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OPENING COMMENTS OF THE PUBLIC ADVOCATES OFFICE ONTHE ORDER INSTIUTING RULEMAKING REGARDING MICROGRIDS PURSUANT TO SENATE BILL 1339

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I. INTRODUCTION

Pursuant to the California Public Utilities Commission's (Commission) *Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339* (OIR) issued on September 12, 2019, the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) submits these comments on the OIR and Preliminary Scoping Memo. The purpose of this OIR is to, " . . . facilitate the commercialization of microgrids for distributed customers of large electrical corporations . . . by developing standards, protocols, guidelines, methods, rates, and tariffs that serve to support and reduce barriers to microgrid deployment while prioritizing system, public, and worker safety, and avoiding shifting costs between ratepayers."[1] The Public Advocates Office organizes its comments according to the Commission's four topics listed under the Invitation to Comment on Preliminary Scoping Memo. Those topics are to determine "1) the appropriateness (or lack thereof) of issues included in the preliminary scope, 2) whether there are additional issues that should be included in the preliminary scope, 3) the appropriate prioritization or sequencing of topics, and 4) specific issues underway in other Commission proceedings that require coordination with this OIR."[2]

1. The Appropriateness (or Lack Thereof) of Issues in the Preliminary Scope

The preliminary scoping memo does not clearly follow the language of Senate Bill (SB) 1339[3] regarding cost shifting between customers. The Public Advocates Office, therefore, recommends that the Commission should refine Issue 4 identified in this OIR[4] to clearly state that separate rates and tariffs developed to support microgrids shall not shift costs between ratepayers, as directed by California Public Utilities Code Section 8371(d)[5] and SB 1339. Second, the Commission should interpret the legislative prohibition on "shifting costs between ratepayers" to include a prohibition against "shifting costs between microgrid and non-microgrid

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[1] *Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339*, September 12, 2019 (OIR) p. 2. A "large electrical corporation" is an electrical corporation with more than 100,000 service connections in California. California Public Utilities Code (Pub Section 8370(c).

[2] OIR, p. 8.

[3] Senate Bill 1339 (Stern), Stats. 2018, Ch. 566, Sec. 1.

[4] OIR, pg. 7. There are eleven issues listed in the OIR and Issue 4 is on p. 7.

[5] "Without shifting costs between ratepayers, develop separate large electrical corporation rates and tariffs, as necessary, to support microgrids, while ensuring that system, public, and worker safety are given the highest priority." Pub. Util. Code Section 8371 (d).

customers." In other words, those who do not elect to participate in a microgrid should not subsidize microgrid adoption.

2. Additional Issues That Should be Included in the Preliminary Scope

The Public Advocates Office generally supports the Preliminary Scoping Memo issues identified in this OIR and recommends additional issues for consideration in this proceeding, including:

(1) The Commission should evaluate the potential long-term benefits of microgrids and develop a commercialization program only for those use cases[6] that are expected to meet California's legislative and policy goals cost-effectively over the long-term.

(2) The Commission should uphold its policy to reduce reliance on fossil fuel generators for back-up generation. In addition, the Commission should prohibit ratepayer funded incentives for the use of fossil fuel generators used in microgrids that participate in any program or tariff developed in this proceeding.

(3) The OIR should develop emergency operations standards and public safety standards for microgrids.[7]

3. The Appropriate Prioritization or Sequencing of Topics

The Public Advocates Office recommends that this proceeding be administered in the following three sequential phases:

- Phase 1: Review California's Experiences with Microgrids to Avoid Duplicative Research and Establish Use Cases for Microgrids.
- Phase 2: Identify and Develop Standards and Methods to Reduce Barriers Without Shifting Costs Between Ratepayers.
- Phase 3: Develop Appropriate Microgrid Standards, Programs, Rules, Rates, and Tariffs.

4. Other Commission Proceedings that Require Coordination with this Proceeding

To avoid duplication, this OIR should coordinate with other open proceedings in the following manner:

- To assess the grid services that a microgrid can provide, this OIR should coordinate with the following Rulemaking proceedings: Integrated Resource

[6] The Public Advocates Office uses the term "use case" to refer to a specific application of microgrids that accomplishes a specific goal.

