

**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 19, 2019)

**COMMENTS OF MICROGRID RESOURCES COALITION TO ORDER
INSTITUTING RULEMAKING REGARDING MICROGIRDS PURSUANT
TO SENATE BILL 1339**

C. Baird Brown
eco(n)law LLC
230 S. Broad Street
Philadelphia, PA 19102
p. 215-586-6615
m. 267-231-2310
baird@eco-n-law.net

Christopher B. Berendt
Drinker Biddle & Reath LLP
1500 K Street, N.W.
Washington, DC 20005-1209

Attorneys for
Microgrid Resources Coalition

October 21, 2019

**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 19, 2019)

**COMMENTS OF MICROGRID RESOURCES COALITION TO ORDER
INSTITUTING RULEMAKING REGARDING MICROGRIDS PURSUANT
TO SENATE BILL 1339**

Summary

The Microgrid Resources Coalition (“MRC”) respectfully files its comments on the Preliminary Scoping Memo issued as a part of the California Public Utility Commission (the “Commission”) Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 (the “OIR”) in the above captioned proceeding. The MRC applauds the Commission’s efforts to eliminate microgrid barriers and encourage microgrid development through a stakeholder process. However, the proposed extended timetable for the proceeding is clearly inadequate in the wake of last year’s devastating fires and this month’s mismanaged blackouts. We strongly suggest that the Commission move forward to eliminate the most egregious barriers to microgrid deployment on an expedited basis with the goal that new microgrids can be up and running before the next fire season.

In our view the most urgent of these actions are:

- Elimination of departing load charges.
- Reduction of standby charges to a simplified and clearly defensible minimum.

- Streamlining of microgrid interconnection.
- Reallocation of Small Generator Incentive Program (“SGIP”) funding.¹

We believe that these actions, together with additional scoping suggestions below, can both substantially increase the resilience of California communities and the larger grid, and assist in meeting California’s decarbonization goals. In particular we call for a reevaluation of the role of natural gas in California’s overall resilience strategy. Efficient, locally sited natural gas generation is, at present, a key to achieving resilience in long-term outages and can serve to anchor microgrids that incorporate within them, and enable around them, increasing amounts of renewable generation.

1. Background

The MRC is a consortium of leading microgrid owners, operators, developers, suppliers, and investors formed to advance microgrids through advocacy for laws, regulations and tariffs that support their access to markets, compensate them for their services, and provide a level playing field for their deployment and operations. In pursuing this objective, the MRC intends to remain neutral as to the technology deployed in microgrids and the ownership of the assets that form a microgrid. The MRC’s members are actively engaged in developing microgrids in many regions of the United States including several who are actively engaged in microgrid development in California.² MRC members have also been operating sophisticated microgrids over an extended period of time (some for over 30 years). They are at the cutting edge of microgrid technology.

The MRC strongly supports the appropriateness of the proceeding. California has praiseworthy, aggressive goals for reducing greenhouse gas emissions as well as strong goals for increasing the resilience of the communities served by the grid. Microgrids should be viewed as a principal mechanism for achieving both goals. In particular meeting California’s goals will require substantial increases in the level of investment in new technologies. Customers and

¹ Cal. Pub. Util. Code § 379.6

² 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.

communities and third-party service providers should be encouraged to invest. As discussed further below, these investments should reduce, not increase, costs to other ratepayers.

As the SB 1339 definition of microgrids accurately captures,³ the benefits of microgrids, both to their customers and to the grid, arise from their ability to act as a micro-control area. They provide resilience by shedding internal load and balancing remaining load with internal generation to operate as an island, providing resilience by keeping critical infrastructure in operation. And, as the events of the last two weeks have shown, critical infrastructure includes not only hospitals and police stations, but also home dialysis machines, refrigerators and communications equipment. Communities and customers must be the judges of what is critical.

The same ability to manage internal load and generation allows microgrids to balance variable renewable generation and to save money for their customers and the customers of the wider grid. Flexible generation, including microturbines, flow batteries and fuel cells, in concert with electric and thermal storage, can offset variability and midday peaking in renewable generation.⁴ Microgrids can co-optimize thermal and electric loads and water and fuel usage for internal savings and emissions reductions. Buildings can operate as thermal storage by precooling in the early morning, and a microgrid can use excess solar generation at noon in electric chillers to store chilled water and deliver air conditioning in the late afternoon. Electric utilities must optimize the electric grid for all customers and cannot operate to co-optimize across fuels and end-uses behind the meter.

