

Resiliency & Microgrids Working Group

Multi Property Tariff Phase: Member Proposals from GPI and MRC

Resiliency and Microgrids Team, Energy Division

April 19, 2021



California Public
Utilities Commission

WebEx and Call-In Information

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- This meeting will not be recorded and there will not be meeting minutes.

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- All attendees are muted on entry by default.
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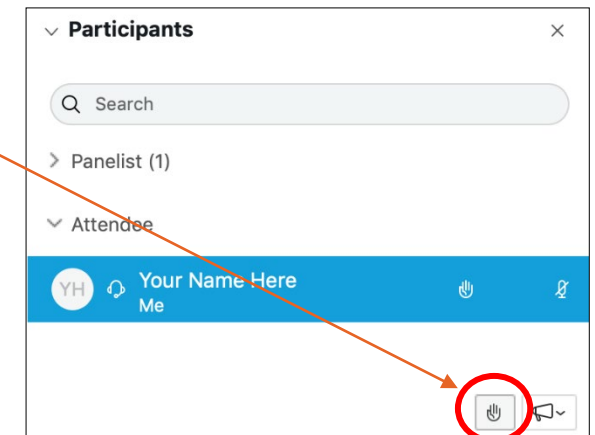
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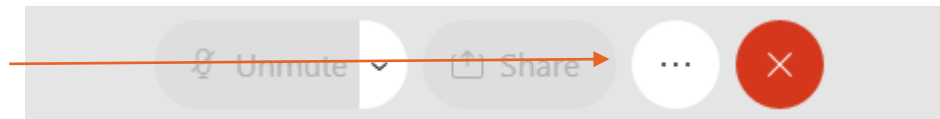


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WebEx Event Materials

Event Information: Resiliency and Microgrids Working Group Meeting


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Event status: Not started ([Register](#))

Date and time: Tuesday, March 2, 2021 9:30 am
Pacific Standard Time (San Francisco, GMT-08:00)
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Duration: 1 hour

Description:



Event material: [RMWG Meeting Material_EXAMPLE.docx](#) (31.7 KB)

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Agenda

- | | |
|--|-------------|
| I. Introductions | 2:00 – 2:05 |
| • WebEx Logistics | |
| • Review agenda | |
| II. Proposal: Microgrids Market-Adjusting Tariff | 2:05 – 3:00 |
| • Presenters: Tam Hunt, Attorney for the Green Power Institute | |
| • Q&A and Discussion | |
| III. Proposal: Community Microgrids | 3:00 – 3:55 |
| • Presenters: C. Baird Brown, Counsel to Microgrid Resources Coalition | |
| • Q&A and Discussion | |
| V. Next Steps | 3:55 – 4:00 |

**Please note that the proposal represent the presenter's view and ideas and are not representative of Energy Division's position.*

