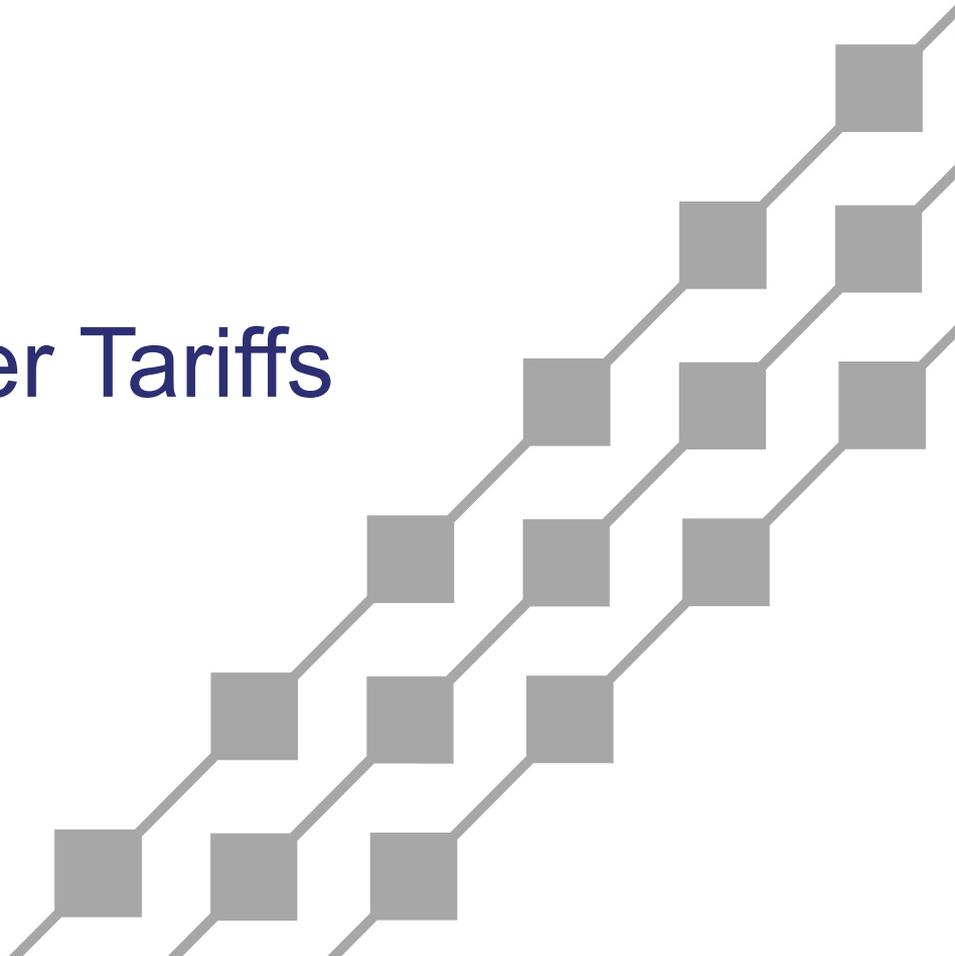
- ◆ Definition – Company Supplied Hybrid MG
 - ◆ Sec. 3.b. duplicated from 2.b. Sec. 2.b was originally intended to provide compensation for generating units providing resilience during island mode (emergencies) only.
 - ◆ Sec. 3.c. Clarification – Is this a pass-through of an agreed cost between MGO and Participant?
 - Need to work out administrative details/cost.
 - Need to work out wires cost/charge.
 - What happens with non-payment by customer for energy? Company (and ratepayers) are in the middle of these pass-through transactions.
 - Impact of rates in DER docket?
 - ◆ Confirm Hybrid MGs allowed to island in emergency situations or at the direction of the Company only. Language suggests otherwise.
 - ◆ How does this work during grid-connected mode? How do you identify how much energy (and at what time) the participants used the MGO's energy vs. Company energy?
 - Impact of potential TOU rates?
 - ◆ Does this proposal required the MGO to be a public utility?
- ◆ More questions will likely be raised as this is reviewed further...