When a microgrid sells services to the grid, it uses the same sophisticated controls to deliver specifically needed services, using equipment that has been funded largely for its ability to provide resilience and customers savings. It can offer services at competitive prices that help reduce the overall cost of operating the grid, providing benefits to all customers.

³ [A]n 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. Cal. Pub. Util. Code § 8370(d).

⁴ Additionally, microgrids are positioned to help meet future evening and nighttime electric vehicle demand.

2. Urgent Action for Resilience

The highest priority for this proceeding is to remove barriers that short circuit or impede investment planning for microgrids by customers and communities.

2.1. Remove Departing Load Charges

The Commission should reexamine the Power Charge Indifference Adjustment (PCIA) as applied to microgrids.⁵ The state of California has adopted ambitious goals for deployment of renewable energy and decarbonization, including renewable energy goals of 50 percent by 2026 and 100 percent by 2050 and carbon neutrality by 2045.⁶ Meeting these goals is expected to require electrification of much of the transportation sector, and electricity consumption is expected to grow substantially.⁷ Customer renewable energy installations are the solution not the problem. Some utility assets may be stranded by state policies, but customer adoption of microgrids is not the problem. Indeed, customers and communities that incur their own costs for microgrids that make progress toward state renewable energy goals are not burdening, but rather are supporting, other customers. Utilities should get credit toward their overall generation transition requirements for customer installed renewables, and microgrids that advance overall renewable goals should get credits, not charges.

The PCIA is a backward-looking charge, which assumes that utilities are entitled to operate as they have in the past. That flies in the face not only of the state's decarbonization goals but also the needs for investments in local resilience to adapt to embedded climate change. The policy of SB 1339 is to support microgrids to achieve resilience for all energy users. The MRC supports policies that assist utilities in transitioning to a new business model for the state's energy future, but the PCIA flies in the face of needed change.

⁵ Cal. Pub. Util. Code §§ 366.1 and 366.2. The commission has recently reviewed the PCIA as applicable to Community Choice Aggregations, but the MRC believes that microgrids present a substantially different case.

⁶ SB 32 expands upon AB 32 and requires the state to ensure that greenhouse gas emissions are reduced to 40% below 1990 levels by 2030, Cal. Health & Safety Code § 38566. SB 100 increased the renewable targets set under SB 350 to 50% by 2026 and 60% by 2030. The law also requires eligible renewable energy resources and zero-carbon resources to supply 100% of retail sales of electricity to California end-use customers by 2045, Cal. Pub. Util. Code §§ 399.11, 399.15, 399.30 and 454.53. Executive Order B-55-18, issued by Governor Jerry Brown, articulates a goal of economywide carbon neutrality no later than 2045.

⁷ See, e.g. Deep Decarbonization in a High Renewables Future: Updated Results from the California PATHWAYS Model, available at https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012-1.pdf

2.2. Reduce and Clarify Standby Charges

Under current regulations and utility tariffs, microgrids may be subject to a welter of conflicting rules regarding standby charges.⁸ Microgrids will typically include and unify multiple sources of generation and storage capability, some of which may be exempt from standby charges and others of which are not. Charges may be assessed on the full capacity of non-exempt resources and are within the discretion of the interconnecting utility. Microgrids not only will have multiple sources of generation but also internal load shedding capability and will operate within a seamless design range from zero imports to a seasonal level of maximum export, but typically at some net import level. Larger, more sophisticated microgrids that have access to external markets will typically prefer to face time-of-use prices. Utilities traditionally select conservative assumptions when evaluating the impacts of distributed energy resources on the larger grid during the interconnection process. Microgrids should not be evaluated in a worst-case scenario engineering review. It is highly unlikely that all of a microgrid's resources (load, generation, and storage) will be unavailable at a single time such that it must meet full internal load during peak system conditions with grid imports. The Commission should devise uniform rules for maximum charges based on the aggregate internal capabilities of the microgrid and on the extremely low likelihood that high levels of non-variable and storage-firmed distributed generation will be unavailable at a single time when that lack of availability is not caused by systemic failures on the grid.

