

**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)

**REPLY COMMENTS OF MICROGRID RESOURCES COALITION TO  
ORDER INSTITUTING RULEMAKING**

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The Microgrid Resources Coalition (“MRC”)<sup>1</sup> respectfully files its reply comments in the above captioned proceeding. The outpouring of interest in this proceeding makes it impractical to comment point by point on even the Large Electric Company filings. Instead, we have attempted to respond to certain repeated misunderstandings and possible causes for delay. 2

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<sup>1</sup> 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. Members of the MRC include: Anbaric, Bloom Energy, Clearway Energy, ComEd, Concord Engineering, Eaton, Emory University, Engie, Ictec, International District Energy Association, Massachusetts Institute of Technology, NRG, Princeton University, 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.

## **Summary**

- The principal goal of this proceeding should be to empower customers and communities to dramatically increase their investment in microgrids. Neither California's decarbonization goals nor its resilience goals can be met without increased non-utility investment.
- It is critical to avoid delay in meeting those goals. The MRC strongly recommends that the Commission conduct an integrated, focused proceeding that eliminates barriers and uncertainty that deter local action.
- This proceeding should focus on microgrids that are operated by non-utility operators primarily for the benefit of their included customers ("customer-operated"). Microgrids operated by utilities are not subject to the same barriers and uncertainties and can proceed under existing law. Where utility assets are included in a customer-operated microgrid, the Commission must establish fair principles for the compensation of the utility for the use of its assets.
- Customer-operated microgrids are typically paid for by their customers (either as owners or purchasers of services), and do not benefit from any direct cost shifting. The MRC believes that indirect cost shifting, if it occurs, is from the microgrid to the grid. The MRC favors tariff support for microgrids that provide community resilience or serve economic and environmental justice.
- Microgrids that are not directly operated by their owners typically operate under contracts among the participants, and this proceeding should not impose unnecessary restrictions on those contracts, or on the technology choices they embody.
- The MRC supports movement toward a modular grid with a distributed mesh design that takes advantage of microgrid services to achieve decarbonization and resilience.

### **1. Empowering Customers and Communities**

The principal goal of this proceeding should be to empower customers and communities to dramatically increase investment in microgrids. As the tragic fires and haphazard outages of the past weeks demonstrate, California must urgently improve the resilience of electric service in local communities. Further, the fires only reemphasize the need for California's ambitious

decarbonization goals. Customer and community driven microgrids uniquely address both problems.

According to the 2019 California Green Innovation Index,<sup>2</sup> California is falling behind on its decarbonization goals. If the current trajectory continues, it predicts, California will only reach its 2030 goals in 2061, and its 2050 goals in 2157. Only by accelerating investment in the transformation of its economy can the state hope to achieve its targets.<sup>3</sup> In addition to utility investment, private and community investment must be unleashed to meet California's goals.

Private investment in rooftop solar in California has been extensive,<sup>4</sup> but unbuffered solar generation with no visibility to grid operators has led to the duck curve.<sup>5</sup> As discussed at more length in the MRC's initial comments in this proceeding,<sup>6</sup> microgrids, which have sufficient generation, storage and controls to operate as an islanded control area, can be flexibly dispatched, and are the solution, not the problem, for deploying renewable energy generation. The benefits that have driven rooftop solar are only increased in the microgrid context. Microgrids give customers the opportunity to optimize across load control and building management, energy imports and self-generation, electric and thermal energy, alternative fuels, and use of thermal and electric storage. They allow customers and communities to meet their own ambitious decarbonization goals.

Most important for this proceeding, Microgrids provide resilience at the level that really matters – local communities. Local communities and institutions are the best judges of the critical loads that they need to secure to keep their communities safe and productive, and microgrids are a principal means of securing them. Those benefits then also accrue to the larger

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<sup>2</sup> 2019 California Green Innovation Index (hereafter, "CGII 2019"), Next 10, *available at*, <https://www.next10.org/sites/default/files/2019-10/2019-california-green-innovation-index-final.pdf>

<sup>3</sup> The Deep Decarbonization Pathways Project for the United States estimates that to meet the goal of 80 percent reduction in carbon emissions by 2050, the United States will require investments of \$400 billion annually on building efficiency and \$600 billion annually on clean electric generation. *See*, James H. Williams et al., Energy and Environmental Economics, Inc. et al., US 2050 Report, Volume 2: Policy Implications of Deep Decarbonization in the United States 12 (2015) at 41-42. By contrast, 2017 annual United States investment levels were \$41 billion in energy efficiency and \$40.5 billion renewable electric generation and these amounts were level or falling nationally. *See* Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance, Global Trends in Renewable Energy Investment 2017, at 13 (2017), *available at*, <https://euagenda.eu/upload/publications/untitled-87074-ca.pdf>.