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Applicability of other Tariffs



Tariff Section 3 Revised Proposal (Jan. 5)

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.

HECO Proposal and Discussion

Par. 3 and 4a
acceptable to
MRC

Need further
discussion

3. For Hybrid Microgrids, existing tariffs and programs shall also be applicable.

4. For Customer Microgrids, existing tariffs and programs shall also be applicable, subject to the following:

a. A Microgrid Operator of a Customer Microgrid may allocate costs without markup for electric service received from the Company to other persons within the electrical boundaries of the microgrid who have contracted to receive regular service from the microgrid; 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.



Act 200

- The legislature further finds that without **standard terms regarding interconnection and the value of microgrid services**, businesses and residents developing microgrids may choose to leave the utility grid altogether, thereby weakening the overall system and increasing costs for other utility customers.
- The tariff as developed neither changes interconnection for customer microgrids nor provides any specific compensation.
- The suggestion is to at least assure that certain existing compensation programs are available to all microgrids.

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

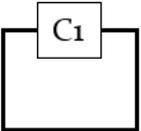
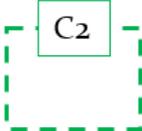
A. ELIGIBLE CUSTOMER-GENERATOR

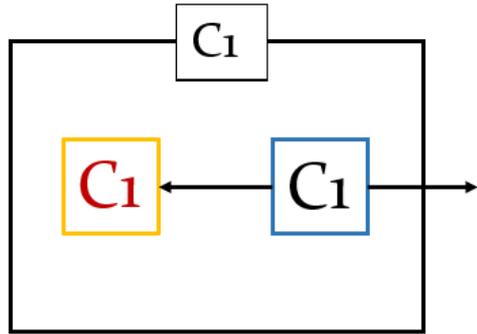
Customer Self-Supply service is available to permanent customers (“Eligible Customer-Generator”) who **own (or lease from a third party)** and operate (or contract to operate with a third party) a solar generating facility (“Generating Facility” or “Self-Supply System”), with a capacity of not more than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

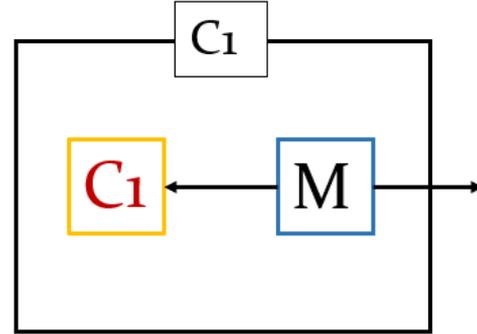
Scenario Key

- Two requirements:
 - Own or Lease
 - On Customer-Generator premises
- Parties
 - Microgrid Operator “M”
 - First Consumer “C1”
 - Second Consumer “C2”
- Sale or distribution of power
 - Solid Arrow \longrightarrow

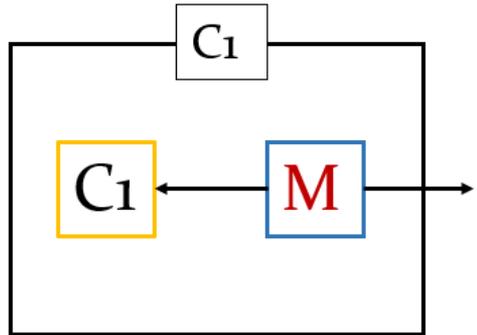
- Generator/Storage
 - Blue Box  Owner shown in center
- Load
 - Yellow Box  Owner/Lessor shown in center
- Company Customer 
 - Indicated in Red e.g.
- Premises
 - Owned = solid box  Small box indicates owner
 - Leased = dashed box  Small box indicates lessee
- Equipment lease
 - Dashed arrow \dashrightarrow