2.3. Streamline and Simplify Interconnection

The Commission should establish simplified interconnection standards for Microgrids. Those standards should recognize the reduced risk to the grid achieved by the microgrid's internal controls and be based on the microgrid's expected range of imports and exports (if any). Assumptions that a microgrid with a broad range of capabilities somehow puts the grid at greater risk are not accurate in microgrid operating practice. Since the microgrid can be its own control area in island mode, it also has the ability to manage its load shape in concert with the needs of the grid and can generally manage internal variation in its own generation. Microgrids, like any

⁸ See, e.g. Pacific Gas & Electric Company Tariff Schedule S, Standby Service, available at, https://www.pge.com/tariffs/tm2/pdf/ELEC_SCHEDS_S.pdf

other grid-tied resource, must install metering and communications equipment necessary for any markets in which they participate. The MRC suggests that creating a new standard for microgrid interconnection be undertaken in this proceeding where it can be expedited.

The MRC supports the establishment of DC interconnection standards. Allowing microgrids to operate in DC from generation to storage to customer end use can be expected to be a substantial source of energy efficiency in the future.

2.4. Redirect SGIP

The SGIP program has been very successful in encouraging new investment in renewable energy and battery energy storage systems.⁹ The Commission should establish a strong preference for funding eligible resources that are included in microgrids.

3. A Level Playing Field

In addition to the urgent steps outlined above, the Commission should seek to remove multiple barriers that discourage implementation of microgrids. Item two of the Commission's proposed scope states: "Develop methods to reduce barriers for microgrid deployment, without shifting costs between ratepayers, pursuant to Section 8371(b)." This will often require revisiting rules that have outlived their original purposes, or which operate in unintended ways to frustrate state policy.

3.1. Freedom to build

The first priority should be removal of physical and financial impediments to microgrids that would otherwise attract private investment. At the very least this means that any individual customer and any currently permissible aggregation of customers should be able to form a microgrid that uses its own internal distribution wires. Ownership structures should not be a limit, and third-party developers should be encouraged.

Public Utility Code Section 218(b) places restrictions on the physical scope of microgrids. Amending this statute is beyond the direct power of the Commission, but the Commission should encourage the legislature to consider amending the code to allow microgrids

⁹ See generally, About the Self-Generation Incentive Plan, *available at*, <https://www.cpuc.ca.gov/General.aspx?id=11430>

to distribute power across property and lines and roads even if those properties are not adjacent wherever such arrangements prove economic. Micro electric co-operatives¹⁰ are a possible solution that the Commission can consider providing with regulatory support.

3.2. Open Markets

The second priority is to assure microgrids equal access to markets. This both assures the benefits of a competitive market to all grid customers as discussed above and helps attract private investment to microgrid projects. Microgrids must be permitted to participate in any RTO or utility market and to provide any product that they are technically capable of providing on the same basis as any other resource, whether directly or through aggregations. Microgrids themselves typically represent unified aggregations of energy capabilities including multiple generation resources, energy storage systems including both thermal and electric, and demand response capabilities that result from internal load shedding enabled by sophisticated controls. On the one hand they should be able to provide hybrid services that internally aggregate multiple capabilities. On the other hand, if a particular market is specific to, for example, battery energy storage systems, and a microgrid includes a battery system behind its meter, the battery system should be able to participate in that market so long as there is suitable metering to isolate the performance of the battery system.

This issue is of particular importance for microgrids that make use of natural gas. To support operation in island mode, microgrids need flexible resources that can balance variable renewable resources. While battery storage systems can play that role in a short-term outage, true long-term resilience currently requires more conventional resources. In Superstorm Sandy that caused power outages over much of the East Coast in 2012, backup generation apparently failed in a majority of cases,¹¹ while microgrids with regularly operated, highly efficient, gas-fired co-generation, such as the ones operated by MRC member Princeton University on its campus and one operated by MRC member Clearway Energy at the (unaffiliated) Princeton Medical Center continued operation successfully. In addition, while California currently meets

¹⁰ Cal. Corp. Code § 12310. Cal. Pub. Util. Code § 2776-2778.

¹¹ The causes were multiple. Some just broke due to poor maintenance or because they simply weren't designed to run at full load for a week. Some were flooded. Some had inadequate fuel supplies or their fuel supply was flooded.

aggregate reserve margins, it is at risk of shortages of ramping resources in late afternoon and early evening as solar resources not buffered by storage lose power and as EV charging grows.¹²

Modern co-generation is typically 80 percent efficient (or higher) in the use of fuel compared to a grid average of around 35 percent. Microgrids can and should be asked to contribute to meeting state decarbonization goals by incorporating renewables and operating with overall efficiency significantly greater than the grid. However, excluding microgrids that include gas-fired generation from markets for energy services defeats both the state's resilience goals and its decarbonization goals. Compensating microgrids in competitive markets does not "shift costs between ratepayers" as proscribed by Section 8371(b). Rather it reduces costs to ratepayers by benefitting from investments by customers and communities in microgrids.