<sup>4</sup> CGII 2019, *supra* n. 2 at 53.

<sup>5</sup> California ISO, Fast Facts: What the Duck Curve Tells Us About Managing a Green Grid (2016).

<sup>6</sup> Comments of Microgrid Resources Coalition to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339, October 21, 2019 at 4.

grid. The National Academy of Science, Engineering and Medicine in its 2017 report on grid resilience<sup>7</sup> cited the following contributors to grid resilience:

- A networked system, smart metering and fiber optic communication.
- Utility scale battery storage.
- Strategically placed distributed energy resources that are visible and controllable.
- Improved inverter standards that allow renewable resources to provide ancillary services.
- System architecture that reduces the criticality of individual components needed to maintain grid functionality.
- Intelligent load shedding that permits reductions in load customer by customer<sup>8</sup> rather than radial by radial while preserving essential functioning.
- Adaptive islanding that permits individual microgrids and grid sub-regions to operate independently to reduce the impact of outages.<sup>9</sup>

Networked distribution systems with smart metering and local resource controls such as those provided by microgrids are more resilient. They can substantially reduce system restoration costs,<sup>10</sup> and reducing the size of critical components can realize savings on the costs of reserves. Intelligent load shedding (achievable in multiple ways by unified resource aggregations such as microgrids), and islanding can substantially reduce the costs of disruptions for both customers and the system.

## **2. Avoid Delay**

The MRC strongly recommends that the Commission conduct an integrated, focused proceeding that clears the way for customer and community investment before the next fire season. While some results of this proceeding may eventually be allocated to other tariffs, such as Rule 21, the tendency of urgent microgrid issues to get lost in other proceedings will be far too great, and consistent treatment of policy issues affecting microgrids will be a victim. We agree with Southern California Edison (“SCE”) that the sequencing should be driven by consideration of how to make microgrids operational in a “prompt, cost-effective and safe

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<sup>7</sup> 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-electricitysystem>. (hereinafter “NAS Report”).

<sup>8</sup> And internally for individual customers and microgrids.

<sup>9</sup> See, NAS Report at pp 73 – 82.

<sup>10</sup> NAS Report at 73-75.

manner,”<sup>11</sup> but, the filings received by the Commission to date contain a bewildering array of recommendations that, whatever their intentions, would obfuscate and delay. The MRC does not support pilot studies – private developers and technology providers for microgrids on the whole have more than the requisite experience and are ready to perform. We should not need elaborate studies to establish guidelines for resources that on the whole are more controlled and safer than other interconnected loads and resources. Microgrids offer circuit stabilization, not disruption and overloading. And, as discussed further below, we don’t need to develop a long list of “use cases.” Most of what the MRC proposes, and SB 1339 requires, is to eliminate barriers and create a level playing field for microgrids without subjecting them to additional study or indulging in unwarranted assumptions that they create special problems for the grid.

### **3. Microgrid Management**

While there are many flavors of microgrids, the MRC believes that this proceeding should focus on customer-operated microgrids – ones that are operated by or for the benefit of the customers or communities that sponsor them. “Utility microgrids” such as Borrego Springs<sup>12</sup> are clearly permitted by the statute, but they are governed by other utility code and tariff provisions. They are managed by the utility and if they avail themselves of third-party generation or storage assets, the services of those assets may be procured under other provisions of law such as Assembly Bill 2838<sup>13</sup>. The only reason to require an interconnection study for a microgrid is because generation and other assets under non-utility control will be interacting with the grid. There is no required interconnection study for a utility microgrid because it is essentially a part of the grid.

There are as many “use-cases” as there are microgrids, but the MRC believes that there is only one critical distinction that needs to be made among customer-operated microgrids. They may be “self-contained” microgrids that use their own distribution system and infrastructure, or “hybrid” microgrids that use some utility wires and/or other infrastructure. In either case, a non-utility operator manages the microgrid for the benefit of included load using included

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<sup>11</sup> Comments of SCE to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339, October 21, 2019 at p. 5.

