

**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)

**OPENING COMMENTS OF THE CALIFORNIA HYDROGEN BUSINESS
COUNCIL ON THE ADMINISTRATIVE LAW JUDGE'S RULING
REQUESTING COMMENTS ON TRACK 1 MICROGRID AND
RESILIENCY STRATEGIES STAFF PROPOSAL**

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I. Introduction

In accordance with Rule 6.2 of the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), and the Administrative Law Judge’s ruling seeking comment from interested parties staff proposal titled, “Short-Term Actions to Accelerate the Deployment of Microgrids and Related Resiliency Solutions” (“Staff Proposal”) issued on January 21, 2020 in the above captioned proceeding, the California Hydrogen Business Council (CHBC)¹ welcomes the opportunity to provide the following comments.

II. Comments: Responses to Staff Proposal Questions

3.1. Prioritizing Interconnection Applications to Deliver Resiliency Services at Key Sites and Locations All Interconnection Proposals:

¹ The CHBC is comprised of over 100 companies and agencies involved in the business of hydrogen. Our mission is to advance the commercialization of hydrogen in the energy sector, including transportation, goods movement, and stationary power systems to reduce emissions and dependence on oil. The views expressed in these comments are those of the CHBC, and do not necessarily reflect the views of all of the individual CHBC member companies. CHBC Members are listed here: <https://www.californiahydrogen.org/aboutus/chbc-members/>

CHBC's comments on section 3.1. are limited to Questions 11 and 12. Please see below.

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

No comment.

- 2. Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language.**

No comment.

- 3. Is CPUC action required in order to implement any of the proposals? If so, what action would be most appropriate?**

No comment.

- 4. For proposals that require CPUC action, what standards are appropriate for PUC to use to determine whether the action is justified?**

No comment.

- 5. Should CPUC consider cost recovery for any of these proposals in this proceeding? For example, should CPUC consider cost recovery for additional IOU technical resources to support the intake, prioritizing, technical support, and processing of interconnection applications? Please discuss.**

No comment.

- 6. Are any changes to statute required to implement any of the proposals? If so, please state the Public Utilities Code section and propose language.**

No comment.

- 7. For each proposal,**

- a. Estimate the time required to implement the proposal;
and
- b. Estimate the IOU staff hours required to implement the proposal.

No comment.

8. For each proposal,
- i. Estimate how much the proposal would reduce the amount of time required for interconnection;
 - ii. State the population of project types (*e.g.*, net energy metering (NEM) solar > 30 kilowatt [kW], NEM-paired storage > 10 kW) that would benefit from this streamlining.

No comment.

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

No comment.

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

No comment.

Interconnection Proposal 1:

11. Are the three listed system types — (1) Rule 21 non-export storage, (2) NEM + Paired storage (Alternate Current [AC] Coupled and Direct Current [DC] coupled), and (3) NEM Solar — the most appropriate system types to consider in this proposal? Please justify the response.
- Beyond these three system types, should the utilities develop standardized single line diagrams for additional technologies or system types? If so, which technologies or system types should be prioritized and why?

Microgrid policy should clearly facilitate the pairing of multiple technologies (e.g. solar, battery, fuel cell, etc.) that already have Rule 21 compliant smart inverters under one program design. A diverse array of technologies will be able to complement one another to supply maximum resiliency. Solar and batteries alone lack the ability to provide the long duration storage and generation that will be required during multi-day planned or unplanned outages. Fuel cells, on the other hand, do have this capability. We also support an array of renewable and low carbon gas types being available for fuel cells in microgrids, as they all enable generation of zero criteria pollutant energy, and when biogas or zero carbon hydrogen are used, fuel cell energy also emits zero greenhouse gas. That said, we strongly encourage support for zero carbon pathways to power fuel cells as a major priority because only this will allow zero criteria emissions fuel cells to provide zero greenhouse gas emissions energy at mass scale. As the proposal is currently written, it is not clear whether electrolyzers that produce and store hydrogen will be an eligible technology type. SB 1369 mandates that hydrogen produced with renewable electricity (“green hydrogen”) be considered an eligible storage resource,² but it is not clear in the proposal language that any of the system types would allow green hydrogen to be included in microgrid development. We, therefore, request that any interconnection proposal adopted broadly include all technologies that meet CARB distributed generation standards,³ including electrolyzer and fuel cell technologies.

12. For each of the three system types described — (1) Rule 21 non-export storage, (2) NEM + Paired storage (AC Coupled and DC coupled), and (3) NEM Solar) — should a size limitation be placed on projects utilizing pre-approved single line diagrams? If so, what should it be and why?