Microgrids Market-Adjusting Tariff proposal

Tam Hunt

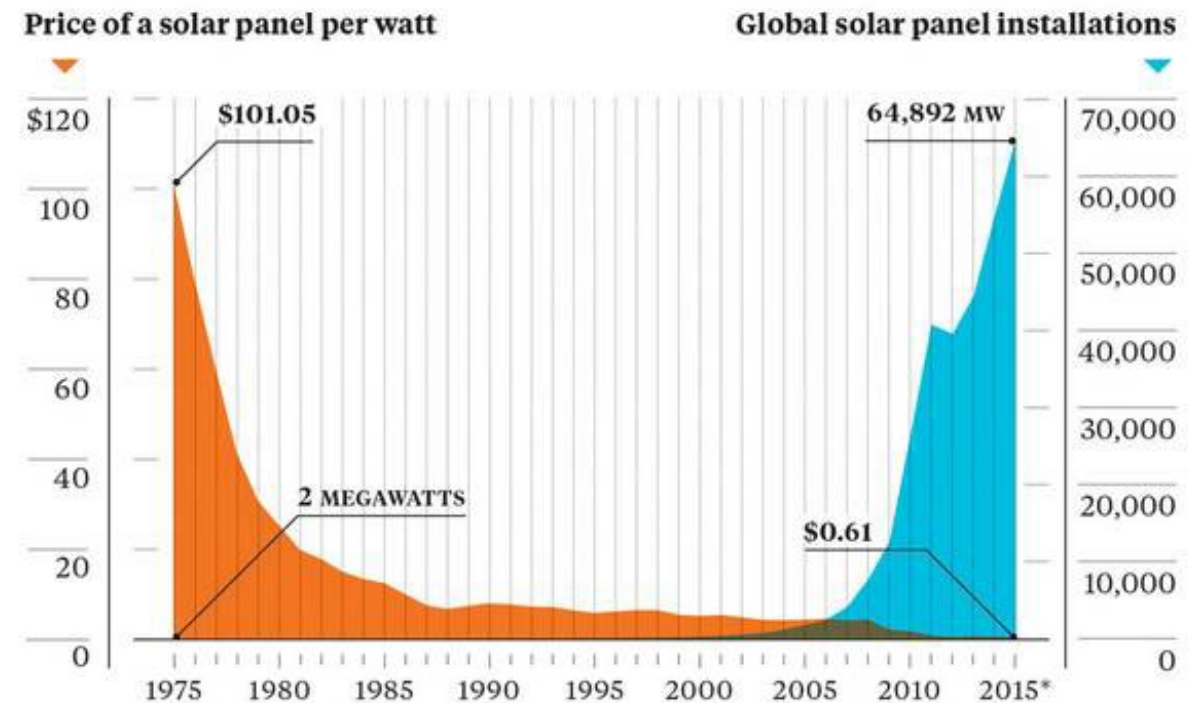
Attorney for the Green Power Institute

4/19/21

Technology learning curves and theories of change

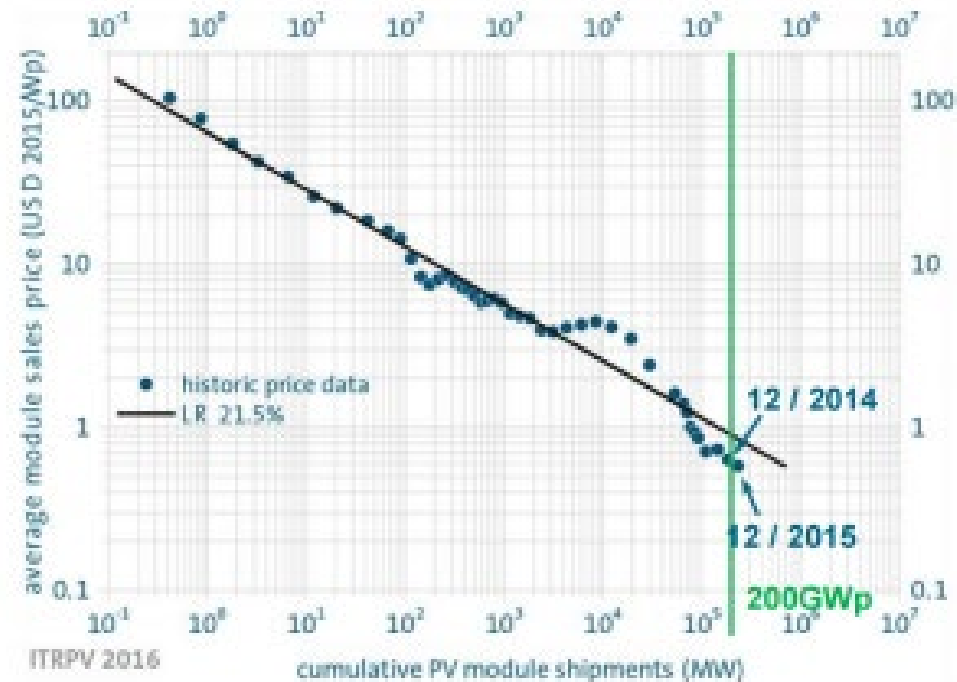
- GPI bases its policy recommendations on promoting technology learning curves
 - This is a key part of our “theory of change”
- We see in many fields predictable relationships between increased scale and declining costs -- which again lead to increased scale and further cost declines in a virtuous cycle of ongoing improvement

Source: Earth Policy Institute/Bloomberg.



Solar panel installations lead to price declines lead to higher installations lead to...