<sup>12</sup> See, Microgrids at Berkeley Labs: Borrego Springs, available at, <https://building-microgrid.lbl.gov/borrego-springs>

<sup>13</sup> See, D.17-04-039 in R.15-03-011 on Track 2 Energy Storage Issues, available at, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M185/K070/185070054.PDF>

generation, storage, and control resources and only provides direct grid services in response to competitive markets or procurements (e.g. energy and other products to California Independent System Operator or Community Choice Aggregators, or distribution support solutions contracts with utilities). The principal reason for customers, communities, third party vendors and third-party financiers to invest in these microgrids is because of the value that they create for the microgrid customers (whether financial or otherwise) in distinction to the grid. Enabling investment in microgrids that can provide advanced grid services, also allows ratepayers to benefit from those microgrids by purchasing their services while avoiding bearing the full cost of their construction.

Relationships among microgrid participants behind the point(s) of common coupling with the grid are typically governed by contracts among the participating customers and the microgrid operator. While the microgrid tariff should govern the delivery of energy from the grid to the microgrid operator, no tariffs or performance standards should be imposed on the relationships between the operator (if different) and the customers. That is generally a matter for private negotiation, much as with a typical solar power purchase agreement between a third-party vendor and a homeowner, and such contracts will often involve performance standards that are significantly more stringent than those imposed on utilities.<sup>14</sup> No tariffs, performance standards, or rate regulation should be imposed on these relationships, and their imposition can only become a barrier to deployment.

The Commission should provide tariff guidance on payments to utilities for utility wires and other assets included within a hybrid customer-operated microgrid. The guidance should avoid cost shifting and be based on the use of the included assets to distribute internal microgrid resource generation.<sup>15</sup> Microgrid imports of electricity should bear the same wires charges as sales to other similarly situated customers.

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<sup>14</sup> For microgrids that include residential customers and small businesses, the MRC supports consumer protection in the form of mandatory disclosure of terms and consequences of microgrid participation.

<sup>15</sup> There is no need to distinguish between island mode and grid tied mode. The use is for internal generation in either case.

#### 4. Cost Shifting and Equity

The statute requires and the MRC agrees that there should not be unnecessary cost shifting.<sup>16</sup> A number of respondents raise this issue without much definition. With the exception of a handful of specific suggestions for possible tariff subsidies, the MRC proposals do not involve cost shifting to the grid.<sup>17</sup> The basic MRC proposals do not call for utility investment, do assume that microgrids will pay all direct costs of interconnection, and further assume that microgrids will generally provide services to the grid at competitive rates. They involve no direct cost shifting to the microgrid, and to the extent that microgrids provide benefits to the grid in increased resilience, advanced or low-cost products and services, they actually shift costs to the microgrid customers and away from the grid.

Two kinds of concerns are sometimes raised regarding the possibility of indirect cost shifting. The first is that by partially deserting the grid microgrid customers are leaving other customers holding the bag for utility costs. The MRC's initial comments in this proceeding addresses the regressive departing load charge.<sup>18</sup> Microgrids are not imposing costs on utilities that have not already been imposed by state policies. Instead they are reducing the burden of implementing state policies by making investments that reduce the costs to other customers. Moreover, microgrids can provide customized distribution support services to their utilities, standardized products to CAISO, and resiliency services to their communities. This value stack significantly outweighs the impact of any potential reduction in load.<sup>19</sup>

The second concern is one that has often been levelled at residential rooftop solar: wealthy folks will have it and low-income folks will not. The MRC shares this concern. It is one reason why we strongly support the role of communities in identifying their resilience needs and providing for critical facilities that support the entire community. It is also why hybrid microgrids that are developed by and for local communities in partnership with utilities can make a major contribution.

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<sup>16</sup> Ca. Pub. Util. Code § 8371(b)

<sup>17</sup> Comments of Microgrid Resources Coalition to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339, October 21, 2019 at 7.

<sup>18</sup> Id. at 5.

<sup>19</sup> As an example, MRC member Princeton University operates a microgrid that helps to serve campus load of around 28 MW. It faces time of use rates for imported electricity. It imports more electricity than it did before it installed co-generation and solar, but predominately at off-peak hours when grid prices are below its marginal cost to generate. During system peak load events, it reduces its imports to below 1 MW.