Behind the meter technologies used for microgrids ought to be allowed to be sized to provide adequate capacity to supply consistent 24/7 energy for at least 7 days in the event of a PSPS or unplanned shutdown. Some regions in the state have already seen multi-week power shutdowns in the last couple years during wildfires, and multi-day

² See SB 1369, Sec. 3, 400.3 https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1369

³ See SB 1339, Sec. 2, Ch. 4.5, 8370 (b) https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1339

shutdowns have become all too common during PSPS. The financial, health, and other costs to citizens and businesses is staggering. Microgrid technologies should be allowed to size to accommodate additional loads with backup power to adequately address this serious problem without being disadvantaged by tariff and program storage limiting system size to annual loads that cannot accommodate emergency use demands

13. Which implementation option would be most effective and efficient for developing template single line diagrams? Please justify the response.

14. What is required in the template-based interconnection application process to ensure that developers are using IOU-approved equipment to avoid delays in the review process or after a project has been built?

Interconnection Proposal 2:

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

16. How should compliance be evaluated for Option 2?

17. Are there any circumstances that a field inspection should still be conducted by the IOUs even if it is duplicative of the local authority inspection?

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

Interconnection Proposal 3:

19. Should either Option 1 or Option 2 of Interconnection Proposal 3 be adopted, what criteria should be used to determine which key locations, facilities, and/or customers are prioritized in the interconnection process? When discussing, please refer to the following four sets of criteria previously published by the Commission

for similar purposes. If there is preference for modification or an alternative to these four sets of criteria, please explain and justify the recommendation.

- a. “Assigned Commissioner’s Scoping Memo and Ruling for Track 1” issued on December 20, 2019, in R.19-09-009 (“key sites and locations”);**
- b. D.19-05-042, Appendix A at A4 and Appendix C at C2 (definition of “critical facilities”);**
- c. D.19-09-027, Conclusions of Law (COL) 5-7, Attachment A at A1 (definition of customers with “critical resiliency needs” for purposes of incentive eligibility under the Self-Generation Incentive Program); and**
- d. Decision adopting Self-Generation Incentive Program revisions pursuant to SB 700 and other program changes (January 16, 2020); (mailed on December 11, 2019 in R.12-11-05, COL 17 modification to definition of customers with “critical resiliency needs”).**

20. Should either Option 1 or Option 2 of Interconnection Proposal 3 be adopted, what implementation challenges would likely need to be overcome? For each identified challenge, please suggest one or more possible paths forward.

21. Should either Option 1 or Option 2 of Interconnection Proposal 3 be adopted, please estimate the number of new, resiliency-focused projects that would enter the queue. What impact would this influx have on projects that are queued but not prioritized according to the criteria established in this proceeding? State the estimated impact in terms of delays (X days or X months) per project.

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

3.2. Modifying Existing Tariffs to Maximize Resiliency Benefits

The staff proposal is pursuant to SB 1339, which supports integrating “*a high concentration of distributed energy resources onto the grid.*”⁴ The law broadly defines distributed energy resources as “*an electric generation or storage technology that complies with the emissions standards adopted by the State Air Resources Board pursuant to the distributed generation certification program requirements of Section 94203 of Title 17 of the California Code of Regulations, or any successor regulation.*”⁵ The staff proposal, however, only recognizes solar and storage, rather than the full suite of distributed generation technologies. While solar and storage are very important solutions that we fully support for use in microgrids, in order to achieve the long duration generation that will be needed to supply reliable energy over multi-day outages, while still meeting emissions criteria, fuel cells also must be deployed. Fuel cell technologies in a microgrid setting can help diversify customer distributed generation options including baseload replacement, backup power and resiliency requirements. Fuel cells can be the right option for some microgrid customers and not others, but customer choice should be an important factor to be considered. It would also be helpful to clarify that the staff proposal definition of storage includes hydrogen, stated previously in these comments. Only with the full range of distributed generation technologies will California’s microgrid programs fully be able to achieve the resiliency and reliable energy for customers that is needed.

We believe the most effective way to make sure that all distributed generation resources have a chance to participate in microgrids is, rather than modifying existing tariffs, to design a microgrid tariff that:

- is technology and fuel agnostic.
- available only to technologies that meet the Air Resources Board’s Distributed Generation Certification Program emission standards, as required by the SB 1339 enabling statute.
- rewards projects that can power through planned and unplanned shutoff events of three days and longer.

⁴ SB 1339, Section 1(d)(4).

