

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding
Microgrids Pursuant to Senate Bill 1339.

Rulemaking 19-09-009
(Filed September 12, 2019)

**COMMENTS OF MICROGRID RESOURCES COALITION ON TRACK 1 MICROGRID
AND RESILIENCY STRATEGIES STAFF PROPOSAL**

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Background and Summary

The Microgrid Resources Coalition (“MRC”) respectfully files its comments on the TRACK 1 Microgrid and Resiliency Strategies Staff Proposal (the “Staff Proposal”) issued as a part of the California Public Utility Commission (the “Commission”) proceeding instituted in its Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 (the “OIR”) in the above captioned proceeding. The MRC applauds the Commission’s decision to establish separate tracks to facilitate prompt action to help permit rapid deployment of microgrids. Much of the Staff Proposal is valuable, but in some respects, it is narrowly focused. We strongly suggest that the Commission consider additional urgent action to eliminate the most egregious barriers to microgrid deployment on an expedited basis with the goal that the broadest possible spectrum of new microgrids can be up and running before the next fire season.

The MRC is a consortium of leading microgrid owners, operators, developers, suppliers, and investors formed to advance microgrids through advocacy for laws, regulations and tariffs that support their access to markets, compensate them for their services, and provide a level playing field for their deployment and operations. In pursuing this objective, the MRC intends

to remain neutral as to the technology deployed in microgrids and the ownership of the assets that form a microgrid. The MRC's members are actively engaged in developing microgrids in many regions of the United States including several who are actively engaged in microgrid development in California.¹ MRC members have also been operating sophisticated microgrids over an extended period of time (some for over 30 years). They are at the cutting edge of microgrid technology.

The mission of the MRC is to promote microgrids as energy resources by advocating for policy and regulatory reforms that recognize and appropriately value the services that microgrids offer, while assuring non-discriminatory access to the grid for various microgrid configurations and business models. We generally support disaggregated, fair pricing for well-defined services both from the grid to microgrids as well as from microgrids to the grid. We promote community-based resilience standards and support utilities that are working toward new business models that value resilient distributed resources. We work for the empowerment of energy customers.

Statutory Mandate

SB 1339 seeks to incentivize all microgrids and to allow customers to take control of their energy destiny. It finds that “Allowing the electricity customer to manage itself according to its needs, and then to act as an aggregated single entity to the distribution system operator, allows for a number of innovations and custom operations”. It requires that the Commission, “Without shifting costs between ratepayers, develop separate large electrical corporation rates and tariffs, as necessary, to support microgrids, while ensuring that system, public, and worker safety are given the highest priority. The separate rates and tariffs shall not compensate a customer for the use of diesel backup or natural gas generation, except as either of those sources is used pursuant to Section 41514.1 of the Health and Safety Code, or except for natural gas generation that is a distributed energy resource.”

The Current Crisis

California's climate induced wildfire crisis and its subsequent utility induced PSPS crisis require urgent action by the Commission. The MRC was among many who urged immediate action on high priority goals; and we are pleased that the Commission acted to establish a fast track for actions intended to permit immediate construction of resiliency enhancing microgrids. However, we do not believe that the staff proposal rises to the level of urgency required. We strongly encourage the Commission to begin work post haste, on a microgrid tariff as SB 1339

¹ Members of the MRC include: Anbaric, Bloom Energy, Clearway Energy, Concord Engineering, Drinker Biddle & Reath, Eaton, eco(n)law, Emory University, Engie, Icetec, International District Energy Association, Massachusetts Institute of Technology, NRG, Princeton University, Scale Microgrid Solutions, Thermo Systems, University of Missouri and the University of Texas at Austin. The MRC's comments represent the perspective of the coalition and should not be construed as speaking for individual members.

requires, whether in Track 1 (as multiple parties, including the MRC suggested) or with a concurrent Track 2. Fire season is fast approaching, and the Commission has not issued the market signal in the form of announcing creation of a tariff that will be necessary to give them the confidence to invest in truly resilient microgrids that can ride through long term outages.

The Staff Proposals

We are grateful for the rapid staff action in preparing the draft proposal. It contains much that is useful, but we are concerned that it falls far short of meeting both the goals of the statute and the immediate needs of enhanced resilience.

Interconnection. While we strongly support accelerated interconnection generally, most of the Problem 1 proposals are applicable only to small microgrids with limited technologies. We strongly support Proposal 3 to establish a separate queue for all microgrids serving critical facilities. MRC supports the IOUs investing in additional human and information technology resources to accelerate interconnection of DERs and microgrids. In addition, we propose adopting time limits for action on interconnections for all microgrids serving critical facilities and support upgraded utility staffing to meet that requirement.

Tariff Proposals. Problem 2 proposals are entirely focused on small microgrids that are eligible for net energy metering (NEM) and include battery storage. As a general rule such microgrids are unable to meet longer term resilience requirements arising from wildfires and PSPS. However, behind the meter battery storage has the potential to reduce or eliminate the “duck curve” and should be supported. We have no objection to these proposals and make a further suggestion with respect to NEM-Multiple Tariff.²

Community Assistance. We strongly support the thrust of the Problem 3 proposals. Utilities should make planning information available to sponsors of microgrids and support that with educational outreach. We support funding utility staffing for that. We hope utilities will listen as well.