Microgrids are still quite expensive b/c of unique components and novelty



Solar module price declines (log scale)

- Microgrids can benefit from increased scale and cost declines since they are still quite expensive
- The MMAT proposal is meant to quickly ramp up microgrids to scale and promote significant cost declines
- When microgrids are significantly cheaper they will become a more readily available option for all types of communities

GPI's MMAT proposes the following features:

- Applies to microgrids operating as single controllable entities serving their internal customers, including microgrids that use utility distribution infrastructure
- Up to 20 megawatts maximum net export per microgrid
- Size differentiation for compensation rates in the following categories, with rates increasing inversely to project size: 1-100 kW, 100-1,000 kW, 1-20 MW, based on maximum net export capacity, not nameplate capacity
- 2,000 MW program cap, based on maximum net export capacity of each project, expandable by CPUC action, based on demand
- Microgrids may sell up to a maximum of 50 percent of annual production (kWh) to the utility under the tariff, because the primary purpose of the microgrid should be to serve members/customers.
- No minimum annual production levels are required (since the primary purpose of the new tariff is to act as a backstop compensation mechanism for microgrids that primarily serve local load)
- Microgrid tariff payments from the utility shall be comprised of two payments, as follows: \$/kWh **energy payment** + \$/kW-yr **resilience payment**, differentiated by the size categories above
- Energy payments shall be determined based on comparable renewable energy facilities in the three size categories
- Resilience payments shall be determined by maximum net export capacity and based on the value provided to ratepayers as a whole, including value provided to local ratepayers in having power supplies ensured even during Public Safety Power Shutoff (PSPS) events and similar events
- Microgrids located in Disadvantaged Communities and those serving Critical Facilities shall receive a resilience payment equivalent to twice the normal resilience payment, such that the compensation formula for these microgrids shall be as follows: tariff payment = \$/kWh energy payment + 2(\$/kW-yr resilience payment). This additional payment is intended to provide an additional incentive for microgrid development in these areas.
- Rule 21 shall be modified to allow a single interconnection application for a microgrid. If the application otherwise meets Fast Track requirements it shall be eligible for Fast Track. If it is not eligible for Fast Track it shall go through the Detailed Study process, also as a single application.

Single controllable entity

- Applies to microgrids operating as single controllable entities serving their internal customers, including microgrids that use utility distribution infrastructure
- Rationale: we've defined microgrids as a single controllable entity, including MGs that use some utility infrastructure (but not MGs that are owned or operated by IOUs)

Size limits

- Up to 20 megawatts maximum net export per microgrid
- Rationale: this has been a historical demarcation for interconnection and various DER programs; net export b/c this is what matters rather than nameplate with respect to a compensation tariff

Compensation rates by size

- Size differentiation for compensation rates in the following categories, with rates increasing inversely to project size: 1-1,000 kW, 1-20 MW, based on **nameplate** capacity
- Rationale: recognizing that different sizes have different economics

Program cap?

- 2,000 MW program cap, based on maximum net export capacity of each project, expandable by CPUC action, based on demand
- Rationale: large enough to make a difference

Export limits?

- Microgrids may sell up to a maximum of 50 percent of annual microgrid production (kWh) to the utility under the tariff.
- Rationale: the primary purpose of the microgrid should be to serve members/customers; this is a reasonable percent for starting discussion

Production guarantees?

- No minimum annual production levels (guarantees) are required, but for MGs that focus on grid resiliency (rather than onsite load) it may make sense to have some production guarantee in return for higher payments
- Rationale: the primary purpose of the new tariff is to act as a backstop compensation mechanism for microgrids that primarily serve local load, but some MGs may focus on grid resiliency

How are payments determined?

- Microgrid tariff payments from the utility shall be comprised of two payments, based on value to grid and without cost shifting, as follows: $\$/\text{kWh}$ **energy payment** + $\$/\text{kW-yr}$ **resilience payment**, differentiated by the size categories above
 - Energy payments shall be determined based on comparable renewable energy facilities in the three size categories
 - Resilience payments shall be determined by maximum net export capacity and based on the value provided to ratepayers as a whole, including value provided to local ratepayers in having power supplies ensured even during Public Safety Power Shutoff (PSPS) events and similar events
- Rationale: need to fairly compensate MGs but without cost shifting

Additional incentives for DACs and Critical Facilities

- Microgrids located in Disadvantaged Communities and those serving Critical Facilities shall receive a resilience payment equivalent to twice the normal resilience payment, such that the compensation formula for these microgrids shall be as follows: tariff payment = \$/kWh energy payment + 2(\$/kW-yr resilience payment).
- Rationale: additional payment is intended to provide stronger incentive for microgrid development in these areas, recognizing historical inequities