The state, of course, already offers several programs to ensure that lower-income residents can install batteries, solar panels, and other resilient technologies. For example, the most recent Commission order relating to the Self-Generation Incentive Program allocated over \$100 million to the equity budget for this exact purpose.<sup>20</sup> Innovative programs such as the Multi-family Affordable Solar Housing and Solar on Multi-Family Affordable Housing programs add additional resources to make these clean options available. Finally, the ARB, the California Energy Commission, and local air districts provide incentives to replace heavily polluting technologies with cleaner alternatives that are the building blocks of microgrids. Finally, the MRC specifically recommends redirection of SGIP funds toward microgrids and the implementation of tariff payments intended to support microgrids serving at-risk areas including economic and environmental justice communities.

## **5. The Role of the Grid**

A number of respondents suggest imposing reliability standards on microgrids. This suggestion is misplaced. During grid tied operation reliability of the grid remains the responsibility of the grid operator and the utilities. The microgrid is not operating as a balancing authority when grid tied. The microgrid operator is responsible for the safe, continued operation of microgrid-owned infrastructure behind the point(s) of common coupling, and balancing operations in island mode. As discussed above, those responsibilities are defined by contract (or are self-managed in the case of an owner-operator). To the extent that a microgrid's services are contracted to the grid through a market or utility procurement, it must deliver services as obligated under applicable tariff arrangements or suffer the same consequences as any other grid supplier.

## **6. Let Technology Evolve**

Under environmental standards included in SB 1339,<sup>21</sup> separate rates and tariffs developed by the Commission for utilities 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

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<sup>20</sup> D. 19-09-027 in R. 12-11-005 Establishing A Self-Generation Incentive Program Equity Resiliency Budget, Modifying Existing Equity Budget Incentives, Approving Carry-Over of Accumulated Unspent Funds, and Approving \$10 Million to Support the San Joaquin Valley Disadvantaged Community Pilot Projects, September 12, 2019, *available at*, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M313/K975/313975481.PDF>

<sup>21</sup> Ca. Pub. Util. Code §8371(d)

41514.1 of the Health and Safety Code, or except for natural gas generation that is a distributed energy resource.” With a few exceptions outlined in our initial filing,<sup>22</sup> the MRC is not suggesting special tariffs to compensate microgrids. We only suggest that Microgrids have the same access to markets as any other resource (to do otherwise would create a new barrier). We also suggest requiring all microgrids to advance California decarbonization goals as outlined in our earlier filing. Provided they meet the performance and emissions standards, the choice of fuels (like the choice of technology) should be left to customers, communities and their technology providers. Longer-term resilience imposes operating requirements that cannot currently be met entirely with intermittent renewables, storage and existing sources of biofuels, but this will change. Microgrids are not set in stone. They include multiple technologies, and, if the experience of our members serves, they continue to evolve and improve over time. As new technologies emerge to reduce the need for fossil fuels, microgrids can be expected to incorporate them.

## **7. A Networked Grid**

We strongly support one element of Pacific Gas & Electric’s filing – its efforts to modularize its grid.<sup>23</sup> A grid that can be reconfigured to take advantage of local resources and isolate at-risk infrastructure will bring grid-scale resilience. On the other hand, we are perplexed by some of the details. A modular grid should take advantage of included local generation, especially generation in visible, manageable microgrids, rather than on temporary diesel generation. The California Air Resources Board estimates that operating an uncontrolled one-megawatt diesel engine for only 250 hours per year results in a 50 percent increase in cancer risk to residents within one city block.<sup>24</sup> A modular grid should deploy distributed semiautonomous interconnections (e.g. distributed energy resource management systems or “DERMS”) that can be reconfigured in flexible ways to accommodate varied circumstances. On the other hand, we see no reason to encourage never-connected remote microgrids unless the cost of connection is somehow not justified. Only by being connected can microgrids support the modular grid.

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<sup>22</sup> Comments of Microgrid Resources Coalition to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339, October 21, 2019 at 11-12.

<sup>23</sup> Comments of Pacific Gas and Electric to Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339, October 21, 2019 at 2.

<sup>24</sup> See, *Do You Really Need a Diesel Generator?*, Santa Barbara County Air Pollution Control District, *available at*, <https://www.ourair.org/do-you-really-need-a-diesel-generator>

**8. Conclusion**

The MRC thanks the Commission for the opportunity to provide reply comments in this proceeding. We look forward to the continued dialog as the Commission moves forward.

Respectfully submitted,

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