The proposal lists several conflicting and vague standards for facilities that should receive priority for interconnection approvals. We believe that communities must take the lead role in identifying critical facilities serving their citizens, and that neither utilities nor the Commission should seek to lead that process. Moreover, we recognize that many critical facilities, ranging from hospitals to grocery stores and gas stations, may be owned and operated by non-governmental entities. It is critical that those entities also have access to planning information. In many cases it may make sense for them to be served by standalone microgrids.

² Pacific Gas & Electric Company Tariff, Electric Schedule NEM2, Net Energy Metering Service (available at https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_SCHEDS_NEM2.pdf)

Finally, we are concerned that elements of Proposal 3 can take the role of the utility beyond education and getting input for utility infrastructure decisions, and that “advice” can shade into marketing for particular solutions that may crowd out more customer-oriented approaches. We do not support funded staffing for that.

Utility Proposals

The MRC is generally neutral on the utility proposals, except insofar as they implement staff proposals that we have supported above, with two major exceptions:

- (a) We strongly oppose acquisition by utilities of large fleets of mobile standby generators. They represent a major long-term capital expenditure on dirty diesel generation that should go instead to grid improvements to accommodate and make emergency use of community supported microgrids, which are the real solution.
- (b) The various utility proposals are heavy on hybrid microgrids dominated by utility planning. They may crowd out better solutions. And, they often shift costs to ratepayers that in many instances would be borne by customers and developers implementing market-based solutions, if utilities supported rather than blocked those solutions. In particular, utility efforts to put microgrids behind customer meters not only shift costs from the benefitted customer to utility ratepayers, they also force the utility to manage conflicting operating goals. These violate the mandate of SB 1339 and should be prohibited.

Other Urgent Actions

We believe that the staff report omits several actions that could be implemented promptly and would have a substantially larger impact on accelerating development of microgrids serving critical facilities. In the experience of MRC members, the kinds of microgrid that can provide longer-term resilience than one or two days comprises a diverse collection of resources such as renewable resources, thermal or electric storage, advanced internal load shedding capability, and natural gas generation that qualifies as a distributed energy resource under CARB standards as contemplated by Section 8372 of SB 1339. The role of natural gas generation is often to assist in balancing the system especially if battery storage is discharged and to supplement storage when, for example, solar energy is not available at night or during lengthy storms or dense smoke and haze from fires. While we expect advances in decarbonization technology, that is the current reality. To the extent that new natural gas resources are to be deployed, they should not be deployed in utility scale projects but in new microgrids that serve local resilience.

We strongly urge the Commission to create a standardized microgrid tariff, as required by SB 1339. We strongly encourage the Commission to begin this work post haste, whether in Track 1 (as multiple parties, including the MRC suggested) or with a concurrent Track 2. Fire

season is fast approaching, and the PUC has not issued the market signal via the announcement of the creation of a tariff that will be necessary to give them the confidence to invest in truly resilient microgrids that can ride through long term outages.

Departing Load Charges. The largest single impediment to implementation of sophisticated microgrids is the departing load charge. The state is asking facilities that advance state goals for resilience and decarbonization to pay for aging fossil fuel plants that the state has ordered closed, but for a current capacity shortage. What is wrong with this picture? Qualifying renewable energy and fuel cell projects are already exempt, and an exemption for microgrids could be implemented in in short order.

Standby Charges. The second largest impediment is standby charges, largely because they can be arbitrarily high and because they are wildly uncertain. We suggest that a standardized tariff should modernize standby charges.

Responses to Questions Proposed in Order

In forwarding the Staff Report, Administrative Law Judge Rizzo has asked voluminous questions. Answers to many of the questions are more in the province of the Commission and the utilities than private respondents, require estimates that we have no basis for making, or were difficult to gather information about due to the short time allotted. Many also relate to proposals that we do not support or that we do not object to but do not feel the need to comment extensively on. Rather than respond to all of the questions we have we have simply left them blank where we have no response that we believe would be helpful to the Commission. We would also welcome the opportunity, in the context of an expedited tariff proceeding, to provide detailed drafts of our proposals, but time has not permitted that in this response.

1. Prioritizing Interconnection Applications to Deliver Resiliency Services at Key Sites and Locations

1.1. All Interconnection Proposals:

- 1. Please indicate support of or opposition to the adoption of each proposal and justify the rationale. For the proposals that include implementation options, please indicate which options should be supported or opposed and why.*

The MRC strongly supports efforts to accelerate interconnection approvals, and, accordingly, we generally support these proposals. We believe that these proposals will benefit a small class of solar plus storage microgrids that provide great benefits to the grid by smoothing solar peaks and to their customers by providing short-term outage protection. However, given current technology they are not generally able to provide resilience for more than 24 hours in persistent cloudy conditions or in persistent smoke and haze. We make an alternative suggestion with regard to Proposal 2 below.