[7] "Without shifting costs between ratepayers, develop separate large electrical corporation rates and tariffs, as necessary, to support microgrids, while ensuring that system, public, and worker safety are given the highest priority." Pub. Util. Code Section 8371 (d).

Plan (IRP),[8] Distribution Resource Plan (DRP),[9] and Integrated Distributed Energy Resource (IDER) Proceeding.[10]

- To develop emergency operations standards, this OIR should coordinate with the relevant General Rate Case (GRC) Proceedings and the Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions (De-Energization proceeding).[11]
- To optimize the use of battery storage resources (including the definition of microgrids cited in the OIR)[12] this OIR should incorporate the eleven rules adopted by the Commission in D.18-01-003 that govern the multi-use applications of energy storage and "promote the ability of storage resources to realize their full economic value."[13]

II. BACKGROUND

The Commission opened this OIR to "fulfill the legislative intent and requirements as set forth in Senate Bill (SB) 1339; as well as to develop a new framework ... to enable microgrids to fulfill state policy goals consistent with the Commission's core responsibilities."[14] More specifically, this OIR focuses on developing standards, protocols, guidelines, methods, rates, and tariffs that serve to support and reduce barriers to microgrid deployment while prioritizing system, public, and worker safety, and avoiding shifting costs between ratepayers.[15]

SB 1339 added California Public Utilities Code Sections 8370, 8371, and 8372,[16] requiring the Commission to develop regulations to facilitate the commercialization of microgrids. SB 1339 defines a microgrid as,

> "… 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 in parallel with, larger

[8] Rulemaking (R.) 16-02-007.

[9] R.14-08-013.

[10] R.14-10-003.

[11] R.18-12-005.

[12] OIR, p. 1.

[13] R.15-03-011, Decision (D.) 18-01-003, *Decision on Multiple-Use Application Issues*, p. 1.

[14] OIR, p. 5.

[15] OIR, p. 2

[16] "Section" hereafter refers to the California Public Utilities Code.

portions of the electrical grid, or can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure." [17]

Microgrid commercial activity is still in its early phases,[18] and there are no specific California regulatory directives requiring microgrids to be used by California utilities or the California Independent System Operator (CAISO). However, as is discussed in Section III.3.a. of these comments, there has been significant work on the part of California's regulatory agencies to investigate the potential of microgrids.

III. DISCUSSION

1. The Appropriateness (or Lack Thereof) of Issues in the Preliminary Scope.

The Public Advocates Office supports the preliminary proceeding scope identified in the OIR. However, the Commission should amend Issue 4 in the OIR to make clear that the separate rates and tariffs developed to support microgrids shall not shift costs between ratepayers. More specifically, the Commission should clearly interpret "between ratepayers" as used in section 8371(d) as meaning "between microgrid and non-microgrid customers."

Specifically, section 8371(d) directs the Commission to, "*[w]ithout shifting costs between ratepayers*, develop separate large electrical corporation rates and tariffs, as necessary, to support microgrids, while ensuring that system, public, and worker safety are given the highest priority."[19] Similarly, Section 8371(b) directs the Commission to "*[w]ithout shifting costs between ratepayers*, develop methods to reduce barriers for microgrid deployment."[20] However, the corresponding issues on new rates and tariffs in the OIR omit the "*[w]ithout shifting costs between ratepayers*" language, and replace it with "[d]evelop separate rates and tariffs, *that are just and reasonable*, to support microgrids, pursuant to Section 8371(d)."[21] While it is prudent to ensure that any rate and tariff developed is just and reasonable, in order to comply with Section 8371(d) the OIR should be revised to make clear that this must be done "without shifting costs between ratepayers."

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[17] Pub. Util. Code Section 8371(d).

[18] "Microgrid activity is still nascent, and prior to the passage of SB 1339, was not the subject of direct policy guidance by the California Legislature." OIR, p. 2.

[19] Pub. Util. Code Section 8371(d). (emphasis added).

[20] Pub. Util. Code Section 8371(b). (emphasis added).

