

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

Order Instituting Rulemaking Regarding  
Microgrids Pursuant to Senate Bill 1339  
and Resiliency Strategies.

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

**COMMENTS OF MICROGRID RESOURCES COALITION ON THE TRACK 2 MICROGRID  
AND RESILIENCY STRATEGIES STAFF PROPOSAL, FACILITATING THE  
COMMERCIALIZATION OF MICROGRIDS PURSUANT TO SENATE BILL 1339**

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**Background**

The Microgrid Resources Coalition (“MRC”) respectfully files its comments on the Track 2 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 (“SB 1339”) in the above captioned proceeding. We are grateful that the Staff Proposal begins to acknowledge some of the requirements of SB 1339. We particularly express gratitude for the carefully researched Microgrids and Resiliency Staff Concept Paper (the “Concept Paper”), which for the first time in this proceeding acknowledges many of the provisions of SB 1339 that the Commission is required to address. We encourage the Commission to address them now.

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.<sup>1</sup> The MRC's members are actively engaged in developing microgrids in many regions of the United States including many who are actively engaged in microgrid development in California.<sup>2</sup> 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.

## **Introduction**

The plain requirement of SB 1339 is that the Commission build a meaningful pathway to the broad commercial deployment of microgrids by private industry on behalf of customers and communities. Unfortunately, the Track 2 proposals, like the Track 1 proposals before them, make clear that the Commission has made no meaningful effort to address the requirements of SB 1339 and worse is not making a meaningful effort to address the needs of California communities for a resilient delivery of electric power. SB 1339 requires the Commission to create a microgrid tariff and to remove regulatory barriers to commercialization of microgrids. The Commission has not done so. Track 1 addressed certain interconnection issues for a narrow class of microgrids. Track 2 introduces the concept of a tariff in Proposal 3 and acknowledges that certain regulatory charges are a barrier to microgrids,<sup>3</sup> but the proposal is not well explained and appears to again be limited to a narrow class of microgrids. California deserves better.

We believe that to meet the requirements of SB 1339 the Commission should adopt a unified microgrid tariff on a proforma basis in an open proceeding rather than assign important substance to separate advice letters by the utilities. That tariff must not discriminate among

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<sup>1</sup> 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 and communities.

<sup>2</sup> Members of the MRC include: Bloom Energy, Concord Engineering, Eaton, eco(n)law, Emory University, Engie, Faegre Drinker, Ictec, International District Energy Association, Mainspring Energy, Massachusetts Institute of Technology, Princeton University, Reimagine Power, Resilience Plus, Scale Microgrid Solutions, Schneider Electric, 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.

<sup>3</sup> References to numbered proposals and individual Options within those proposals are references to Proposals in the Staff report unless specifically attributed to the Concept Paper.

included resources within the microgrid, provided that their inclusion is contemplated by SB 1339<sup>4</sup>, and it should address the substantive topics raised by the Concept Paper. In addition, farming different pieces of microgrid policy out to multiple different proceedings where they are almost certain not to receive consistent or coherent treatment is inadequate.

Throughout its existing regulations Commission treats microgrids as unrelated aggregations of multiple technologies that can each be addressed separately. Unfortunately, the Staff Proposals continue this confusion. The point of a microgrid is to act as a “single controllable entity” both with respect to its customers and with respect to the grid. As the legislature found, “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.<sup>5</sup> This is precisely the benefit of “commercialization” the statute envisages. Moreover, allowing customers and communities to invest in microgrids does not shift costs to other ratepayers but relieves those ratepayers of the cost of additional investment by the utilities.

Finally, a principal value of Microgrids is providing resilience. In our view, reliability comes from designing and building a grid that breaks down infrequently, and resilience, by contrast, encompasses having a system with the flexibility to adapt and reconfigure to keep working at acceptable levels when the grid inevitably does break down. From this point of view, a microgrid contributes to the resilience of the local community and has the ability to contribute to the resilience of the distribution system as well – if the distribution system is designed to take advantage of its contribution. California faces wildfires and other energy impacts of climate change. Like the rest of the country it faces the Covid 19 crisis, which is testing the capacity and resilience of hospitals and limiting the abilities of communities to respond to any other crisis. This is not a time for half measures. Unfortunately, the Track 2 Proposals represent business as usual for a failed utility model and do not come close to half measures.

## **I. Summary**

In the discussion that follows we first amplify the brief discussion above of the nature of microgrids and their contribution to their customers and the grid as background for responding to the questions propounded by the ALJ and then advocate for Commission action as follows:

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<sup>4</sup> SB 1339 §8370(b) limits microgrids to CARB approved DER resources. MRC supports that limit, and strongly objects to any consideration of diesel generators in this proceeding unless specifically required by law.

<sup>5</sup> SB 1339 §1(b)

1. *Proposal 1.* We believe that this is a really bad idea. Utilities cannot favor one set of customers over another, and, accordingly, they cannot optimize a microgrid for one set of customers at the expense of the rest of the grid. They should never operate behind the meter (“BTM”) microgrids and there is no reason to own parts of them and shift the cost of that ownership to other ratepayers. All utilities should require one-at-a-time permission to skirt this rule. Incentives for utility involvement in BTM installations will inevitably result in confusion and impose barriers to commercial development. *We support Option 3 and believe that the Commission not only should not require utilities to make the Proposal 1 tariff amendments but should not permit utilities to make them.*
2. *Proposal 2.* Section 218 is one of the egregious barriers to economic microgrid development. Allowing utility rules that impose further barriers to the sensible development of microgrids is directly contrary to the thrust of 1339. Instead of clearing these barriers away, the Proposal 2 options would make, at best, tiny incremental changes that ignore the benefits of microgrid operation. *We do not support any of the options. Option 1 is the best of a bad lot, but it is limited to governmental ownership and operation only in grid outages, and is open to all types of fuel, presumably including diesel. We support the suggestion in the Concept Paper that the Commission petition the legislature for elimination of Section 218 barriers for microgrids.*<sup>6</sup>
3. *Proposal 3.* Proposal 3 represents a welcome first acknowledgement that a tariff is needed and that certain regulatorily imposed charges represent barriers to microgrid deployment. Option 1 is the best of a bad lot, but does not meet SB 1339’s requirement that the *Commission* develop utility rates and tariffs. While tariffs will ultimately be adopted individually by utilities, we believe that the Commission should in the first instance develop a *pro forma* tariff that provides even-handed treatment of Microgrids across the state and only then entertain utility requests to vary from the *pro forma* tariff. An advice letter process is inadequate to assure that the voices of communities and customers and the industry will be heard. Rule 21 compliant technologies fail to encompass much of what might be included in a microgrid under

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<sup>6</sup> Concept Paper at 39.

Section 8371(d). There is no excuse for limiting the tariff to “customer sited, customer facing” microgrids. These are not particularly helpful terms in thinking about microgrids, which should be able to serve at least as many customers as the law allows behind a point of common coupling, and which should be able to serve their own load and sell multiple services to the grid at the same time. Elimination of DLCs and SBCs are an important feature of any microgrid tariff and should not be limited to certain categories of microgrids. These changes will not shift costs. *While we support the direction of Proposal 3, we do not support any of the options as described. Below we include detailed discussions of the shortcomings of Proposal 3, of the tariff we seek, and a full explanation of our view on cost shifting.*

4. *Proposal 4.* We do not need utility pilot studies. Microgrids are a mature technology and the microgrid industry knows how to build them. Utilities giving free microgrids to a few customers at the expense of other customers represents cost shifting expressly prohibited by the statute.<sup>7</sup> We should not pay the utilities extra to learn while delaying commercialization of microgrids. *We do not support any of the options, and we do not suggest a substitute.*
5. *Proposal 5.* We don’t need smart meter islanding pilot studies either. Many of our members produce tested and effective technical solutions. *The utilities should be directed to promptly consider low-cost interconnection options in their standard interconnection effort begun in Track 1.*
6. *Public Utility Code § 8371(a).* We strongly disagree that the Commission has met the requirements of this section to standardize and streamline interconnections in Track 1. The Track 1 proposals were largely limited to existing NEM<sup>8</sup> eligible resources. We have provided one-line diagrams that include natural gas fueled resources as

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<sup>7</sup> “The commission, in consultation with the Energy Commission and the Independent System Operator, shall take all of the following actions by December 1, 2020, to facilitate the commercialization of microgrids for distribution customers of large electrical corporations:...(b) Without shifting costs between ratepayers, develop methods to reduce barriers for microgrid deployment.” SB 1339 §8371(b).