2. *Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language.*
3. *Is CPUC action required in order to implement any of the proposals? If so, what action would be most appropriate?*
4. *For proposals that require CPUC action, what standards are appropriate for CPUC to use to determine whether the action is justified?*
5. *Should CPUC consider cost recovery for any of these proposals in this proceeding? For example, should CPUC consider cost recovery for additional IOU technical resources to support the intake, prioritizing, technical support, and processing of interconnection applications? Please discuss.*
6. *Are any changes to statute required to implement any of the proposals? If so, please state the Public Utilities Code section and propose language.*
7. *For each proposal,*
 - a. *Estimate the time required to implement the proposal; and*
 - b. *Estimate the IOU staff hours required to implement the proposal.*
8. *For each proposal,*
 - a. *Estimate how much the proposal would reduce the amount of time required for interconnection;*
 - b. *State the population of project types (e.g., net energy metering (NEM) solar > 30 kilowatt [kW], NEM-paired storage > 10 kW) that would benefit from this streamlining.*
 - c. *When characterizing the population of project types that would benefit from each proposal per 7(b), please include an estimate of the proportion of all projects interconnecting under Rule 21 and/or the proportion of all generating capacity interconnecting under Rule 21 that the benefitting project types represent. Please cite and extrapolate from (i) current installation trends, and (ii) data on the currently installed population of projects in order to justify estimates.*
 - d. *For illustrative purposes, a sample response to this question is provided below:*

- *Proposal X will reduce interconnection time by approximately one month; and*
- *Proposal X will benefit NEM-paired storage projects > 10 kW. Such projects represent approximately X% of all currently installed projects interconnected under Rule 21 and Y% of all currently installed megawatt (MW) interconnected under Rule 21. Recent trends indicate an increase of this type of project is being installed. This type of project represents Z% of projects and A% of MW interconnected under Rule 21 in Q4 of 2019.*

9. *Should any of the proposals be modified before being adopted and/or implemented? If so, please describe and justify any changes.*

We suggest that the Commission consider as an addition to Proposal 2 a modification to the NEM-Multiple Tariff. This could better address the issues that developers and customers face when attempting to combine multiple technologies that include both electric and thermal energy resources. For example, it is currently extremely difficult to pair solar, storage, and fuel cells together under one interconnection process. The same is true for renewable generation and combined heat and power facilities. Many critical facility customers, such as water treatment facilities or schools, have central plant systems or cogeneration that could integrate high penetrations of renewables and storage, but are unable or unwilling to attempt to do so because of the complicated and cost-prohibitive interconnection process.

This tariff should be modified to specifically address combining electric and thermal technologies under one interconnection process. More utility staff could be hired specifically for the improvement of this tariff and processing applications quickly, while also segmenting critical facilities from the general NEM queue, or at least providing NEM-MT customers with additional support to help with the process.

10. *Are there other options for each proposal that have not been listed? If so, please elaborate on the option(s) that should be considered. Include as much detail as possible.*

As outlined in our initial filing in this docket,³ in the experience of our members interconnection delay is one of the top three impediments to microgrid development. As the staff report understands, uncertainty is the enemy of projects, and utilities often delay because they think microgrids are “complex.” To the extent that this is not simply an excuse for delay, the concern is misplaced. The level of resource diversity behind the meter does not affect the ability to island completely and avoid energizing the grid in emergencies. That is the function of the

³ See "Comments of Microgrid Resources Coalition to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339," October 21, 2019, R. 19-09-009 at § 2.3 (available at <http://www.microgridresources.com/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=0907eb-be-8f69-9b7e-3164-a28c64212e6d&forceDialog=0>)

islanding breakers. Also, the interconnection process needs to evaluate a microgrid based on the aggregate capabilities of its included resources and included microgrid controls that typically allow microgrids to be more finely controlled than other resources. It should be evaluated on the expected range of net imports and exports, not from a zero baseline. Finally, the likelihood of the entire microgrid tripping off is reduced by the number and diversity of included resources.

On the one hand, this may suggest a requirement for additional utility training or hiring in more expertise. Our members have been operating successful advanced microgrids for years, in several cases decades, while utilities are still running pilots. It certainly suggests the need to develop more sophisticated interconnection standards for microgrids that take into account the factors enumerated above. Finally, it suggests that the Commission should adopt performance requirements for completion of interconnection studies

1.2. Interconnection Proposal 1

- 1. Are the three listed system types — (i) Rule 21 non-export storage, (2) NEM + Paired storage (Alternate Current [AC] Coupled and Direct Current [DC] coupled), and (ii) NEM Solar — the most appropriate system types to consider in this proposal? Please justify the response. Beyond these three system types, should the utilities develop standardized single line diagrams for additional technologies or system types? If so, which technologies or system types should be prioritized and why?*

We are concerned that microgrid templates and standard one-line drawings will only benefit a very small subset of microgrids. The essence of microgrids is to assist customers in optimizing their energy use while meeting their carbon reduction and resilience goals, and, in our member's experience, one size almost never fits many. Whether this is valuable depends on the number of possible affected applicants, and we are not in a position to estimate that. Our members have not expressed any broad interest in pursuing such projects.

We have at least four members who are active in California and own, as one put it, dozens of MWs of existing projects in California, and are actively involved in developing more. They have backlogs of projects that would pencil if, as we suggest elsewhere, departing load charges were eliminated and standby charges were standardized. Some will consider projects as small as 250 kW, but the preference is for projects over one MW, the principal focus is probably in the 2 – 12 MW range, and they have the capability to go much larger.

One member that works with hospital microgrids across the country observes that critical infrastructure like hospitals can benefit from robust natural gas backed microgrids:

- Hospitals are the second largest energy users in California.
- Because of their thermal profile, California hospitals are an ideal match for ultra-efficient CHP based microgrids.