3.3. Limits on Utility Competition

Section 7 of the scoping memo requires that the Commission: "Ensure that the actions taken by the Commission to fulfill the requirements of SB 1339 do not discourage or prohibit the development or ownership of a microgrid by an electrical corporation, pursuant to Section 8371.5."¹³ The MRC suggests below several new ways that utilities should be encouraged to engage with the creation of microgrids, and AB 2868¹⁴ already authorizes utilities to procure energy storage and other in-front-of-meter resources, which will permit utilities to develop microgrids that are enhancements of their distribution systems. What utilities cannot do is optimize across multiple energy sources and uses behind a point of common coupling on behalf of particular customers – activity that would inherently conflict with their duty to all customers. Many of the principal benefits of microgrids, including islanding to protect customer infrastructure, can only be achieved by operation by or on behalf of the customer. Moreover, utilities cannot use control of customer information or their existing relationship with customers to compete unfairly with third party providers of microgrid infrastructure and operation services.

¹² See, 2019 Summer Loads and Resource Assessments, California Independent System Operator, *available at*, <http://www.caiso.com/Documents/Briefing-2019-SummerLoads-Resources-Assessment-Report-May2019.pdf>
See also, Long-Run Resource Adequacy under deep decarbonization Pathways for California, Prepared for Calpine by Energy and Environmental Economics, *available at*, https://www.ethree.com/wp-content/uploads/2019/06/E3_Long_Run_Resource_Adequacy_CA_Deep-Decarbonization_Final.pdf, which concludes that natural gas-fired resources will be needed for flexible resource adequacy for at least the medium term.

¹³ Cal. Pub. Util. Code § 8371.5.

¹⁴ Cal, Pub. Util. Code §§ 2838.2 and 2838.3.

It is important that these existing limitations on utility commercial activity not be overridden in this proceeding and allowed to destroy the level playing field we hope to create.

4. New and Expanded Support for Microgrids

Leveling the playing field does not require any microgrid-specific subsidy or ratemaking. The aim should be to let customers and communities and their private third-party partners develop and invest in economically sound microgrids wherever they make sense. In this regard we don't believe that pilot projects are needed. The California Energy Commission has granted over \$50 million in funds to develop microgrid projects and has reported publicly on their success and value,¹⁵ and microgrids are in successful operation throughout the country. Several MRC members have operated microgrids for over 30 years.

To take full advantage of the resilience and decarbonization benefits of microgrids the MRC suggests that this proceeding explore several further approaches to encouraging microgrid development. These approaches include expanding existing markets for services from distributed energy resources such as microgrids and using tariffs to support projects in areas of particular need.

4.1. Distribution Support Services

We suggest expanding the ability of distributed resources to provide customized, location specific services to the grid. California's Integration Capacity Analysis (ICA) map, Distribution Investment Deferral Framework (DIDF) map, and Solar Photovoltaic and Renewable Auction Mechanism (PVRAM) map¹⁶ are available and continue to be updated to provide visibility into grid locations with needs where non-wires alternatives may increase grid efficiency and stability. Microgrids' ability to adjust their generation and load to shape their aggregate supply / demand profiles allow them to provide finely tuned services that meet specific grid needs beyond traditional demand response or ancillary services. Distribution support services can be delivered in response to real-time dispatch or market signals, but also pursuant to long-term contracts with

¹⁵ Pub. Util. Code § 379.6.

¹⁶ See e.g., PG&E Distribution-Resource Planning Data Portal, available at, https://www.pge.com/en_US/for-our-business-partners/distribution-resource-planning/distribution-resource-planning-data-portal.page

utilities. Distribution support services can be unique, customizable solutions to localized planning and operational challenges.