<sup>8</sup> Pub. Util. Code § 2827(b)(4) defines an eligible customer-generator as: a residential customer, small commercial customer as defined in subdivision (h) of Section 331, or commercial, industrial, or agricultural customer of an electric utility, who uses a renewable electrical generation facility, or a combination of those facilities, with a total capacity of not more than one megawatt, that is located on the customer’s owned, leased, or rented premises, and is interconnected and operates in parallel with the electrical grid, and is intended primarily to offset part or all of the customer’s own electrical requirements. Note, this has been expanded to include energy storage, biogas, and certain fuel cell generation.

contemplated by 1339 Section 8371(d) to utility working groups as described below and have been given no assurances that they will be considered. Standardization and streamlining should not be confined to smaller resources. The Rule 21 proceeding is not the right venue. *We believe the Commission must do more on a non-discriminatory basis.*

7. *Public Utility Code § 8371(c).* The proposal suggests that microgrid interconnections require “at a minimum” the same protocols as required for other DERs. We believe that that the Commission should, *at a minimum*, create a level playing field. Moreover, in doing so it should treat a microgrid as a single controllable resource that can be characterized by its aggregate performance so that the relevant criteria for effects on the grid are the *aggregate net export range* of intended operation as well as assuring that the microgrid *as a whole* doesn’t cause frequency or other disturbances on the grid. *Development of these standards is a part of streamlining interconnection. We are concerned that these proposals don’t treat the microgrid as a whole and there is no required (short) timeline for completion.*
8. *Public Utility Code § 8371(e).* A tariff working group represents indefinite deferral of action. *The Commission needs to act now on a microgrid tariff and not hide behind a working group.*
9. *Public Utility Code § 8371(f).* We believe that DC metering will serve useful purposes within microgrids for the microgrid’s purposes. It poses a tariff problem only because the commission divides the world into separate categories of NEM resources, excludes other microgrid eligible resources, and treats the resources within the microgrid as separate resources with separate limits. *The MRC takes no position on this proposal.*
10. *Program Evaluation.* The MRC believes that a thorough review by an independent third party could be valuable if it encompasses a broad view of the future of the grid. *We would support such a forward-looking review.*
11. *Cost Shifting.* SB 1339 requires that action be taken without cost shifting. The Staff Proposals and Concept Paper assume that the only problem is cost shifting from customer microgrids to utility ratepayers. We generally believe that most cost shifting runs the other direction, and that there are egregious suggestions in this proceeding to pile additional utility costs on to ratepayers. We believe that the clean microgrids contemplated by SB 1339 reduce the costs to ratepayers in many ways. They reduce

ratepayer costs of achieving state decarbonization goals, and backward-looking departing load charges prevent them from doing that. They can provide backup power for resilience at far lower cost than utility proposals and avoid the use of diesel backup. If widely commercialized as SB 1339 contemplates, they avoid utilities shifting the immense costs of PSPSs to customers in order to relieve their shareholders from liabilities for deficiencies in their system. For the most part, we ask that microgrids pay fair value for the energy and other services they receive; be paid fair value for the services they deliver; and be permitted to deliver all the services they are capable of delivering. Market based payments to microgrids do not shift costs. We do not seek exemption from public benefit charges imposed on power imported by microgrids from the grid.

12. *A Microgrid Tariff.* As discussed above we believe that the Commission should complete within Track 2 of this docket a comprehensive microgrid tariff. In this section we discuss the topics that should be addressed by the tariff, including addressing matters raised but not addressed by the Track 2 proposals though several of them are discussed in the Concept Paper. We also revisit key definitions that we believe are barriers to fair treatment for all microgrids.
13. *The Grid of the Future.* We seek a new architecture for the power grid that delivers the clean energy and resilience that customers want and deserve and that delivers them efficiently and at reasonable cost across all customer classes. Customers and communities will optimize behind their points of common coupling, and the RTO has a role in optimizing the operation of the transmission system. The distribution system operator (DSO) should optimize the use of the distribution system that connects the two by managing power flows below the transmission nodes down to and up from the customers. The DSO operates as a neutral broker in the same way that the RTO does at the wholesale level and needs to have visibility and control of the services being provided. Until the DSO can effectively perform these services, we need continued direct access to RTO markets for microgrids and other DERs. *The Commission should use its broad authority to help move utilities to a new business model in which they support customers and communities without competing with them.*



14. *Conclusion. We strongly urge the commission to do what 1339 requires – move immediately to create a non-discriminatory pathway to commercialization of customer and community microgrids.*

## **II. The Case for Microgrids**

### *1. The Financial Case.*

The first role of microgrids is to serve the energy needs of their included customers, often on a full-time basis. The microgrid’s ability to do that economically is typically the largest source of value it provides and the motivation of customers to establish or join a microgrid. On the one hand, the Staff Proposal and the Concept Paper raise unfounded fears of monopoly microgrids overcharging their customers and on the other hand the Concept Paper discussion of microgrid economics<sup>9</sup> completely ignores this principal economic strength. Customers and communities want microgrids for numerous reasons but, first and foremost, they typically want relief from being overcharged by their utility. They either choose to own their own, or they enter into contracts for service that are voluntary, because they expect better service. Creating a regulatory path for microgrids *empowers* customers and communities.<sup>10</sup>

Microgrids also empower a wide variety of customer efficiencies. They can integrate provision of electric power with provision of thermal energy, smart management of building loads, and electric vehicle state of charge management. For critical facilities like hospitals that have large thermal energy needs, a microgrid with a co-generation backbone is by far the most efficient and economical way to serve its combined load. Through integrated storage, both battery and thermal, and fuel-based resources they can integrate and buffer variable renewable resources without relying on the grid for ramping capability (shifting costs away from grid customers). In addition, if they face time of use rates for both purchase and sale of power, they will have appropriate incentives to provide this service without cost to other customers. Although efficiencies are their own reward, they also mean reduced carbon emissions.

Microgrids provide resilience by serving as “backup” power in times of grid disruption. Unlike single purpose backup generators, microgrids are designed to serve on a continuous basis, are far more reliable and cleaner than single purpose diesel generators,<sup>11</sup> and provide the service

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<sup>9</sup> Concept Paper at 27

<sup>10</sup> Concept Paper discussing Customer Choice at 34.

<sup>11</sup> <https://www.ecmweb.com/design/article/20897292/hurricane-sandy-a-turning-point-for-emergency-power;>  
[https://journal.uptimeinstitute.com/disaster-recovery-lessons-learned-superstorm-sandy/;](https://journal.uptimeinstitute.com/disaster-recovery-lessons-learned-superstorm-sandy/)  
<https://www.fuelmanagement.com/news/even-during-hurricane-sandy-esi-total-fuel-management-delivers/Cite>

at a fraction of the cost because they are amortized over a lifetime of regular service. For the same reason, microgrids can sell energy and other services to the grid at marginal costs that reflect the daily value provided to internal customers, so ratepayers don't bear the full capital cost of the services either directly or indirectly.

Microgrids are generally not hard to finance because, for all the reasons described above, they make economic sense to their customers.<sup>12</sup> They can be financed by the host or a third-party developer on the strength of the different value streams they produce. This is especially true if they have access to transparent market prices or other contracting mechanisms for the services they are capable of providing. If they face arbitrary charges such as departing load charges and standby charges imposed or authorized by regulators, that can pose a financial hurdle, but the charges constitute a regulatory barrier of exactly the sort that SB 1339 directs the Commission to eliminate.

## 2. *Other Considerations.*

California has set aggressive goals to decarbonize its economy.<sup>13</sup> This is not a simple swap out of current fossil generation for renewables – most decarbonization scenarios call for substantially increased use of electricity to replace fossil fuels in transportation and, where effective, to provide building heat. The state has a choice: it can allow its citizens and communities to invest in or contract for local generation in microgrids that balance their own load and provide resilience; or it can pave the Nevada desert with glass, build big new transmission lines to import the power, and keep big natural gas plants running to cover the variations in generation. To quote Wendell Berry, the latter is taking a solution and turning it into three problems.<sup>14</sup> Microgrids are the most cost-effective way to achieve decarbonization goals, both by taking advantage of customer and community incentives to self-supply and their desires to have clean energy and by avoiding the investment in transmission needed to bring utility scale renewable power from remote area and out of state. The simple, holistic solution also keeps decision making and job creation local.