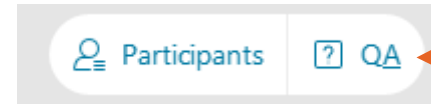
Interconnection improvements

- Rule 21 shall be modified to allow a single interconnection application for a microgrid. If the application otherwise meets Fast Track requirements it shall be eligible for Fast Track. If it is not eligible for Fast Track it shall go through the Detailed Study process, also as a single application.
- Rationale: interconnection process, even under Fast Track (both Rule 21 and WDAT/WDT) is too long and costly for rapid deployment of MGs for resiliency

Discussion and Q&A

WebEx Tip

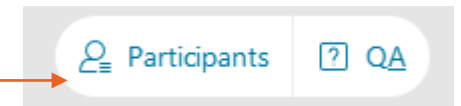
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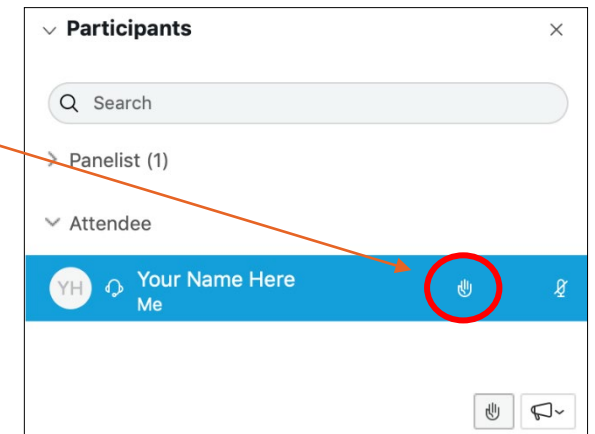
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Community Microgrids

Presentation to CPUC Resiliency and
Microgrids Working Group

April 19, 2021

C. Baird Brown

Counsel to Microgrid Resources Coalition

Community Microgrids

- Multi-customer Microgrids in which the utility owns most of the distribution system within the microgrid. Generation is either community or privately owned.
- The utility delivers all electric power across property boundaries and public rights of way.
- A third-party operator (the “microgrid operator”) operates all controllable generation for the microgrid and serves as the internal balancing authority in island mode.

Community Microgrid Possibilities

“Microgrids that are community-owned can be an opportunity to build community wealth. Local hiring and job training opportunities can support local workers. Deep partnerships between communities and microgrid developers can build community knowledge of our energy systems and promote a democratized energy system.”

California Environmental Justice Alliance (CEJA)

– Comments on Track 2 PD

Community Microgrid Investment

“[P]rojects should be prioritized if they provide system-level benefits through participation in wholesale markets and *match ratepayer funding with private and public funds to the largest extent possible.*”

The Utility Reform Network (TURN)

– Comments on Track 2 PD

Goals

- Community empowerment
 - Price
 - Resilience
 - Environmental justice
- Private investment
 - Ranges from tax exempt bonds to tax equity
- Supporting Roles for:
 - Utilities
 - Private contractors

Community Microgrid Development

- Gov. Code § 4217.10 *et seq.* (ECC Act) gives all California local government entities a flexible procurement process for energy conservation contracts (ECCs)
- ECCs may encompass most elements of a microgrid, but the ECC Act requires that the contract provide net saving, broadly defined. The contract could be for construction, operation, and/or delivery of services.
- The ECC Act permits local government entities to finance the [facility] or [energy services] to be installed or performed under the contract.

Microgrid Development Cont'd

- The ECC Act states, “Notwithstanding any other provision of law, [a government entity] may enter into contracts for the sale of electricity, electrical generating capacity, or thermal energy produced by [a facility] at such rates and on such terms as are approved by its governing body,”
- The ECC Act further allows the local government to count revenues from those sales toward the required savings.
- These provisions give broad flexibility in structuring projects:
 - Design-build, service agreements, power purchase agreements
 - Public funding, public debt, private debt, private equity, tax equity.

Community Microgrid Economics

- A community microgrid will be facilitated by one or a few anchor tenants with commercial, industrial or public service operations who agree to pay for the existence of the microgrid either through
 - up-front reservation payments
 - regular payments during the life of the microgrid.
- Microgrid generation will often be behind the meter of one or more of these customers so they receive the benefit of direct power purchases.
- Included residential or small business customers will probably not be asked for any up-front investment and may not be asked for any payment over and above their normal energy charges.