- The average hospital load is 4-5MW (some can be as small as 2MW and others as large as 16MW).
- CHP based microgrids can supply a 100 percent of a hospital’s chilled water, hot water, steam and electricity needs 24 hours a day/7days a week, providing much needed long duration, reliability and resilience.
- They can provide grid support - frequency regulation and voltage support.
- The California Office of Statewide Health Planning and Development is expected to require retrofitting of all hospital buildings that fall into “Structural Performance Category (SPC) SPC-2 through SPC-5 by 2030 – In other words, a flurry of hospital construction will be conducted over the next decade where a large percentage are sited in the High Fire Threat District (HFTD)
- DLC’s and Standby charges still biggest deterrent to reliable resilient efficient CHP backed microgrids for CA hospitals.

That member further notes that:

- University of California and its hospitals are utilizing over 130 MW of CHP technology at various sites to reliably support their critical infrastructure.
- University of California and California State Universities are exempt from Departing Load Charges until December 31, 2020.
- As California continues to incorporate more renewables, the power quality of the grid is becoming more erratic. Some technologies, such as turbines and reciprocating engines can provide support, rather than contribute to the problem.

2. *For each of the three system types described—(i) Rule 21 non-export storage, (ii) NEM + Paired storage (AC Coupled and DC coupled), and (iii) NEM Solar) — should a size limitation be placed on projects utilizing pre-approved single line diagrams? If so, what should it be and why?*
3. *Which implementation option would be most effective and efficient for developing template single line diagrams? Please justify the response.*
4. *What is required in the template-based interconnection application process to ensure that developers are using IOU-approved equipment to avoid delays in the review process or after a project has been built?*

1.3. Interconnection Proposal 2

1. *Under what circumstances should field inspections be required? What system installations and settings need to be verified by field inspections?*

We are not concerned with field inspections as such, but with the time it takes to

complete them. Utilities should be required to meet a 30 day outside limit and complete 80 percent of inspections in 15 days. They should be able to recover the cost of having staff to meet this requirement and pay a penalty if they fail. This should be included in a microgrid tariff.

2. *How should compliance be evaluated for Option 2?*
3. *Are there any circumstances that a field inspection should still be conducted by the IOUs even if it is duplicative of the local authority inspection?*

We don't believe so.

4. *How should IOUs coordinate the division of site inspection responsibilities with local jurisdictions? Should final agreements on these responsibilities be reached, how should they be formalized (e.g., signing of memoranda of understanding)?*

1.4. Interconnection Proposal 3

1. *Should either Option 1 or Option 2 of Interconnection Proposal 3 be adopted, what criteria should be used to determine which key locations, facilities, and/or customers are prioritized in the interconnection process? When discussing, please refer to the following four sets of criteria previously published by the Commission for similar purposes. If there is preference for modification or an alternative to these four sets of criteria, please explain and justify the recommendation.*
 - a. *“Assigned Commissioner’s Scoping Memo and Ruling for Track 1” issued on December 20, 2019, in R.19-09-009 (“key sites and locations”);*
 - b. *D.19-05-042, Appendix A at A4 and Appendix C at C2 (definition of “critical facilities”);*
 - c. *D.19-09-027, Conclusions of Law (COL) 5-7, Attachment A at A1 (definition of customers with “critical resiliency needs” for purposes of incentive eligibility under the Self-Generation Incentive Program); and*
 - d. *Decision adopting Self-Generation Incentive Program revisions pursuant to SB 700 and other program changes (January 16, 2020); (mailed on December 11, 2019 in R.12-11-05, COL 17 modification to definition of customers with “critical resiliency needs”).*

The MRC believes that communities must be the judges of their own resilience needs.

We suggest that the Commission request the California Office of Emergency Services (“OES”), with such assistance from the Commission as it may require, establish detailed criteria for identifying facilities that are critical to sustain life and health in grid outages lasting from a few days to several weeks, including priority ordering. This may require a request to the Governor. The Commission should seek to provide preliminary guidance on critical facility definitions within 30 days. Cities, towns and counties with assistance from OES and with information from their utility contemplated by Local Government Access Proposal 1, should determine the critical facilities in their community and their priority ranking based on uniform state criteria. Any privately-owned facility should be able to request a determination from its local government that it qualifies.

The MRC is concerned that all of the definitions above are vague and subject to varied interpretation. It does not believe that either the Commission or utilities are well placed to make such determinations. The OES has extensive experience in emergency planning and engages in wide collaboration with communities across the state. To assure equity and certainty, both for community planning and microgrid development, definitions should be established that are clear and uniform, but tailored to conditions in communities that differ in size, density and availability of services.

2. *Should Proposal 3 be adopted, what implementation challenges would likely need to be overcome? For each identified challenge, please suggest one or more possible paths forward.*
3. *Should either Option 1 or Option 2 of Interconnection Proposal 3 be adopted, please estimate the number of new, resiliency-focused projects that would enter the queue. What impact would this influx have on projects that are queued but not prioritized according to the criteria established in this proceeding? State the estimated impact in terms of delays (X days or X months) per project.*

It is not clear to the MRC what operational distinction is intended between Options 1 and 2. In any event we strongly favor both prioritizing microgrids that serve critical facilities and increasing utility staff, both in numbers and in microgrid experience, to meet the needs. We suggest that the two be an integrated toward planning goals. Instead of guessing what the market impact of particular changes will be, the Commission, perhaps also with the help of OES, should attempt to estimate the needs for high priority facilities in high risk areas and work back to staffing from reasonable estimates of what can be accomplished. While individual communities and institutions will be seeking, and developers will be selling, microgrids, for the state this is a public safety planning exercise. It is not trying to estimate market forces as they exist but to stimulate a market that attracts private capital to meet public goals. Moreover, this has larger planning implications for the grid, and leads toward a reimagined grid that integrates much larger quantities of grid edge resources that serve resilience and renewable energy goals as well as simply providing power.