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<sup>12</sup> We appreciate the effort on the part of Staff to wrap their arms around the complexities of project finance, but the good news is that this is not really the Commission's problem. For a fuller discussion of these issues *see*, Finance at the Grid Edge, C. Baird Brown, 48 Environmental Law Review 10785

<sup>13</sup> Concept Paper at 32.

<sup>14</sup> Solving for Pattern by Wendell Berry

[http://ceadserv1.nku.edu/longa/haiti/kids/history/Berry\\_Solving\\_for\\_Pattern.pdf](http://ceadserv1.nku.edu/longa/haiti/kids/history/Berry_Solving_for_Pattern.pdf)

Berry was discussing federal policies that encouraged replacement of family farms that raised diverse crops and animals that also provided fertilizer and replacing them with vast monocrops that require large quantities of fossil fuel derived fertilizer and pesticides.

California has a major resilience problem. Wildfires are bad, and PSPSs are worse. Microgrids with CARB approved clean resources are the solution. Massive utility expenditures for diesel backup shift ill-considered costs to ratepayers. Moreover, expenditure to interconnect them are expenditures on the wrong kind of grid. Utilities are creating stranded assets that they should not be entitled to charge to customers. Utilities should be enabling the local microgrid investments that provide integrated solutions and welcoming the services microgrids can provide. Microgrids provide resilience not only to their included customers but also to the surrounding community by enabling included customers to provide community services in emergencies. The critical facilities that provide these services are often privately owned – they may be hospitals, or just grocery stores. Proposal 2 dips a timid toe in the water of providing resilience solutions. Commercialization of microgrids for resilience requires a far bolder response – the response required by SB 1339.

Microgrids evolve. Unlike utility-scale power plants, individual components can be revised and replaced more frequently and flexibly. Much of the natural gas generating equipment in use by or supplied by our members is already capable of using biofuels, syngas or hydrogen. To the extent these generators are not already flex-fueled, they are comparatively small units with short-term payback compared to utility scale generation. They can be swapped out or supplemented as technology improves without altering the capabilities of the microgrid. They are cleaner than grid-supplied power today, and they will be cleaner 10 years from now.

### *3. Definitional Issues.*

We welcome the effort in the Concept Paper to define some key terms, but we are concerned that some of the suggestions obscure the issues rather than clarify them. Microgrids can self-generate and sell to the grid. They provide a seamless range of possibilities that is confused rather than helped by the terms grid facing and customer facing and contrasting retail to wholesale tariffs confuses the issue. Microgrids purchase power and sell power and other services to the grid. While we recognize the complex Federal Power Act issues that this can raise, it does not help to sweep them under the rug.<sup>15</sup> There is also no obvious size limit to a microgrid. Our member university of Texas at Austin operates a microgrid with an aggregate

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<sup>15</sup> Microgrid Resources Coalition Motion to Intervene and Comment FERC Docket No. AD18-7- 000 Grid Resilience in Regional Transmission Organizations and Independent System Operators at p.16-18 <http://www.microgridresources.com/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=e0cc66bb-8717-b886-236f-5a2b927596de&forceDialog=0>

capacity in excess of 100 MW, but due to constraints of Texas law does not export any power. As a practical matter it almost never makes economic sense to replace existing utility distribution systems on any large scale. Microgrids far smaller than 50,000 households will almost certainly best be executed as “partnership microgrids” in which some of the in-front-of-meter (“IFOM”) assets are owned by the utility. We develop this concept in more detail in our tariff proposal below. On the other hand, the 10 MW limit in Proposal 3 is arbitrary and unneeded.

Instead of “customer Facing” and “grid facing” we suggest “customer microgrid” and partnership microgrid.” A customer microgrid serves one or many customers with no use of utility infrastructure to distribute power. A partnership microgrid serves multiple customers using some utility infrastructure to distribute power behind the point of common coupling but is operated for the benefit of customers by a non-utility operator. The distinction is important because of the interactive roles of the utility and the microgrid that need thoughtful structure in the tariff. A “microgrid operator” serves as a single point of operational and financial responsibility for the microgrid in its dealings with the utility. A “utility operated microgrid,” such as Borrego Springs, is really a sectionalized portion of the utility distribution system that may purchase power or other services from some included customers. That configuration does not need a microgrid tariff and need not be addressed in this proceeding.

Finally, we are concerned that the Concept Paper discussion of “resilience” does more to confuse the issue than provide a basis for policy. Resilience is the ability to adapt, reconfigure and keep operating in the face of system disturbance. This is different than reliability, which is the ability to keep operating normally in difficult circumstances.<sup>16</sup> Microgrids do not need a long “trapezoidal” period to “respond and adapt,” they adapt either instantly or in very short order. Portions of the grid could do the same if they were sectionalized and, in some instances, interconnected by interactive switching, so that operating microgrids could support the local grid. This is grid architecture that must be planned for in advance as we discuss further below. Microgrids are the clean alternative to diesel backup now, and they are far more capable of providing resilience. In Superstorm Sandy on the United States East coast, there was wide

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<sup>16</sup> This is explained and elaborated in National Academy of Science, Engineering and Medicine: Enhancing the Resilience of the Nation’s Electricity System, 2017, available at <https://www.nap.edu/catalog/24836/enhancing-the-resilience-of-the-nations-electricity-system>. Unfortunately, the Concept Paper gave this extensive and thoughtful study short shrift by contrasting it with a quote from former FERC Commissioner Cheryl LaFleure that was out of context and unexplained.

spread backup generation failure.<sup>17</sup> Microgrids, designed and maintained for continuous use kept running, allowing the customers they served, and, in many instances, surrounding communities to function.

### III. Track 2 Proposals

#### A. Proposal 1: Direct the Utilities to Revise Rule 2 to Explicitly Allow the Installation of Microgrids as Special Facilities.

The Staff Proposal offers three options to facilitate the utilities' revision of Rule 2 to explicitly allow the installation of microgrids as special facilities. Staff recommends the adoption of Option 2. Parties are directed to discuss the following issues:

1. In response to Proposal 1 to direct the utilities to revise Rule 2 to explicitly allow the installation of microgrids as special facilities, please indicate support or opposition to Option 1, Option 2, or Option 3 and explain your support or opposition.

We oppose them all.

2. In response to the Staff Proposal's recommendation, should the Commission adopt Option 2? If not, what modifications should the Commission consider?

No. The commission should require all behind the meter investments to be individually approved.

3. Is Option 2 reasonably tailored to support the broader statutory goal of SB 1339 to facilitate the commercialization of microgrids?

- a. Would adoption of Option 2 prevent utilities from developing microgrids per Section 8371.5?

No. Utilities can develop utility operated microgrids and can assist in the development of partnership microgrids.

- b. Would adoption of Option 2 cause unintended barriers to construction of other types of microgrids? If so, please discuss.

Utility installed or operated equipment behind customer meters is a really bad idea. The utility can't operate for the benefit of the customer without a

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<sup>17</sup> <https://www.ecmweb.com/design/article/20897292/hurricane-sandy-a-turning-point-for-emergency-power>; <https://journal.uptimeinstitute.com/disaster-recovery-lessons-learned-superstorm-sandy/>; <https://www.fuelmanagement.com/news/even-during-hurricane-sandy-esi-total-fuel-management-delivers>.

fundamental conflict of interest between the interests of the customer and the interests of the other ratepayers. It must fully recover the cost from the customer, or it is shifting costs to its ratepayers. Even if costs are fully recovered, it is probably blocking investment by the customer or third parties. The utility is almost never the low-cost alternative. If the utility does it, it is almost certainly the result of unfair competition.

c. Would adoption of Option 2 prevent cost shifting per the requirements of Section 8371(b) and (d).

No, it would cause it.

4. Is there anything more the Commission should consider about revising Rule 2 to allow the installation of microgrids as added/special facilities? Should the Commission consider alternative approach to ease barriers to the development of added/special facility microgrids?

See our discussion of Partnership Microgrids below under Microgrid Tariff. Utility development of microgrids as special facilities is the opposite of and creates barriers to commercialization of microgrids.

5. Do Pacific Gas & Electric Company (PG&E) and San Diego Gas & Electric Company's (SDG&E) respective Rule 2 added/special facilities sections present barriers to development of these types of microgrids as written? If so, how would they need to be amended to support construction of these types of microgrids?

No. See our discussion of partnership microgrids.

6. What other considerations should the Commission give toward revising Rule 2, to explicitly allow the installation of microgrids as special facilities?

The commission should restrict development of microgrids as special facilities for the reasons discussed.