⁵ See SB 1339, Sec. 2, Ch. 4.5, 8370 (b) https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1339

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

- 1. Please indicate support of or opposition to the adoption of each proposal and justify the rationale. For the proposals that include implementation options, please indicate support of or opposition to each option and explain why.**
- 2. Are changes to any rate schedules or electric rules needed to implement any of the proposals? If so, which ones, and how do they need to be changed? Please propose specific language.**
- 3. Is CPUC action required in order to implement any of the proposals? If so, what action would be most appropriate?**
- 4. For proposals that require CPUC action, what standards should be used to determine whether action is justified?**
- 5. Should CPUC consider cost recovery for any of these proposals in this proceeding? For example, should CPUC consider cost recovery for additional IOU technical resources to support the intake, prioritizing, technical support, and processing of local government resilience projects? Please discuss.**
- 6. How long would it take to recruit, hire and train additional IOU resources to staff the dedicated IOU team for local government projects referenced in Proposal 3?**
- 7. What data from the list in Proposal 5 and Appendix 4.4 is essential for microgrid development? Please list the line numbers of data from the text of Proposal 5 as well as the line numbers of individual data points from Appendix 4.4 in response. Please indicate whether the response reflects the data that is needed for the development of a microgrid that is behind the customer meter or in front of the customer meter.**

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

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

3.4.1. All Investor Owned Utility Proposals

- 1. Please indicate support of or opposition to each proposal and explain the rationale. In response, please clearly distinguish between the action proposed and the cost recovery mechanisms proposed, if any.**
- 2. Is CPUC approval required in order to implement any of the proposals?**

No, but the Commission can enable the accelerated installation of microgrids by creating a microgrid tariff that is open to all technologies that meet CARB's distributed generation criteria.
- 3. For proposals that require CPUC approval, what standards should be used to determine whether approval is justified?**

4. For proposals that require CPUC approval, was sufficient information provided? If not, please describe what additional information is needed. Examples of possible additional information are provided below. Indicate whether the below information is necessary and why or why not. Please add any additional information that should be considered and why.

- a. Explanation of the criteria and reasoning for determining how to prioritize the locations and/or customers to be served (*e.g.*, frequency of PSPS events or number of customers); and**
- b. Costs and impacts of alternative approaches to achieving the goal of the proposal (*e.g.*, reducing the impacts of PSPS outages) that were considered and rejected, such as alternative technologies or fuels, infrastructure hardening, distribution or transmission system sectionalization.**

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

We encourage the Commission to also consider demonstration projects that incorporate hydrogen fuel cells to provide power during planned and unplanned shutdowns for essential services, such as hospitals (critical and senior care facilities), communication centers (cell service towers), community centers, traffic lights, emergency services including police, ambulance and firefighting. Fuel cells are highly modular, reliable, and the only non-combustion, geographically flexible distributed generation technology that can supply 24/7 energy for up to 356 days a year. It is important to start demonstrating this solution today in California, in order to integrate achievement of clean air, clean energy and climate goals, along with resiliency. Many microgrids that use hydrogen technology are in operation today, such as the Massachusetts Clean Energy project that

integrates renewable power-based hydrogen storage into its microgrid system,⁶ and the Dunsfold Park microgrid project in the UK, which includes a 1.5 MW hydrogen fuel cell microgrid, using renewable hydrogen sourced from bioenergy, that is capable of powering 2500 homes.⁷ California should also become a frontrunner in demonstrating this cutting edge and critical solution.

3.4.2. Proposals Regarding Emergency Temporary Generation

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

In order to ensure that microgrids are not adding to health hazards in communities, the Commission ought to require microgrid proposals to conduct Health Risk Assessments (HRAs) an air monitoring/reporting in coordination with local air districts. It is essential that the state not solve one problem of power outages, while creating or exacerbating another with the solution, such as creating more air pollution, for example, by combusting fuels that emit toxics and/or criteria air pollutants.

- 2. If the CPUC should require monitoring and reporting of air quality, sound, odor, and/or health effects during operation of emergency backup power, please comment on how such information would further the public interest. For example, could it be used to mitigate future impacts or establish limits?**

Several regions in the state already are failing to attain state and federal air quality standards, putting them out of compliance with law and putting many communities at risk of illness and premature death. Most hard hit are disadvantaged communities that suffer cumulative impacts from toxic and polluting sources and also lack adequate resources to

⁶ http://verdellc.com/Main_Press/press_solar40.html

⁷ <https://www.dunsfoldpark.com/news/afc-energy-commences-feed-on-landmark-hydrogen-fuel-cell-micro-grid-in-surrey-at-dunsfold-park.html>

protect themselves and address illness when it occurs. Air monitoring and reporting of air quality, sound, odor and/or health effects should certainly be implemented to mitigate future impacts and establish limits, although we also encourage designing microgrid regulations to encourage deployment of technologies that are proven to be zero emissions, such as hydrogen fuel cells, which can lessen the need to monitor, along with the associated expense.


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

IV. Conclusion

The CHBC thanks the Commission for the opportunity to comment on the Staff Proposal and looks forward to working with you on understanding how hydrogen electrolyzer and fuel cell

technologies can be deployed in microgrids to improve resiliency in California, while protecting the air and the climate.

Respectfully,

A handwritten signature in blue ink, appearing to read "Emanuel Wagner", with a long horizontal flourish extending to the right.

Emanuel Wagner

Deputy Director

California Hydrogen Business Council

Dated: January 30, 2020