Distributed resources, including microgrids, could participate through utility RFPs. This proceeding should consider how to expedite and ensure the fairness and transparency of RFP processes¹⁷. SEIA has made useful proposals in this regard in the Federal Energy Regulatory Commission's PURPA improvement docket.¹⁸ DER developers should also be encouraged to submit unsolicited proposals for needed improvements identified in the mapping process that are subject to Commission approval. The Commission could either accept such proposals subject to its prudence review or suggest to the utility that the improvement be bid out. Long-term distribution support services agreements that result from either process will support financing of microgrids and other DER.¹⁹

4.2. Hybrid Microgrids

Utilities should be encouraged to participate in utility-private partnerships that create larger microgrids (or clusters of microgrids) such as those being developed in Humboldt and Goleta.²⁰ The utility can own wires, meters and other distribution level assets, and a microgrid operator will own or contract for generating assets and provide electric and, potentially, thermal services to customers. A microgrid tariff should establish how the utility is compensated for the services it provides to assure that neither the microgrid nor other customers are favored. Utilities should also be encouraged to invest in Distributed Energy Resources Management Systems that

¹⁷ Improved non-wires alternatives solutions are needed. This proceeding should consider how to expedite and ensure the fairness and transparency of those processes. Utility RFPs / RFOs, in use to date for wires alternatives, have proved to be onerous with little uptake. We encourage the Commission to create an improved RFP process, along with exploring other mechanisms.

¹⁸ See, Supplemental Comments of the Solar Energy Industries Association, filed in FERC Docket No. AD16-16, available at, <https://www.seia.org/sites/default/files/inline-files/SEIA%20Supplemental%20PURPA%20Comments%20and%20Counterproposal.pdf>

¹⁹ See, Va. Code § 33.2-1800 et seq. Virginia's Public Private Transportation Act, allows private developers to make unsolicited proposals to resolve transportation system issues identified in state and regional transportation plans. This statute permits but does not require that unsolicited projects be bid out before they are awarded, in the discretion of the relevant public planning agency. In the energy context, the Commission would either directly approve or give policy guidance on when a supplier would be permitted to proceed with a non-competitive procurement based on the ICA, DIDF and PVRAM maps and considering factors such as the quality of the proposal and the urgency of the need. Such proposals can be competitively bid or directly approved by the Commission if just and reasonable.

²⁰ See, The Redwood Coast Airport Renewable Energy Microgrid being installed at Humboldt County's Main Airport, available at, <https://redwoodenergy.org/community-choice-energy/about-community-choice/power-sources/airport-solar-microgrid/>, see also, <https://clean-coalition.org/community-microgrids/goleta-load-pocket/>.

integrate multiple microgrids into the grid, and allow them to support one another, and operate in concert, under both blue and black skies. This would be through normal utility investment processes.

4.3. Microgrid Tariffs

In addition to expanding markets for microgrid services this proceeding should consider specific tariff payments to support microgrids. There may also be generic support measures that can be considered such as redirecting SGIP funding as discussed above. However, the MRC suggests that this proceeding consider tariff support for microgrids in at least three specific instances:

- Microgrids that support critical facilities identified by local governments, and confirmed by the state office of emergency preparedness, could be compensated for their contribution to community resilience.
- Microgrids that serve environmental and economic justice areas or fire hazard zones should be encouraged so as to support at risk populations.²¹
- To generally encourage the spread of microgrids it may be appropriate to offer pro forma distribution support services agreements that compensate microgrids for their capability to go into island mode at utility direction for a specified number of hours annually. These would complement the locally customized distribution support service agreements discussed above.

5. Party Status

Pursuant to Section 7 of the Commission's order, and in accordance with Commission Rule 1.4(a)(2), we request that the MRC be made a party to the proceeding. Service of notices, orders, and other communications and correspondence in this proceeding should be directed to MRC's counsel at the address set forth below:

C. Baird Brown
eco(n)law LLC
230 S. Broad Street
Philadelphia, PA 19102

²¹ For low-income renters or homeowners, deploying back-up generation and solar+storage is often too expensive or restricted. A microgrid hosted by their development or community center may be their only refuge during a prolonged outage.

p. 215-586-6615
m. 267-231-2310
baird@eco-n-law.net
Counsel for Microgrid Resources Coalition

Electronic service is accepted and preferred.

6. Conclusion

The MRC thanks the Commission for the opportunity to provide comments on the scope of this proceeding. We look forward to engaging further with the stakeholder process as the Commission moves forward.

Respectfully submitted,
C. BAIRD BROWN
CHRISTOPHER B. BERENDT

By: /s/ C. Baird Brown

C. Baird Brown

Attorneys for
Microgrid Resources Coalition