*B. Proposal 2: Direct the Utilities to Revise PG&E Rule 18, SCE Rule 18 and SDG&E Rule 19 to Allow Microgrids to Serve Critical Customers on Adjacent Parcels.*

The Staff Proposal offers three options to overcome a utility rule that prohibits one premise to supply electricity to another premise. The Staff Proposal reasons that this electrical rule could be perceived as a barrier by

microgrid developers who wish to maximize the use and benefit of their microgrid by supplying power to adjacent premises in the event of grid outages, either owned by them or by someone else. The Staff Proposal also reasons that this rule could be a barrier for microgrids where islandable assets are located on multiple parcels of land. Staff recommends the adoption of Option 2. Parties are directed to discuss the following issues:

1. In response to Proposal 2 to revise PG&E Rule 18, SCE Rule 18 and SDG&E Rule 19, please indicate support or opposition to Option 1, Option 2, or Option 3 and explain your support or opposition.

We oppose all of the options as they don't go nearly far enough.

2. In response to the Staff Proposal's recommendation, should the Commission adopt Option 2? If not, what modifications should the Commission consider? All microgrids should be exempt from any limitation not imposed by Section 218. The Commission should petition the legislature to exempt microgrids from Section 218 as suggested in the Concept Paper.<sup>18</sup>

3. Is Option 2 reasonably tailored to support the broader statutory goal of SB 1339 to facilitate the commercialization of microgrids?

No. Part of the resilience provided by microgrids comes through unified operation on an everyday basis. Just as backup generation failed in Superstorm Sandy, any equipment that only operates in emergencies and requires unfamiliar operating protocols is comparatively prone to failure.

4. What other considerations should the Commission give toward revising Rule(s) 18 and 19?

The Commission should eliminate all restrictions on microgrid scope, that are not directly imposed by Section 218 of the Public Utility Code. Microgrids should simply be exempt from Rule 18/19. Allow *any* adjacent facilities to transmit power between them, not just municipal corporations. Allow transmission of power between adjacent facilities *any time* not just during PSPS events. Removing Electric Rule 18/19 restrictions is a necessary step towards the commercialization of microgrids.

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<sup>18</sup> Concept Paper at p.43

5. Is a subscription limit of 10 microgrid projects within the three IOU's territory sufficient? If not, what should the limit be? Discuss your reasoning for the new number. Alternatively, if 10 microgrid projects is sufficient, please discuss support.

There are 344 hospitals in California,<sup>19</sup> and public hospitals represent only 6 percent of them.<sup>20</sup> There are over 10,000 public schools.<sup>21</sup> It is hard to take this question seriously.

6. Currently, the subscription of projects is limited by the number of projects. Is there another unit to consider and if so, what amount of unit? Please justify your answer.

No limits are justified. This is a blatant barrier to the commercialization of microgrids.

7. Would the adoption of Option 1 or 2 cause unintended barriers? If so, what are they and how should the proposal be amended to avoid such unintended barriers? Please provide justification for your answer.

It would unreasonably continue barriers. Rules 18 and 19 should impose no limits on Microgrids. These options would make a tiny dent in an large problem and impose additional definitional barriers.

8. Critical information facilities are included in the list the IOUs are required to develop and maintain pursuant to D.19-05-042. Are there other critical facilities or facilities that should be considered but are not part of D.19-05-042's list? Please justify your response.

Microgrids should be encouraged for all critical facilities. We have suggested previously in this proceeding that the Commission invite the Emergency Services Office to work with local governments to identify more broadly and on a consistent basis across communities of different means the critical facilities statewide and then address them comprehensively as means allow. In the meantime, the Commission should clear the barriers to customer microgrid deployment and work to support deployment in economic justice communities.

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<sup>19</sup> [https://www.ahd.com/state\\_statistics.html](https://www.ahd.com/state_statistics.html)

<sup>20</sup> <https://caph.org/aboutcaph/>

<sup>21</sup> <https://www.cde.ca.gov/ds/sd/cb/ceffingertipfacts.asp>



9. Do you agree with the Staff Proposal’s recommendation that the utilities should file a Tier 2 advice letter to implement the changes to Rule(s) 18 and 19? Please justify your response.

No. This will fragment and dilute the effort. This topic should be a part of the general discussion of a Commission established *pro forma* Microgrid Tariff.

*C. Proposal 3: Direct the Utilities to Develop a Standardized Tariff for Combinations of Rule 21 Compliant Technologies*

The Staff Proposal offers three options to support the development of a standardized tariff that would enable the installation of an array of component technologies that individually follow Rule 21 interconnection requirements to comprise a microgrid. Staff recommends the adoption of Option(s) 4 and 5.

Parties are directed to discuss the following issues:

1. In response to Proposal 3 to develop a standardized rate schedule for combinations of technologies that are eligible for interconnection under Rule 21 and together comprise a microgrid, please indicate support of or opposition to Option 1, Option 2, Option 3, Option 4, and/or Option 5. Explain your support or opposition.

We strongly support the development of a microgrid tariff and the elimination of arbitrary regulatory charges that pose barriers to microgrids. Proposal 3 at least acknowledges this goal. While Option 1 is the least bad alternative, none of the options amounts to a single non-discriminatory tariff for microgrids. While we welcome elimination of restrictions on combinations of technologies, Rule 21 does not appear to cover many of the resources likely to be included in microgrids. On the one hand, we propose a unified microgrid tariff as discussed further below. On the other hand, we have significant concerns about ambiguities and limitations in Option 1 as proposed.

Option 1 states that it applies to “combinations of component technologies that individually and collectively meet rule 21 interconnection requirements and together comprise a microgrid.” We commend the attempt to include combinations of technologies, but Rule 21 only includes (i) assets eligible for net energy metering (“NEM”) tariffs, (ii) non-exporting assets, and (iii) qualified facilities under the Public Utility Regulatory Policies Act (“QFs”) exporting on an avoided cost basis. NEM assets do not currently include

gas assets except for biogas and certain fuel cells. It is not clear what a non-exporting asset would mean in this context other than backup diesel generators or separately constrained battery storage. QFs include cogeneration but do not include other natural gas assets, and in the microgrid context they would probably not be exporting at avoided cost rates. It is not clear if the proposal intended to incorporate the export limitation.

Other than certain exemptions for new or incremental load, the proposal only applies to microgrids that achieve long-duration or indefinite islanding. While we support this limitation, we believe that with very limited exceptions, microgrids cannot achieve consistent 96-hour islanded operation<sup>22</sup> when they consist only of the resources qualified under Rule 21<sup>23</sup> (unless the limitation of avoided cost export does not apply or biogas is available). SB 1339 clearly contemplates inclusion of all technologies that are qualified Distributed Energy Resources.<sup>24</sup> Instead of relying on existing divisions between retail and wholesale tariffs or interconnection related categories, the Commission must adopt a non-discriminatory tariff that treats all microgrids alike.<sup>25</sup> There is nothing about DLCs and SBCs that makes them specific to a particular power export tariff<sup>26</sup> or interconnection category. The MRC could support a modified Option 1, but only if it does not discriminate among the kinds of assets that SB 1339 contemplates being included in microgrids.

Proposal 1 does not make clear the intention of the categories in Table 3.2. Is NEM eligibility an additional requirement for eligibility, or an additional benefit of the Rate? NEM as currently conceived is a tariff for largely uncontrolled resources that are not visible to the grid operators until after the fact. It does not take microgrid capabilities seriously. We see no justification for enrollment caps. The proposal also makes no explanation of the checkerboard pattern exemptions in Table 3-3. While we support any action to remove the DLCs and SBCs from microgrids, we are puzzled that these antiquated charges are not simply swept away for all microgrids. We do not seek and, are

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<sup>22</sup> The MRC supports this aspect of the definition. It is consistent with national standards for hospitals. *See*, <https://www.jointcommission.org/standards/standard-faqs/laboratory/environment-of-care-ec/000001246/>

<sup>23</sup> Unless the requirement for avoided cost export does not apply. Even then the tariff would arbitrarily discriminate among gas DER.

<sup>24</sup> Pub. Util. Code § 8371(d).