4. *Should Option 3 be adopted, how should the IOUs be required to demonstrate compliance? For example, should each utility be required to demonstrate that they are using their full budget, as allocated in their General Rate Case, for staffing? Should the IOUs be required to open memo accounts in order to track interconnection staffing and related costs?*

This cries out for incentive ratemaking. Set both an outside time limit and an aggregate time limit, say 90 days maximum and 80 percent of applications in 60 days. Allow utilities to staff for the planning horizon and reward them if they get there and penalize them if they fail. If expected application volumes exceed expectations, excuse some delay and reset the targets. If they fall short, excuse staff slack and figure out what else must be done to encourage applications. The investment in application staff time is tiny compared to the benefit to the system and its customers of private investment in new grid edge facilities.

5. *The following questions on Interconnection Proposal 3, Option 3 are directed to the IOUs.*

Not Applicable.

2. Modifying Existing Tariffs to Maximize Resiliency Benefits

2.1. Storage Charging Proposals

1. *Please indicate support of or opposition to the adoption of either proposal and justify the position. Please also indicate which proposal warrants most support and justify the response.*
2. *Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language.*
3. *Is CPUC action required in order to implement either proposal? If so, what action would be most appropriate?*
4. *If CPUC action is required, what standards are appropriate for CPUC to use to determine whether the adoption of either proposal is justified?*
5. *It has been noted that either proposal would only impact large NEM-paired storage systems that have opted to meet the NEM metering requirements by installing equipment that prevents grid charging of the*

storage device. Given this limitation, please describe the value of this proposal's adoption.

6. *Parties have stated that, under the existing Underwriters Laboratory Power Control System certification Requirement Decision, power controls system settings can be changed by the manufacturer or system developer/installer and that this change can be accomplished, in many cases, remotely. Please describe the process by which these settings would be adjusted ahead of a PSPS event and reset following the conclusion of the event. Please include answers to each of the following sub-questions in response.*
 - a. *Which party or parties have the capability to adjust power control system settings?*
 - b. *How should that party be informed of upcoming PSPS events?*
 - c. *What geographical information about the upcoming PSPS event would be necessary for this party to determine which systems were eligible for adjusted power control system settings?*
 - d. *Should customers be given the opportunity to opt in or out of settings changes? If so, how should this process be handled?*
 - e. *Following the conclusion of the PSPS event, how quickly could power control system settings be returned to their defaults? How quickly should the settings be required to return to their defaults?*
 - f. *Following the conclusion of the PSPS event, would it be necessary for the utility to verify that the power control system settings had been reset to their default? Please justify and describe how this verification could be accomplished.*
 - g. *If settings were found, at a later date, to have been allowed to remain in a configuration that allowed systems to violate NEM integrity, which party should be held responsible?*
7. *If either proposal were adopted, should NEM metering requirements be adjusted such that power control system settings may be adjusted immediately after the announcement of an upcoming PSPS event is made?*

Alternately, should power control system setting adjustments be allowed only a specific number of hours ahead of the planned PSPS event? If one supports the latter option, what number of hours is appropriate and why?

8. *If either proposal were adopted, what risk, if any, could the increased load caused by the synchronized charging of multiple energy storage systems pose to the safety and reliability of the grid? For any risks identified, please address the following additional questions:*
 - a. *Has this risk been sufficiently assessed as part of the interconnection study process? Why or why not?*
 - b. *What options should be considered in order to mitigate this risk?*
 - c. *If left unmitigated, what is the worst-case scenario that could result?*
9. *Adjustments to NEM metering requirements could interact with other standards, tariffs, and incentive programs. Please identify any such interactions and note any penalties customers might face as a result of grid charging.*
10. *What other implementation issues will need to be addressed if either proposal is adopted? For each issue identified, please describe a possible path forward.*
11. *Should either proposal be expanded to all pre-planned outage events (including non-PSPS events) in order to maximize resiliency impacts?*
12. *Should either proposal be adjusted to mandate that grid charging only be allowed during hours when grid power is largely produced by renewable generation? Please discuss.*
13. *Should this proposal be modified in any other way before being adopted and/or implemented? If so, please describe and justify any changes.*
14. *Are there other options for each proposal that have not been listed? If so, please elaborate on the option(s) that should be considered. Include as much detail as possible.*