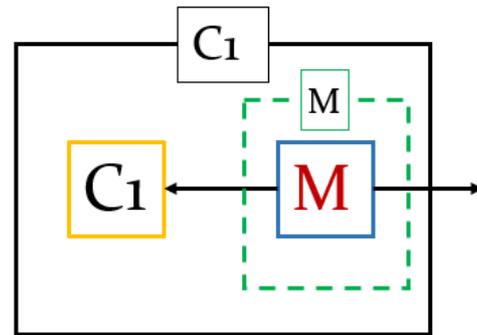
Qualifies:
C1 owns
generation and
premises



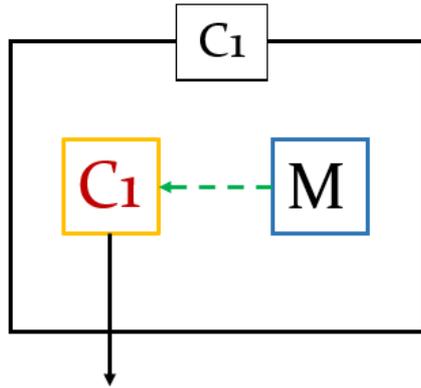
Fails:
C1 doesn't own
generation



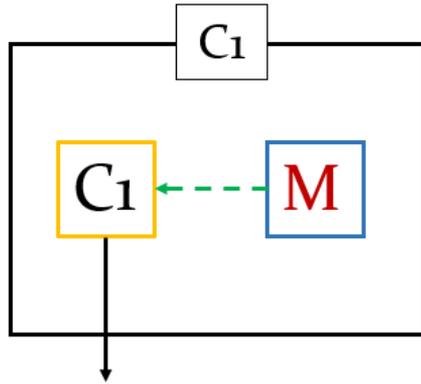
Fails:
M doesn't own
premises



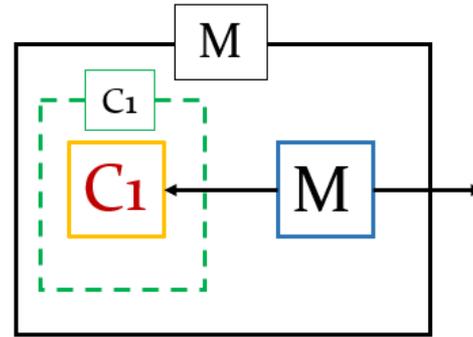
Qualifies?:
M owns
generation and
leases site



Qualifies:
 C1 leases
 generation and
 owns premises
 - Not available to
 non-taxpayer