<sup>25</sup> While we recognize that selling to CAISO involves a FERC co-jurisdictional interconnection, that is not relevant to the issue of these charges. *See* FN 15

<sup>26</sup> Indeed, many NEM assets are already exempt from SBC. “NEM customer-generators are exempt from standby charges” <https://www.cpuc.ca.gov/NEM/> and Pub. Util. Code 2827 (g)

not sure why Proposal 3 suggests, exempting some microgrids from non-bypassable charges. As the Staff Proposal notes, this would clearly result in cost shifting. The MRC supports microgrids paying non-bypassable charges on all imported power.<sup>27</sup>

The definition of critical facility is drawn from the Docket D. 19-05-042 Exhibit A list. In that docket it is explicitly limited to fire risk regions, but we assume that limitation was not intended here. The Commission should clarify. Utilities were directed to update this list with input from local government and public safety officials. So far as we are aware this has not happened.

Finally, the proposal suggests that the rate be subject to re-evaluation in 5 years. We object to this. Any rate is subject to revaluation from time to time, and we believe that DLCs are overdue for retirement on general principle as discussed below. However, if an exemption from these charges can be withdrawn retroactively, it will pose a substantial risk to financing and, in effect, maintain the barrier that it seeks to eliminate.

2. In response to the Staff Proposal's recommendation, should the Commission adopt Option 4? If not, what modifications should the Commission consider?  
No. DLC and SBC exemptions are the principle benefit of the rate.
3. What other considerations should the Commission give in its consideration of developing a single, standardized rate schedule to govern microgrids and all their component technologies?

We discuss this at length in connection with our tariff proposal. For interconnection purposes, microgrids should be considered as a single controllable resource. For power purchase purposes a microgrid should have the same ability to purchase as any similarly sized customer. In particular microgrids should have the ability to purchase power at time of use rates. A microgrid that elects time-of-use rates for purchases should not face limitations on exports from storage. If it successfully arbitrages time-of-use rates, that benefits the system and reduces costs for ratepayers. There should be no limits on redistribution of purchased power within a microgrid. For sales of power and other services microgrids should also face market rates, whether under a tariff or under longer term purchase arrangements discussed below.

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<sup>27</sup> The proposal also does not make clear if this is based on total exports or net exports for NEM eligible resources.

4. Should the Commission require that projects eligible for a single, standardized microgrid rate schedule meet any specific performance standards when operating as a microgrid, such as a minimum duration of islanding capability? If so, which specific performance standards should the Commission require and how should they be evaluated for the purpose of determining eligibility for the rate schedule?

If the Microgrid Tariff provides for specific payment for resilience capacity as suggested below, minimum duration should be required. If the microgrid provides any services to the grid it must have measurement, communications, and technical capability to provide those services.

5. Are Options 1-5 reasonably tailored to support the broader statutory goal of SB 1339 to facilitate the commercialization of microgrids while meeting other statutory requirements, including the requirement to avoid cost shifting.

No. As staff points out, market prices and competitive markets or well-designed tariff pricing eliminate cost shifting.

6. For Options 1-5, is adequate time allowed to accomplish tasks?
7. For Options 1-4, is the proposed individual project size cap of 10 megawatts in Options 1-4 appropriate? If not, what amount would be appropriate and why?

As discussed above, size caps are discriminatory and counterproductive to the grid benefits of microgrids.

8. For Options 1-3, would allowing exemptions from cost responsibility surcharges, represent cost shifting prohibited by SB 1339?

No. See discussion of cost shifting below.

9. For Options 1-3, is it reasonable to allow a microgrid facility to be exempt from non-bypassable charges in return for providing resiliency services to critical facilities?

This is a flawed approach. Most of the charges should be eliminated for all microgrids as discussed elsewhere. Compensation for resilience should be dealt with separately on its merits as we suggest below.

10. For Options 1-3, would allowing an interim period in the early commercialization of microgrids during which critical resilience projects can

be exempted from specific cost responsibility surcharges be in the public interest? Explain your answer.

As a matter of good regulatory policy, DLC should be eliminated and SBC modified for microgrids. This is critical for commercialization, and it should not be temporary.

11. For Options 1-3, should there be a different method for accounting for the public benefit provided by microgrids when they support critical facilities, other than exempting them from non-bypassable charges?

Yes. Any microgrid that serves a [community identified] critical facility, whether privately or publicly owned, should be eligible for a capacity payment based on the committed volume of critical services and level of electric supply.

12. For Options 1-3, are the criteria for determining cost responsibility surcharge exemptions presented in Table 3-3 reasonable? Please justify your answer.

No. The surcharges are based rightly or wrongly on completely different justifications. They are not a measure related to either the cost or impact of resilience for critical facilities. We discuss this further in our Microgrid Tariff section below.

13. For Options 1-3, are the definitions and requirements presented in Table 3-4 reasonable? Please justify your answer.

We believe that some of them are not. See our discussion of The Case for Microgrids above.

14. For Option 3, is the statewide enrollment cap of 1,200 megawatts an appropriate amount? If not, what amount would be appropriate and why?

For elimination of regressive charges, no limits are appropriate. For a tariff for resilience for critical facilities, we believe that there should be statewide planning and funding. We discuss this further under Microgrid Tariff below.

15. For Option 3, is the method for allocating a statewide enrollment cap of 1,200 megawatts according to load share appropriate? If not, what alternative allocation method should be used?

The proposal provides no justification for any cap.

*D. Proposal 4: Direct the Utilities to Develop a Microgrid Pilot Program.*

The Staff Proposal recommends that the utilities develop an incentive program to fund clean energy community grids that support the critical needs of vulnerable populations most likely to be impacted by grid outages. Under this proposal, Staff recommends the adoption of: (a) Option 2; (b) Option 1; (c) Option 2; (d) Option 1; and (e) Option 1. Parties are directed to discuss the following issues:

1. In response to Proposal 4 to direct the utilities to develop a microgrid pilot program, please indicate support or opposition to each of the options. Explain your support or opposition.

We oppose all of these proposals. Contrary to the commission's apparent misunderstanding, microgrids are not a new technology. Several MRC members have run safe, resilient microgrids for over a quarter of a century. Microgrids continue to evolve, but it is one of their benefits that they are capable of evolving more rapidly and flexibly than the larger grid. The utilities seem to be behind the curve. Most of the California examples cited in the [Staff Proposal] include diesel generation which fails to take advantage of microgrid operational and resilience capabilities. Rate payers should not pay for utility education by funding assets that are not of customer and communities' own choosing.

2. Should the Commission adopt Staff's recommended options? If not, what modifications to Staff's recommended options should the Commission consider?

No. None.

3. Is Proposal 4 reasonably tailored to support the broader statutory goal of SB 1339 to facilitate the commercialization of microgrids?

No. Commercialization means letting commercial suppliers compete to install microgrids. Utilities have several important roles to play (see Microgrid Tariff and Grid of the Future), but this isn't one of them. This is fundamentally anticompetitive.

4. To support the public health and welfare for disaster response mitigation and resiliency efforts, should the Commission authorize rate recovery for such a pilot program?

No. This is blatant cost shifting that will only be a drop in the ocean of the need.

5. What other considerations should the Commission give to support the development of a utility microgrid pilot program?

None.

6. How should the utilities track costs associated with the actions the Commission orders utilities to undertake pursuant to the staff proposal?

7. Are there other options that have not been listed and should be? If so, please discuss the option(s) that should be considered. Include as much detail as possible.

8. Are there any other objectives and goals that should be included? Alternatively, are there any that should be excluded? Please provide justification.

As discussed at length elsewhere, there are strong policy considerations against utility investment in and operation of customer microgrids arising from other aspects of long-established utility law. The requirement of SB 1339, that utilities not be prevented from developing microgrids cannot be read to eliminate those other precedents. Nor can utility owned microgrids be construed to meet SB 1339's requirement for commercialization of microgrids. The explicit point is to empower customers, not to expand utility hegemony.

9. Are there any other project criteria that should be included? Alternatively, are there any that should be excluded? Please provide justification.

10. Are there any other community criteria that should be included? Alternatively, are there any that should be excluded? Please provide justification.

11. Are there any technology performance criteria that should be included? Alternatively, are there any that should be excluded? Please provide justification.

12. Is the cost cap per project of \$15 million reasonable? If not, please provide another amount estimate and justification for that amount.

No cost at all is justified.

13. Is the requirement to reach commercial operation by January 31, 2022 reasonable? If not, please provide another deadline and justification for that date.

14. There is a milestone of June 1, 2022 or six months after the commercial operation date of the last project to conduct a cost-effectiveness analysis. Is this date reasonable? Please provide justification.
15. Do you agree with staff's proposal that the IOUs file a Tier 3 Advice Letter to implement this program? Please justify your response.