2.2. Storage Capacity Limit Proposals

1. *Please indicate support of or opposition to the adoption of either proposal, and discuss the position taken.*
2. *Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language*
3. *Is CPUC action required in order to implement any of the proposals? If so, what action would be most appropriate?*
4. *If CPUC action is required, what standards are appropriate for CPUC to use to determine whether the adoption of either proposal is justified?*
5. *The Self-Generation Incentive Program (SGIP) recently established a requirement that in order to receive an incentive intended for storage to provide resiliency benefits, the SGIP applicant must demonstrate that the system has been inspected and approved as able to operate independently from the grid in an outage by a local authority having jurisdiction (AHJ).² Specifically, the applicant must demonstrate that (i) an AHJ has approved plans showing that the system can operate independently from the grid, and (ii) an AHJ has inspected the system after installation and has authorized operation. We seek comment on whether this same requirement should be required by the utility interconnection departments as part of the interconnection application for these systems, or whether there are other options for allowing the interconnection department to verify that the system has been designed to operate independently from the grid in the event of a grid outage.*
6. *Does either proposal have any negative impacts on NEM or NEM-related tariffs with similar sizing restrictions?*
7. *Removing the sizing restriction will allow customers to partake in the short term (20 year) financial benefits of NEM, while allowing for storage larger than their highest consumption day of the year. In the long run, will this encourage grid defections in a way which shifts grid costs to low-income customers?*
8. *Should either proposal be modified before being*

adopted and/or implemented? If so, please describe and justify any changes.

9. *Are there other options for each proposal that have not been listed? If so, please elaborate on the option(s) that should be considered. Include as much detail as possible.*

3. Ensuring Local Government Access to Distribution Infrastructure Data to Facilitate Development of Resiliency Projects

1. *Please indicate support of or opposition to the adoption of each proposal and justify the rationale. For the proposals that include implementation options, please indicate support of or opposition to each option and explain why.*

The MRC generally supports the staff's five proposals in furtherance of making distribution infrastructure data available for resiliency projects. However, we believe it is important to broaden the sharing of such data beyond local governments and in front of the meter projects in a secure manner. Many of the critical facilities that create resilience, ranging from hospitals to supermarkets and gas stations are privately owned. Once they are confirmed by their community, they should be able to take direct action to form their own microgrids or partner with the community or other surrounding facilities. They will need data as well.

Microgrids are essential to resilient communities and identifying the locations where their capabilities can do the most good is driven by data. As unified aggregations of demand, supply, and storage resources, microgrids are capable of providing a host of services to their hosts and the grid that make communities more resilient. In addition to their islanding capabilities that can protect essential community services, microgrids can act as shock absorbers for the grid. For instance, they can quickly ramp up and down imports from the grid and export energy and ancillary services. Utilities should look to microgrids as resources capable of providing them localized and customized services in furtherance of more efficient, segmented, and resilient distribution grid operation. To make the most of what microgrids have to offer, the utilities, local governments, microgrid hosts and developers must improve the exchange of information.

Utilities have the best visibility into, and data regarding, their distribution systems. Communities, microgrid hosts and local governments have the best visibility into, and data regarding, their resiliency needs. Microgrid developers have the best visibility into, and data regarding, microgrid capabilities, development and finance. Shared visibility and data among these stakeholders (and more) is essential to achieving more resilient communities.

Clear and actionable information on distribution grid infrastructure and operations is part of the bedrock for enhancing the relationship between customers with dispatchable DERs and the utilities. The MRC encourages the outreach, workshops, guides, trainings, portals, and the

overall data sharing proposed by the Staff across the proposals to be as inclusive as possible.

Improving access to distribution system data is essential to enable all types of microgrid hosts and developers, not only local governments and related facilities. The Commission should seek to be inclusive wherever possible while ensuring the local governments charged with community-level resiliency goals have their needs met. For instance, data made available through Proposal 5's portal for use in identification of in front of the meter microgrid development opportunities should be available to a range of potential microgrid hosts and developers, including those exploring behind the meter microgrids. Security concerns can be addressed through Know-Your-Customer screening and non-disclosure agreements combined with redactions, data aggregation, limited and localized map viewing and portal monitoring. Load and customer equipment data can be aggregated at the sub circuit and circuit levels to avoid privacy concerns.

The portal is a good start, we encourage the Commission to also look to its other distribution system information mapping efforts (e.g. "heat mapping of constraints) to combine datasets. Looking beyond infrastructure and equipment to include data on operational constraints and imbalances as well as modeling power flow optimization at the circuit and segment levels will help to make the most of microgrid capabilities. Modeling scenarios with more advanced distribution grid controls and dispatchable microgrids is important to better understanding how the utilities might optimally segment their systems during de-energization and outage events.

2. *Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language.*
3. *Is CPUC action required in order to implement any of the proposals? If so, what action would be most appropriate?*
4. *For proposals that require CPUC action, what standards should be used to determine whether action is justified?*
5. *Should CPUC consider cost recovery for any of these proposals in this proceeding? For example, should CPUC consider cost recovery for additional IOU technical resources to support the intake, prioritizing, technical support, and processing of local government resilience projects? Please discuss.*
6. *How long would it take to recruit, hire and train additional IOU resources to staff the dedicated IOU team for local government projects referenced in Proposal 3?*

7. *What data from the list in Proposal 5 and Appendix 4.4 is essential for microgrid development? Please list the line numbers of data from the text of Proposal 5 as well as the line numbers of individual data points from Appendix 4.4 in response. Please indicate whether the response reflects the data that is needed for the development of a microgrid that is behind the customer meter or in front of the customer meter.*
8. *Is there other data essential for microgrid development not listed in the Appendix that could be identified, along with an explanation of its use? Please indicate whether the response reflects the data that is needed for the development of a microgrid that is behind the customer meter or in front of the customer meter.*
9. *Should any of these proposals be modified before being adopted and/or implemented? If so, please describe and justify any changes.*
10. *Are there other options for each proposal that have not been listed? If so, please elaborate on the option(s) that should be considered. Include as much detail as possible.*