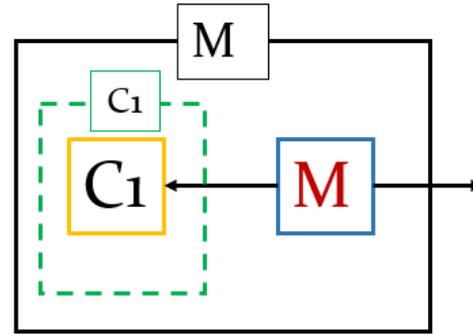


Fails:
 M doesn't own
 premises and
 leases out
 generation



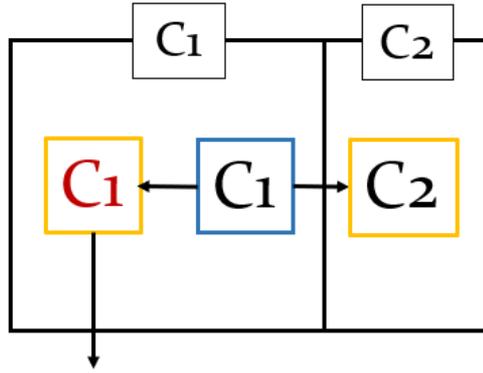
Fails:
 C1 doesn't own
 generation

M = Landlord

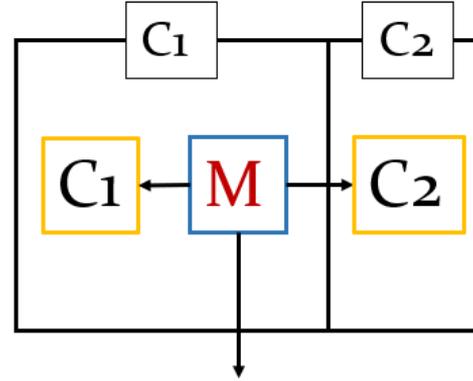


Qualifies:
 M owns
 generation and
 site

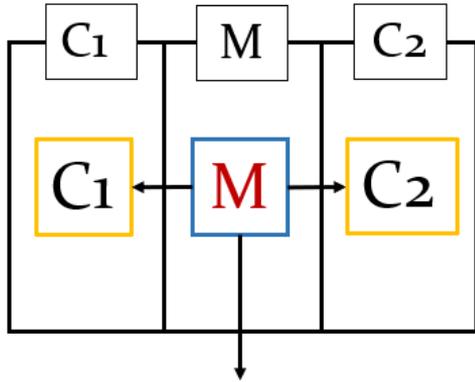
M = Landlord



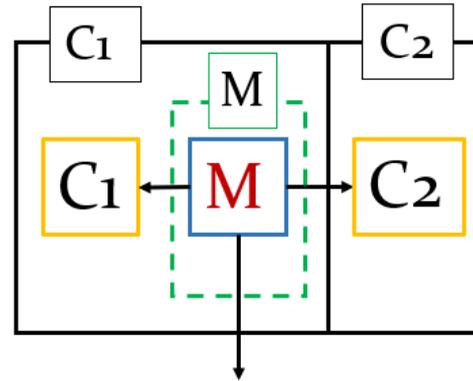
Qualifies:
C1 owns
generation and
premises