No. handing out ratepayer money to support a limited number of customers should receive heightened scrutiny.

*E. Proposal 5: Direct the Utilities to Conduct Pilot Studies of Low Cost Reliable Electrical Isolation Methods*

The Staff Proposal recommends that the utilities conduct pilot studies of low cost reliable electrical isolation methods. Staff reasons that such a pilot program will assist with the assessment of the safety and reliability of utilizing smart meter integral disconnection switches to provide low-cost electrical isolation for backup power applications and to identify and resolve any implementation and deployment issues. Staff also reasons that lessons learned from a pilot program could provide a means of lowering costs for electrical isolation as well. Parties are directed to discuss the following issues:

1. In response to Proposal 5 to direct the utilities to conduct pilot studies of low cost reliable electrical isolation methods, please indicate support or opposition to Option 1 or Option 2. Explain your support or opposition.

We don't need these pilot studies either. The utilities should be directed to promptly consider low-cost interconnection options in their standard interconnection effort under Track 1.

2. Should the Commission adopt Option 2 under Proposal 5? If not, what modifications should the Commission consider?
3. Is Proposal 5 reasonably tailored to support the broader statutory goal of SB 1339 to facilitate the commercialization of microgrids?
4. To support the public health and welfare for disaster response mitigation and resiliency efforts, should the Commission authorize rate recovery for such a pilot study?



5. What other considerations should the Commission give to support the development of a utility pilot program to evaluate low-cost, reliable electrical isolation methods?
6. Are the proposed expenditure cap and proposed program criteria reasonable? Are there additional program criteria that should be included?
7. Are there additional approaches, beyond those discussed in Option 1 and Option 2, to provide low-cost, reliable electrical isolation that should be considered for the proposed pilot program?

#### **IV. Secondary Proposals**

##### *A. Public Utilities Code Section 8371(c)*

1. In response to the proposals for Section 8371(c), please indicate support of or opposition to Option 1, Option 2, and Option 3. Explain your support or opposition.

We strongly disagree that the Commission has met the requirements of this section to standardize and streamline interconnection in Track 1. The Track 1 proposals were largely limited to existing NEM eligible resources. We have provided one-line diagrams that include natural gas fueled resources as contemplated by 1339 Section 8371(d) to utilities directly, as well as to the smart inverter working group, and have been given no assurances that they will be considered as part of a second phase of Track 1 streamlining activities.

One of MRC's proposals was a concept schematic developed by MRC members for a modularized microgrid configuration that incorporated solar, battery storage, dispatchable generation and microgrid switchgear. The MRC believes this will be a common configuration for microgrids in California and it can be easily replicated and scaled.

Standardization and streamlining should not be confined to smaller resources. The Rule 21 proceeding is not the right venue. We believe the Commission must do more to break down the barriers and siloes that exist for microgrids.

2. Should minimum technical specifications and operational capabilities for microgrid controllers be included in Rule 21?

No. Microgrid interconnection should be done on the basis of integrated microgrid capability. Customers and developers should be prepared to explain

what those capabilities are, and that includes the capabilities of the controller. The technology is moving rapidly and attempts to standardize would be a mistake. To provide grid services, microgrids must have the technical capability just as any resource would.

3. Most interconnection issues will be addressed in the interconnection rulemaking (R.17-07-007) or its successor proceeding(s). Which, if any, specific interconnection issues for microgrids should be addressed in this rulemaking?

We are concerned that shuttling microgrids off to another proceeding will result in incompatible and uncoordinated results and force concerned participants in this docket to be everywhere at once. Interconnection should be separated from tariff status. A majority of microgrids will both purchase power and sell power or other services to the grid whether they are NEM eligible or not. Basic approaches to microgrid interconnection should be determined in this proceeding.

4. Are there any gaps in the existing interconnection studies process for analysis of behind-the-meter microgrids?

Not so much gaps as wrong assumptions that lead to poor analysis. Studies should focus on the aggregate capabilities and the aggregate intended operation in terms of imports and exports of the microgrid.

5. Please comment on what supplementation to the existing interconnection studies process will be necessary for analysis of in-front-of meter microgrids.

*B. Public Utilities Code Section 8371(f)*

1. In response to the proposals for Section 8371(f), please indicate support or opposition to Option 1 and Option 2. Explain your support or opposition.

This is a problem that arises from dividing the world into NEM resources and others and then treating the resources within the microgrid as separate resources with separate limits. The MRC takes no position on this proposal.

2. Which of the direct current (DC) metering standards currently being developed should receive the most focus? What is the timeline for completion of this DC metering standard?
3. Does the Rule 21 allowance for use of power control systems adequately address net energy metering (NEM) integrity and non-export concerns related

to DC-coupled photovoltaic and battery storage? Would an allowance for power control systems for other types of NEM-eligible DC-coupled generators (e.g., certain approved fuel cells) and storage adequately address these concerns for those additional types of generators?

4. Please elaborate on additional use cases for DC metering beyond NEM integrity and non-export. Would these use cases typically be in the CPUC's jurisdiction?

## V. Cost Shifting

SB 1339 directs the Commission to facilitate the commercialization of microgrids by developing methods to reduce barriers for microgrid deployment without shifting costs between ratepayers. Unfortunately, the Track 2 Proposals and Concept Paper assume that the only problem is cost shifting from ratepayers that deploy microgrids to ratepayers that do not. The MRC believes that:

- neither the tariff suggested in Proposal 3 (other than the non-bypassable charges exemption as discussed) nor our suggestions in the next section would shift costs from microgrids to other ratepayers;
- if microgrids are permitted to compete to provide services to the grid, they reduce costs to other ratepayer, and, in any event, they reduce the costs of achieving state decarbonization goals; and
- many of the utility actions approved or proposed in Tracks 1 and 2 impose unreasonable costs on all ratepayers.

1. *Tariff proposals do not shift costs to ratepayers.*

Departing load charges were adopted at a time when they were intended as a temporary way to manage stranded asset costs in a transition to retail competition. Other states adopted them for the same reason, and they all were subject to sunsets provisions and ended on schedule. California abandoned retail competition and kept the charges. The charges were expanded to cover Water Board purchases when the state's poorly designed move away from utility generation abetted by generator fraud caused a crisis in 2000 – 2001. Twenty years have passed. The only justification for departing load charges is to shield utility shareholders from poor utility judgment in the forward procurement of power. This is unconscionable by itself. Worse, it

conflicts with a forward-looking view of the evolution of the grid.

The study “Long Run Resource Adequacy under Deep Decarbonization Pathways for California”<sup>28</sup> estimates that it will take between 150 and 200 GW of new generation to meet CA decarbonization goals by 2050 (now actually less ambitious than the state’s 2045 goal). That is more than double the current generation capacity. Other indicators show that CA will be soon running short of capacity.<sup>29</sup> Recent EIA figures list the installed cost for solar and wind generation at around \$1,300 per kW and somewhat less for gas. A back of the envelope calculation suggests that the required investment will be around \$ 6 - 8 billion a year for the next 30 years. That won’t happen without private investment. Every clean microgrid that we install with community or private funding, is shifting cost away from ratepayers.

Standby charges are intended to compensate utilities for having the capacity to serve customers if the customer’s BTM generation fails to perform. The shoe is really on the other foot. Microgrids are standing by to support customers and communities when the utility fails to perform. This is particularly critical because when the utility fails it often fails everyone at once. Of course, individual resources within a microgrid will fail or simply need maintenance from time to time, but that does not mean that the whole microgrid fails. Nor is there any reason to believe that multiple microgrids will fail all at once. No justification has been offered for imposing these costs on microgrids.

To the extent that Proposal 3 is intended to make additional microgrids eligible for NEM, we do not believe, and the staff does not suggest, that that any cost-shifting occurs. Net metering customers get credited at time of use rates for exports and we assume that is intended to reflect market value to the utility. However, NEM is not a good substitute for dispatchable services from microgrids and we believe that the Commission should move to compensate those services.