Microgrid Participant Obligations

- Microgrids often rely on internal load shedding to remain in balance as an island. If participants are expected to shed load, microgrid planning needs to establish means of load shedding and means of communication or control to accomplish it.
- If microgrid participants will be expected to shed load, there will need to be a direct agreement with such participants to accomplish this, along with any payments to be made.

Three Community Microgrid Models

- CMEP Model
 - Utility driven development
- “Community Solar” Model
 - Community driven development
 - Refers to the billing mechanism, not technology choice
- Customer-Operator Microgrid Model
 - Community driven development
 - Greater pricing independence

Common Features of the Models

- The utility uses its wires to deliver all electric power across property boundaries and public rights of way. Consistent with Section 218.
- A “Microgrid Operator” operates all the controllable generation in the microgrid and acts as the balancing authority in island mode.
 - Choice of Operator
- In each model, participant billing is the same in both grid connected and islanded mode.

CMEP Tariff Model

- Participants are customers of the utility.
- Microgrid operator (and any other generators), sells all power output to the utility (or CAISO) in accordance with a power purchase agreement or at wholesale market rates.
- (CMEP tariff is unclear on role of private contractors.)
- Utility bills participants for their entire usage at regular rates including in island mode.

Community Solar Model

- Participants are customers of the Utility. They have utility meters and get their bills from the Utility.
- A microgrid operator operates all included controllable generation *for the benefit of the participants*, including any external sales.
- Participants have a contract with the Microgrid Operator:
 - That sets price terms for the *energy portion* of their electric bill,
 - That sets terms for load shedding in island mode, if any.

Community Solar Model Cont'd

- Microgrid operator allocates deliveries of power (net of exports) and calculates charges for power to participants per the microgrid operator's contract with participants.
 - Price can pass through benefit of exports.
- Utility bills the allocated amount of power at the microgrid operator's price to participants, and bills at its regular rates for any remaining usage.
- All regular wires charges apply.

Customer - Operator Microgrid Model

- Participants have a contract with the Microgrid Operator:
 - That sets price terms for *their entire* electric bill,
 - That sets terms for load shedding in island mode, if any.
- Microgrid operator has a joint operating agreement with the utility with respect to the distribution lines behind the point of common coupling (PCC)
 - Operator generates and Utility distributes power.
- Operator pays Utility the utility's actual cost (and return) to operate and maintain the distribution system within the microgrid.

Customer - Operator Microgrid Cont'd

- The microgrid operator operates all included controllable generation on a full-time basis *for the benefit of the participants*, including any external sales.
- Operator imports and exports power at the PCC as a Utility customer.
- Microgrid operator charges participants their full cost of power in accordance with their contract, passing through the cost of any imported power and use of wires.
- Utility could act as meter reader and billing agent in accordance with the joint operating agreement or could have a microgrid tariff that covered the billing arrangement.

Questions?

C. Baird Brown

eco(n)law LLC

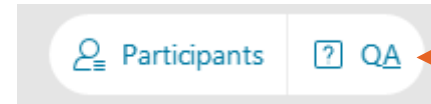
215-586-6615

baird@eco-n-law.net

Discussion and Q&A

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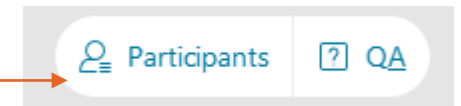
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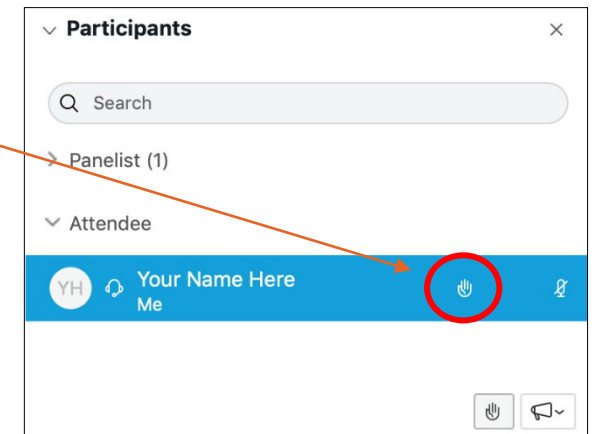
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Upcoming Meetings

- **Tuesday, April 27, 2021, 2-4PM**
Topic: Member Proposal Presentation from Applied Medical Resources Corporation

For more information:

Jessica.Tse@cpuc.ca.gov

<https://www.cpuc.ca.gov/resiliencyandmicrogrids/>