4. IOU Proposals for Immediate Implementation of Resiliency Strategies, Including Partnership and Planning with Local Governments

4.1. All Investor Owned Utility Proposals

1. *Please indicate support of or opposition to each proposal and explain the rationale. In response, please clearly distinguish between the action proposed and the cost recovery mechanisms proposed, if any.*

We discussed above our concerns with staff proposal about utility assistance to communities. Many of them seem designed to pre-empt community action. The utilities characterize their projects as pilots, while the industry is up-to-speed and ready not only to make a resiliency difference, but also to optimize energy use behind the meter for customers. This is not the utilities' job. The utilities should reimburse customer microgrids for helping them meet their resource adequacy requirements, with resources that meet CARB standards, rather than ask ratepayers to pay the full cost of expensive resources that do not.

Many local government parties within the De-energization and Wildfire Mitigation

Proceedings⁴ have requested that they lead the initiative to create and manage Community Resource Centers (“CRCs”) with the utility reimbursing local governments for the extra costs of bearing the burden of PSPS events. Local governments and public agencies are best suited for this, not utilities. This was demonstrated with their subpar deployment and management of CRCs during the last PSPS events. Communities are better served by their local governments. The Governor’s proposed budget includes over \$200M for community resiliency funds that are specifically earmarked for CRCs. The state will cover the cost in a more equitable fashion than shifting costs to ratepayers.

Proposals to build microgrids at customer entities such as schools infringe on an already robust competitive market for these resources. There is precedent from the Commission to deny the utilities attempts to serve this market and it should do so here. Utilities should simply not be constructing behind-the-meter resources when the market is being adequately served by third parties. Furthermore, it is yet another example of cost shifting. A governmental entity should be responding to a tariff and sharing in the cost of building with a developer rather than charging all ratepayers. Schools, like other governmental entities, are able to use tax-exempt finance at historically low current rates to finance project’s they own.

2. *Is CPUC approval required in order to implement any of the proposals?*
3. *For proposals that require CPUC approval, what standards should be used to determine whether approval is justified?*
4. *For proposals that require CPUC approval, was sufficient information provided? If not, please describe what additional information is needed. Examples of possible additional information are provided below. Indicate whether the below information is necessary and why or why not. Please add any additional information that should be considered and why.*
 - a. *Explanation of the criteria and reasoning for determining how to prioritize the locations and/or customers to be served (e.g., frequency of PSPS events or number of customers); and*
 - b. *Costs and impacts of alternative approaches to achieving the goal of the proposal (e.g., reducing the impacts of PSPS outages) that were considered and rejected, such as alternative technologies or*

⁴ See CPUC R. 18-12-005 (De-energization) and R. 18-10-007 (Wildfire Mitigation)

fuels, infrastructure hardening, distribution or transmission system sectionalization.

- c. *Are there any other microgrid-related actions that CPUC should consider directing investor-owned utilities to undertake in addition or instead of these proposals in order to mitigate the impact of outages due to PSPS events or other causes in 2020? If so, please describe and justify that proposed action. For example, should CPUC direct PG&E accelerate the deployment of mid-feeder microgrids (formerly called “resilience zones”) beyond the rate proposed in the PG&E General Rate Case?*

4.2. Proposals Regarding Emergency Temporary Generation

1. *Should CPUC impose any requirements on how the IOUs engage with local government agencies with regards to siting, equipment specification, or operating conditions before operating emergency temporary generation so that community concerns regarding noise, odor and potential health effects can be addressed? Why or why not? If so, what requirements should CPUC impose and why?*

We strongly oppose acquisition by utilities of large fleets of mobile standby diesel generators. They represent a major long-term capital expenditure on old technology that should go instead to advanced grid improvements to accommodate and make use of microgrids, which are the long-term solution that aligns with environmental and grid modernization goals. Mobile standby diesel generators should be used on a limited and temporary basis. Such use should have express sunsets and not stymie the planning and development process for microgrids, especially those behind the meter that provide the most direct protection of critical community facilities.

More advanced solutions are available for rapid deployment that offer much more than just emergency standby power. Such solutions are able to run cleaner on a regular and emergency basis. Because they reflect the state’s environmental and grid modernization goals, deployment need not be temporary. These solutions can serve as a long-term component of a smarter distribution system and microgrids on both sides of the meter.

The microgrid development community is ready to quickly provide the long-term solutions. If the CPUC elects to address major barriers to microgrid deployment by suspending departing load charges and updating standby charges to reflect real-world microgrid operations, there can be a rapid deployment of long-term microgrid resources in accordance with environmental and grid modernization policy goals.