## *2. Microgrids provide low cost services to the grid.*

The simplistic view of rate shifting sometimes voiced in this proceeding, assumes that

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<sup>28</sup> Long Run Resource Adequacy under Deep Decarbonization Pathways for California E3, available at [https://www.ethree.com/wp-content/uploads/2019/06/E3\\_Long\\_Run\\_Resource\\_Adequacy\\_CA\\_Deep-Decarbonization\\_Final.pdf](https://www.ethree.com/wp-content/uploads/2019/06/E3_Long_Run_Resource_Adequacy_CA_Deep-Decarbonization_Final.pdf)

<sup>29</sup> <https://www.bloomberg.com/news/articles/2019-11-07/california-tells-utilities-to-bulk-up-on-power-as-shortage-looms>

microgrids are passive, unresponsive demand side resources, and that nothing else occurs between the microgrid and the grid other than the microgrid thereafter having reduced grid imports on a net basis. That assumption is clearly antiquated. In markets across the country, microgrids have proven capable providing the grid a range of services at competitive prices. The Concept Paper's Financial Proposal 2 expressly cites a range of localized, customized services microgrids can provide to distribution utilities. The Concept Paper also discussed Distribution Support Services Agreements, a concept that the MRC has supported for a long time. Going forward, the Commission should assure non-discriminatory access to transparent markets to allow this bidirectional flow of services. Taking a bidirectional view of microgrid-related cost shifts, we generally believe that most cost shifting occurs with the grid system shifting costs to privately financed microgrids.

The proper evaluation of cost shifting also needs to take into account the economic impact to ratepayers in communities that do not have microgrids to sustain essential services during an emergency. Ratepayers who lose power in system emergencies or due to PSPS events bear acute costs arising from loss of essential services, and the impact can be especially overwhelming in low-income communities that have fewer individual and community resources.<sup>30</sup> Microgrids can provide long-duration backup power for community and ratepayer resilience at lower cost than the utility Proposals while avoiding the use of dirty diesel backup generators. If widely commercialized as SB 1339 contemplates, microgrids help avoid utilities shifting the immense costs of PSPSs to customers to avoid liabilities for deficiencies in their system.

### 3. *Utilities are imposing unreasonable costs.*

There are egregious attempts in this proceeding to pile additional utility costs onto all ratepayers, including ratepayers with microgrids. These include diesel backup generators

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<sup>30</sup> See <https://www.cnbc.com/2019/10/10/pge-power-outage-could-cost-the-california-economy-more-than-2-billion.html>. See also <https://www.cbsnews.com/news/pge-power-shutdown-pacific-gas-and-electric-power-outage-could-cost-california-billions-2019-10-09/>. See also <http://www.lakecountycal.gov/Government/PressReleases/PSPSImpact.htm> "The ability of innumerable low income County residents to meet even their most fundamental needs was severely threatened....[by PSPS]". See The True Cost of Power Outages, Yale Environmental Review August 5, 2012 <https://environment-review.yale.edu/true-cost-power-outages-0> summarizing G. Brooke Anderson and Michelle L. Bell, "Lights Out: Impact of the August 2003 Power Outage on Mortality in New York," *Toxicology* 23, no. 2 (2012): 1-5. See also Concept Paper at p. 41.

procured by PG&E and the substation modifications needed to deploy them and Proposal 2 for microgrid pilots in this track. What we ask in principle is that microgrids pay fair value for the energy and other services they receive; be paid fair value for the services they deliver; and be permitted to deliver all the services they are capable of delivering. Market-based payments to microgrids do not shift costs. We also ask that microgrids not face unfair competition from monopoly utilities spending ratepayer money for things that do not provide equal ratepayer benefits. Those expenditures do shift costs. The Commission needs to refocus this proceeding on the requirements of SB 1339 and establishing a path forward for widespread deployment of microgrids.

## **VI. A Microgrid Tariff**

SB 1339 directs the Commission to enable the commercialization of microgrids and a functional microgrid tariff is required to do so. Such a tariff needs to recognize microgrids as unified aggregations of various types of generation, storage, and demand resources capable of highly flexible operations. It should be broadly applicable to the many configurations of resources microgrids may adopt depending on customer, community, and grid needs. Functionally enabling microgrid commercialization applicable to all customers and communities requires a microgrid tariff that offers a wide and unobstructed development path.

Unfortunately, the Commission and the Proposals have set forth what appears to be narrow tariff-related constructs that were not developed for the full range of microgrids or microgrid functionality. Continuing to try to repurpose existing Commission and utility rules will not create the development path California needs. The cumulative effects of small tweaks to existing narrow frameworks has become a barrier to microgrid commercialization. With Track 2 the Commission has an opportunity to adopt a new tariff, specifically designed for microgrids, that expands the range of services that microgrids can provide and gives microgrid developers and hosts a clear understanding of the charges they face.

To assist the Commission in adopting a functional microgrid tariff that enables commercialization by providing a clear development path, we set forth below a suggested outline for such a tariff.

### *1. Definitions:*

- a. "Microgrid" means an interconnected system of loads and energy resources, including, but not limited to, distributed energy resources, energy storage, demand response tools, or other management, forecasting, and analytical tools, appropriately sized to meet customer needs, within a clearly defined electrical boundary that can act as a single, controllable entity, and can connect to, disconnect from, or run in parallel with, larger portions of the electrical grid, or can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure.<sup>31</sup>
- b. "Customer microgrid" means a microgrid involving one or more electricity users downstream of a point of common coupling that either (i) owns, or (ii) leases or otherwise obtains use of, distribution wires and other internal infrastructure of the microgrid from nonutility third parties.
- c. "Partnership microgrid" means a microgrid involving multiple customers downstream of a point of common coupling with an electric utility that makes use, in whole or in part, of utility distribution wires or other utility infrastructure to link included resources and loads, whether in island mode or when grid connected.
- d. "Point of common coupling" means with respect to a microgrid the islanding breakers and related protective gear that permits the microgrid to operate in island mode.
- e. "Microgrid operator" means an entity that (i) is the single point of operational communication and control between a microgrid and the utility grid operator and (ii) except in instances where a utility provides

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<sup>31</sup> This definition is taken from SB 1339 §8370 (d). Additionally, we suggest that in the definition or separately the tariff make clear that when "appropriately sized to meet customer needs" in emergencies and otherwise, the microgrid is expected to have the ability at times to export power or provide other services such as demand response or frequency regulation. This definition relies on the companion definition of distributed energy resources, which includes CARB's DER emissions requirements. "Critical infrastructure" as used in the definition should be determined by the customer for its own purposes and should not be limited to critical facilities as separately defined in other proceedings.

direct energy delivery and metering to customers of a partnership microgrid during grid connected mode, acts as the single point of financial responsibility for purchases and sales of energy and other services on behalf of the microgrid.

2. *Right to establish microgrids:*

- a. Any customer or group of customers or a third-party developer acting on their behalf can form a microgrid subject to the interconnection requirements of the tariff.<sup>32</sup>
- b. Neither the owner nor the operator of a multi-customer microgrid qualified under the tariff is a public utility unless it is a large electric company or a publicly owned utility.<sup>33</sup>

3. *Decarbonization Goals:*

- a. Microgrids must advance state decarbonization goals. A microgrid on an average basis, aggregating all internal resources, should meet or exceed state carbon reduction targets on an ongoing basis.
- b. Microgrids can deploy a "mixed resource profile" of DERs, storage and demand management technology that includes renewable energy but is able to provide long-term operation in island mode.

4. *Sales of Services by Microgrid:*

- a. Microgrids are permitted to provide services on a non-discriminatory basis under any available tariff, market, or procurement process now or hereafter operated by the utility or the RTO. These may include:
  - i. Energy generation;

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<sup>32</sup> This is currently subject to the availability of a Section 218 exemptions, but any other tariff barriers should be removed.

<sup>33</sup> *Id.*



- ii. Energy storage;
- iii. Utility requested islanding;
- iv. Demand management (both directions);
- v. Regulation services;
- vi. Reactive power;
- vii. Reserves;
- viii. Capacity (RA).

To the extent that utilities do not currently procure these services on a transparent, market-based basis either through short-term market-based pricing or by means of a distribution support service agreement (see below for more on DSSAs), any microgrid should be able to participate either directly or through an aggregator in CAISO markets.

- b. Islanding at utility direction should be considered as a service separate from demand response. It has different costs than typical demand response and may be provided in more limited circumstances.
- c. If the microgrid can export to help support a local portion of the grid during sectionalization, provide rules and compensation.

5. *Sales of power to the microgrid:*

- a. A microgrid operator purchasing in bulk for included customers should be eligible for any tariff for which its aggregate purchases qualify.
- b. Microgrids should be able to opt-in to a time-of-use tariff for all purchases of energy.