Fails:
M doesn't own
premises



Qualifies:
M owns premises
and generation



Qualifies?:
M owns
generation and
leases site

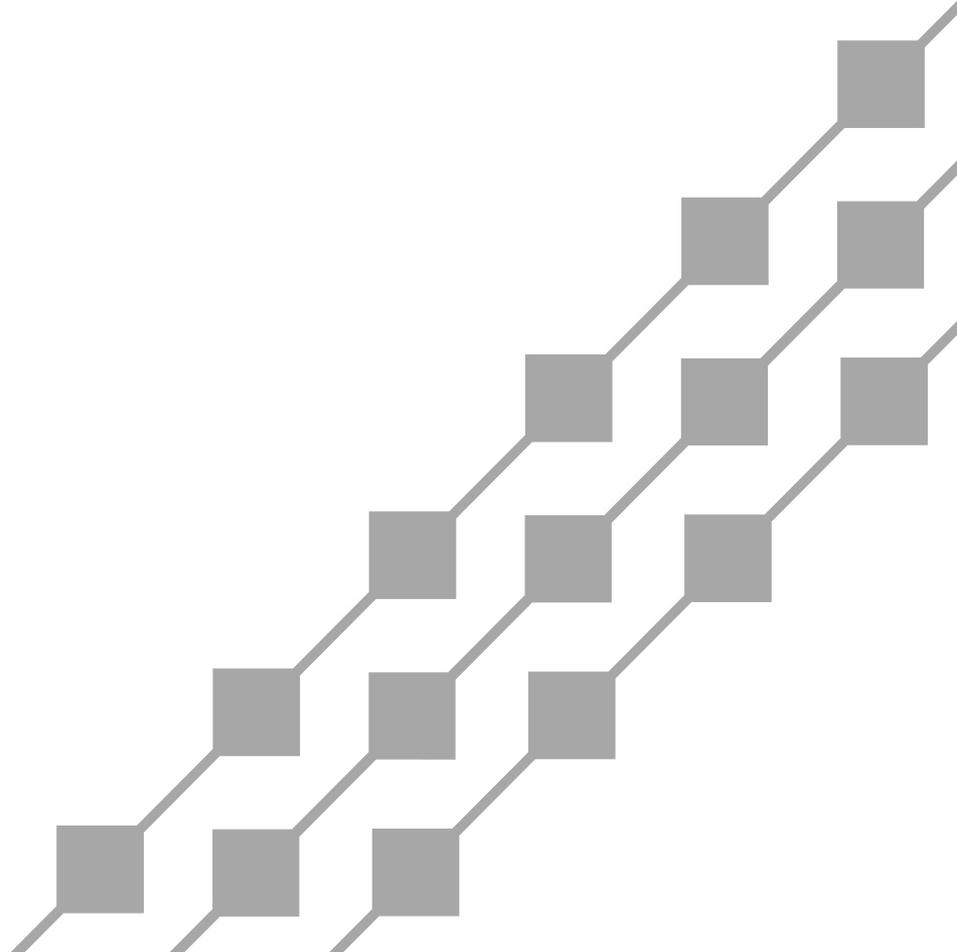
Conclusions

- Premises is not defined
 - If it includes leaseholds (or easements, which are often used for solar installations) then the “located on premises” requirement is less limiting
- Nevertheless, the results are very idiosyncratic for the same parties with essentially the same structure
- If there are generators on different premises it gets even more complicated than these examples
- Why not simply level the playing field for all microgrids?



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Next Steps



Action Item List

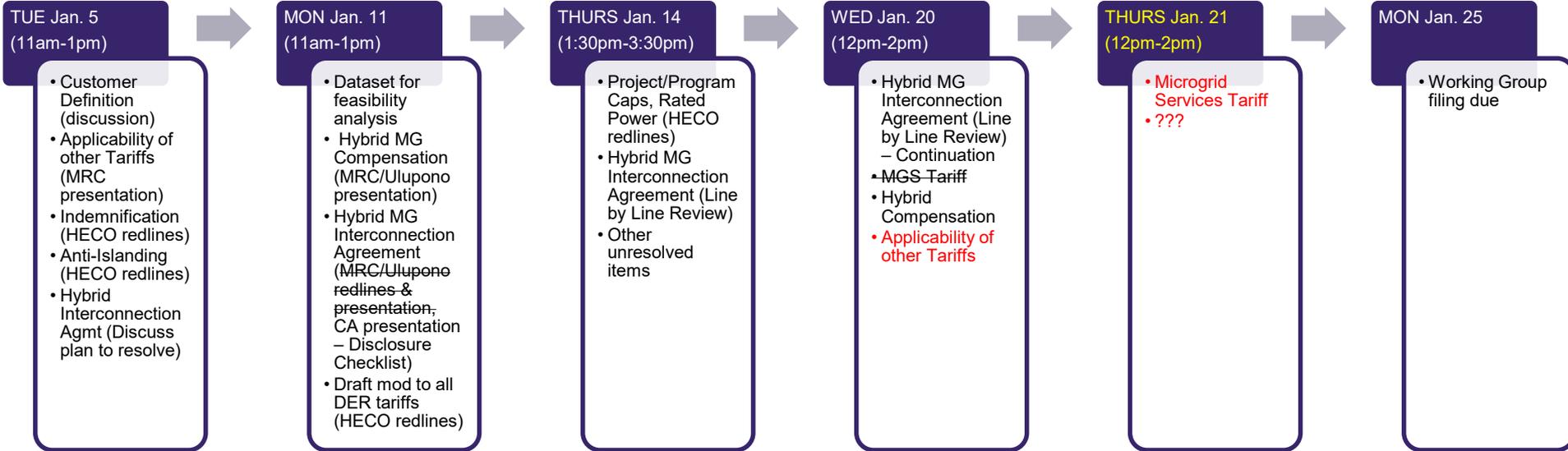
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11	Draft Mod to Rule 24 and other DER pgms	HECO	Provide draft of all Tariffs w/ revisions	Open	For Review (except Hawaii Is. Rule 14H)

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>