2. *If the CPUC should require monitoring and reporting of air quality, sound, odor, and/or health effects during operation of emergency backup power, please comment on how such information would further the public interest. For example, could it be used to mitigate future impacts or establish limits?*
3. *Please comment on what information should be provided, as a minimum, by a utility seeking authorization for the procurement of portable generators, whether utility-owned or contracted with a third party, to be used to provide emergency backup power to utility customers during emergencies. Indicate whether the below information should be required or not, and why or why not. Please add any additional information that should be required and discuss why it should be required.*
 - a. *Type(s) of generator that would be deployed (type and capacity, in MW);*
 - b. *Type(s) of fuel that would be used;*
 - c. *Separate unit costs for equipment, fuel, carbon allowances, and permitting; and*
 - d. *Greenhouse gas and criteria air pollutant emissions factors for each combination and generator and fuel type that would be operated, using standard assumptions (including assumptions used) to facilitate comparison.*
 - e. *If conventional, fossil-based diesel or natural gas is proposed, quantitative and qualitative comparison with the most competitive alternative fuel sources and technologies and narrative explanation of why the fossil-based options are proposed instead of the most competitive non-fossil alternatives.*

MRC Tariff Proposals

In considering a standard microgrid tariff, the Commission should address the key obstacles to microgrid deployment. Two of the three most important, were not addressed in the staff proposal.

Departing Load Charges

In the experience of MRC members, the Customer Generation Departing Load Charge⁵ is the largest single barrier to the development of sophisticated microgrids that are capable of providing medium- to long-term resilience. Solar and fuel cell projects are already exempt, but microgrids that include flexible efficient natural gas distributed energy resources as permitted by SB 1339 are still charged. As a part of an expedited tariff proceeding the Commission should eliminate the PCIA as applied to microgrids. Amending the standard would take little time and be straightforward to implement.

As we have outlined to the commission before,⁶ California has adopted ambitious goals for deployment of renewable energy and decarbonization, including renewable energy goals of 50 percent by 2026 and 100 percent by 2050 and carbon neutrality by 2045. Meeting these goals is expected to require electrification of much of the transportation sector, and electricity consumption is expected to grow substantially. Customer microgrids that include a substantial proportion of renewable energy resources are the part of the solution. Some utility assets are being rendered obsolete by state policies, but customer adoption of microgrids is not the cause. Indeed, customers and communities that incur their own costs for microgrids that make progress toward state renewable energy goals are not burdening, but rather are relieving the burden on, other customers. Utilities should get credit toward their overall generation transition requirements for customer installed renewables, and microgrids that advance overall renewable goals should get credits, not charges.

Standby Charges

Under current regulations and utility tariffs, microgrids are subject to wildly uncertain standby charges. This uncertainty coupled with the high level of the potential charges is among the three largest barriers to microgrids development. Microgrids will typically include and unify multiple sources of generation and storage capability, some of which may be exempt from standby charges and others of which are not. Charges are sometimes assessed on the full capacity of non-exempt resources and are within the discretion of the interconnecting utility. Utilities often make those assessments based on simple operating assumptions that do not apply to many microgrids. In practice, resource diversity and internal load-shedding make microgrid operations far more flexible than the simple operational models currently used to assess standby charges. Microgrids operations are far less likely to create situations where the grid would be required to quickly pick up the full capacity of their non-exempt generation resources due to an internal forced, unforced, or planned outage. Indeed, it is microgrids that are standing by to pick

⁵ See, e.g., Pacific Gas and Electric Tariff ELECTRIC SCHEDULE E-DCG, DEPARTING CUSTOMER GENERATION CG (available at https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_SCHEDS_E-DCG.pdf).

⁶ See "Comments of Microgrid Resources Coalition to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339," October 21, 2019, R. 19-09-009 at § 2.4 (available at <http://www.microgridresources.com/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=0907eb-be-8f69-9b7e-3164-a28c64212e6d&forceDialog=0>).

up the load when the grid is not available due to PSPS, wildfires, cyber security attacks, and other unforeseen outages. Finally, microgrid generation going offline for maintenance can be coordinated with the IOUs to time with excess capacity conditions on the grid, thereby mitigating the impact of the grid availability to provide standby power in those situations.

Accordingly, we suggest that standby charges should be based, at a maximum, on the expected imports, if any, that a microgrid would require to sustain its operations while deploying its exempt resources and its internal load shedding capabilities to their full capacity. Anything else has the effect of imposing standby charges on resources that are exempt.

Conclusion

As outlined above, we urge the Commission to implement a uniform microgrid interconnection tariff as rapidly as possible. The first priority of that tariff should be to eliminate or mitigate the three principal barriers to microgrid deployment: interconnection delays, departing load charges and standby charges. Mandatory timetables for approvals and improved utility staffing will mitigate interconnection delays; departing load charges for microgrids should be entirely suspended; and standby charges should be rapidly modernized and standardized to enable rapid deployment of microgrids as long-term resiliency solutions in accordance with the state's environmental and grid modernization goals. To this end we also encourage community primacy in identifying resilience needs and planning for microgrids and ask the Commission to direct utilities to consider improvements to the grid that accommodate rather than impede the deployment of microgrids.

Given the ever-increasing unreliability of the grid, enabling microgrid deployment is urgent. The risk that microgrids are needed to act as a standby to the grid is far greater than the risk that the grid will have to back-up large quantities of microgrid resources. By creating resilience with flexible, hybrid resource combinations microgrids reduce the costs to ratepayers of meeting state goals for renewable energy deployment and should not be asked to pay departing load charges for resources made obsolete by state policy. It is time to empower customers and communities to take a lead role in their energy future.