- c. In a type 1 partnership microgrid, described below, energy provided to the microgrid is sold to the microgrid operator acting on behalf of included customers in the aggregate.
  - d. In a type 2 or 3 partnership microgrid, the utility bills its customers in the microgrid at regular tariff rates when grid connected.
  - e. Charges for standby service should be eliminated or at most should reflect the ability of the microgrid to carry its own load through use of multiple assets and internal load shedding if one of its generation or storage resources is unavailable.
  - f. Departing Load Charges should be eliminated.
6. *Interconnection:*
- a. Utilities need to speed up the process with standard deadlines for all classes of microgrids.
  - b. Consider a requirement for synchronous connection capability.
  - c. Treat the microgrid as a single controllable resource; don't require separate standards for each included resource or prevent resource combinations.
  - d. Address communication capability with the grid operator either here or in connection with sales of particular services to the grid.
7. *Partnership Microgrids:*

Partnership microgrids, as the name suggests, represent a “partnership” (contractual and/or tariff based, not a legal entity) between a utility and a group of customers, which will necessarily involves some negotiation. We believe that setting forth guidelines in the microgrid tariff can make such negotiations more straightforward and productive.

- a. Partnership microgrid models. There are three broadly possible partnership microgrid types:
- i. One, the Microgrid operator, in effect, leases the wires and meters of all included customers from the utility. It is the sole provider of electricity to customers within the microgrid and purchases any imports to the microgrid at the point of common coupling for its own account for resale to the customers. It would pay distribution charges only on imports. It operates essentially like a multi-customer “Customer Microgrid” but leases the use of the wires from the utility. This is the most straightforward, and it functions as a customer microgrid in most respects. Pricing for the “lease” should be based on cost of service. It is different from “retail wheeling” in that the included wires are not shared with other customers and raises no cost allocation issues.
  - ii. Two, the microgrid operator plays the roles it would in type one except that the utility retains the billing function. It would deliver a single bill for (x) the power generated within the microgrid payable to the microgrid operator and (y) the power imported to the microgrid payable to the utility. The utility could either impose its distribution charges on all customers for their full electric consumption, or there could be a type one arrangement.
  - iii. Three, in grid connected mode, the microgrid operator sells all the output of microgrid generation to the grid and the utility provides all electricity to customers. In island mode the microgrid operator operates included generation for the benefit of customers. Customers would pay full wires charges and there would be no further charges in island mode. The microgrid operator manages included generation at all times, so is prepared to operate in island mode.

- b. Liabilities in all cases would attach to the responsible party. The utility maintains the infrastructure (unless responsibility is assigned in a type one lease) and would be responsible for failures due to maintenance. In types 1 and 2 the microgrid operator operates behind the point of common coupling and would be responsible for its operational errors. In Type 3, the microgrid operator only “operates” in island mode (except generation) and would have liability then.
- c. Type 1 tariff provisions: Establish the cost basis for “lease” payments for infrastructure.
- d. Type 2 tariff provisions:
  - i. Establish basis for lease payments as with Type 1, if needed.
  - ii. Establish basis for utility charge for billing services in island mode?
- e. Type 3 tariff provisions: Establish basis for billing services in island mode.

8. *Disclosure Standards:*

- a. Multi-customer microgrids are established by contractual arrangements between the operator and the included customers. (There may be additional arrangements with the owners of generating or storage resources or included infrastructure.)
- b. For multi-customer microgrids where the operator bills the customers and that include residential or small business customers we suggest disclosure standards similar to landlord-tenant requirements for master metering.

9. *Resilience Payment:*

Consider a public benefit resilience payment to microgrids that:

- a. Serve critical infrastructure identified by the local government and approved by state emergency preparedness officials.
- b. Serve economic justice areas that may otherwise be underserved.

These payments should not be selective grants but should be made available on a similar basis statewide. They should be at a level to assist in leveraging private funds, not to displace them.

10. *Distribution Support Services Agreements;*

This should potentially be a separate tariff open to all distributed energy resources, and there are some existing tariff mechanisms, but this calls attention to certain useful features. The Commission’s docket relating to Distributed Resources Planning and Integrated Distributed Energy Resources (R. 14-08-003) is considering different non-wires alternatives mechanisms including tariffs under which DSSAs should be a clear option. While we generally support the Concept Paper’s discussion of DSSAs under Option 1, Option 2 offers a better procurement process.

- a. Reference Integration Capacity Analysis and PV RAM maps of stressed areas of the existing grid where non-wires alternatives may prove valuable. Focus on the ability of advanced, dispatchable DER to locally address constraints, imbalances, and support sectionalization.
- b. Establish a procedure for evaluation and possible acceptance of unsolicited proposals to deliver non-wires alternatives similar to Option 2 in the Concept Paper.

11. *Relationship to other processes*

- a. The utilities should be planning for expanding levels of dispatchable distributed resources within their Integrated Resource Plans and long-term forecasting activities, including those that have long-duration generation capabilities and can support sectionalization.

- b. Other Commission rules and tariff should be revised to reference and avoid conflict with the microgrid tariff.

## **VII. The Grid of the Future**

SB 1339 and the comments from most participants in this proceeding to date raise much larger issues than have been reflected in the Track 1 and 2 Proposals thus far. They require seeing customers and communities as equal partners on the evolution of electricity supply, and the microgrid industry as a necessary ally, not only in meeting customer and community goals, but in meeting state objectives for a new, decarbonized energy system. They require stepping outside of the wholesale / retail tariff dichotomy and seeing microgrids as a continuum of clean energy resources that serve included load, that provide services to the larger grid, and that make their communities more resilient. We seek a new architecture and management structure for the power grid that delivers the clean energy and resilience that customers want and deserve efficiently and at reasonable cost across all customer classes.

Customers and communities are the best judges of their own needs and they should be free to seek help from an industry that understands how to meet those needs better than the utilities do. The RTO has a role in optimizing the operation of the transmission system, though the transmission system we need may vary with the size and location of generation resources. The role of the distribution system operator (DSO) is to optimize the use of the distribution system that connects the two. It needs to manage power flows below the transmission nodes of the RTO run system down to and up from the customers. To act effectively in this layered system, the DSO must operate as a neutral broker in the same way that the RTO does at the wholesale level.<sup>34</sup> If the energy and services it needs are best procured from customers, it should do so. It needs to have visibility and control of the services being provided, but not the opportunity to substitute its own services and infrastructure when they are not the best choice.

Right now, with certain exceptions, customers with microgrids cannot get paid by the DSO for their services at competitive rates. NEM customers receive export credit at time of use rates, but California still faces the duck curve and imposes counterproductive battery supply restrictions. There are a few programs in which the DSO makes payments (other than NEM credits) to BTM generators, but on the whole the only fair and transparent markets are run by

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<sup>34</sup> L. Kristov, P De Martini and J. Taft, “Two Visions of a Transactive Electric System”, 2016. [https://resnick.caltech.edu/documents/13356/Two\\_Visions.pdf](https://resnick.caltech.edu/documents/13356/Two_Visions.pdf)

CAISO. The CAISO markets can lead to suboptimal power flows on the distribution system, but that is better than the alternative of no markets. The utilities can fight to further monopolize customer supply, or they can evolve to DSOs that build out their systems to accommodate grid edge generation and can build out their power management capabilities to take advantage of those resources. To do this they must be prepared to serve as neutral brokers and facilitators. They can take power from the transmission system or from included DERs and can do that on short- or longer-term contracts. They can optimize the use and reduce the cost of the distribution system, and their choices can reduce the cost of the transmission system as well. They cannot fill this role by seeking to operate behind customer meters or insert themselves in customer decisions about microgrids. They can play roles in partnership microgrids, in DSSA procurement for wires alternatives, and in reconfiguring the distribution system to serve customers, communities and the goals of California.

The Commission has broad authority to shape the grid and utility business models. The Distribution Investment Deferral Framework<sup>35</sup> is one step in the right direction. Integrated Resource Planning and Resource Adequacy rules provide other handles. The Commission needs to adopt a forward-looking regulatory scheme that is designed to move to the grid California needs and is not designed to pay utilities for past mistakes. It should support utilities revenue requirements in moving to a safer, more resilient grid but also require utilities to move beyond KWhs and rate base to a new service model in which the value of utility services is constantly tested against market-based offerings. Allowing full competitive range for customer and community driven microgrids is a necessary first step.

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<sup>35</sup> Concept Paper at p.31

## VIII. Conclusion

We urge the commission to do what 1339 requires – move immediately to create a broad-based, inclusive microgrid tariff that creates a pathway to widespread deployment of independently developed and financed microgrids serving the needs of customers and communities and supporting the grid.

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Respectfully submitted,

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