[21] OIR, p. 7. (emphasis added).

Furthermore, because the statute does not specify which ratepayers should costs not shift to and from, the Public Advocates Office recommends that the Commission specifically prohibit shifting costs between microgrid and non-microgrid customers. This interpretation is in accordance with the rules of statutory interpretation.[22] In addition to Section 8371, SB 1339 codified Public Utilities Code Section 8372. Section 8372 requires local publicly owned electric utilities to also advance the commercialization of microgrids without shifting costs between ratepayers.[23] The decision of a customer or group of customers to develop, interconnect, and operate a microgrid should not increase the amount of recoverable costs that utilities must collect from ratepayers who cannot, or choose not to, develop or participate in a microgrid.

This OIR defines a microgrid as "[A]n interconnected system of loads and energy resources…*within a clearly defined electrical boundary*…and can connect to, disconnect from…larger portion of the electrical grid."[24] By this definition, a microgrid can primarily only supply energy directly to the ratepayers that are connected to it. If microgrid rates and tariffs developed in this proceeding are not carefully designed to avoid shifting costs, non-microgrid customers could be negatively impacted. If a new microgrid enables those directly connected ratepayers to dramatically lower their electricity costs by offsetting their own consumption, either by receiving bill credits for exported electricity or by a similar method, there is a risk that the cost of grid maintenance could increase for ratepayers without microgrids.[25] While microgrids are potentially capable of providing services that give value to the grid at large, those services must be accurately valued and balanced against the cost of integrating microgrids into the distribution system. It is premature to detail the entirety of what a microgrid tariff should accomplish. Therefore, the Public Advocates Offices recommends that all policy, tariff, and rate

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[22]"… we look to the entire substance of the statutes in order to determine their scope and purposes. That is, we construe the words in question in context, keeping in mind the statutes' nature and obvious purposes. We must harmonize the various parts of the enactments by considering them in the context of the statutory framework as a whole." New Cingular Wireless PCS, LLC v. Public Utilities Com. (2016) 246 Cal.App.4th 784, 795, citing to People v. Cole (2006) 38 Cal.4th 964, 974–975.

[23] The governing board shall ensure the microgrid rates and charges do not shift costs to, or from, a microgrid customer or non-microgrid customer, and shall ensure each microgrid and its components comply with the local publicly owned electric utility's applicable regulatory requirements. Public Utilities Code Section 8372 (b).

[24] OIR, p. 1. (emphasis added).

[25] The Commission has addressed this risk in the cost in the context of Net Energy Metering (NEM). See the ongoing NEM Rulemaking, R.14-07-002.

development in this OIR be predicated upon not shifting costs from customers who directly benefit from microgrids and those who do not. This is necessary to comply with the ratepayer protection provision in Section 8371(d), because "just and reasonable" as a standard for rate and tariff design does not by itself necessarily prevent cost-shifting.

2. Additional Issues That Should be Included in the Preliminary Scope.

The Public Advocates Office recommends the following additional issues identified below for consideration in this proceeding.

a. The Commission Should Evaluate the Potential Long-Term Benefits of Microgrids in Light of Their Long Term Cost Effectiveness.

SB 1339 includes key issues facing the commercialization of microgrids, including how microgrids operate and their value, how microgrids improve the electrical grid, and how microgrids can support California's efforts to integrate a high concentration of distributed energy resources (DERs) on the electrical grid.[26] The OIR indicates that the scope of the proceeding may be extended to include microgrid programs, rules, and rates that will help accomplish the state's broader policy goals. For example, the OIR listed state policy goals in which it believes microgrids may play a role, including: (1) reducing greenhouse gas emissions; (2) adapting to the impacts of a changing climate; and (3) protecting the health and safety of California residents during catastrophic events.[27]

It is not evident if or how microgrids can play a role in accomplishing each of these policy goals, nor has it been established that microgrids, if they can help accomplish these goals, are the most efficient and cost-effective way to do so. As discussed in section III.3 of these comments, the first steps in this proceeding should be to identify how microgrids can be used to meet public interest electric utility sector needs over the long-term, determine if other more effective and lower cost means are available to meet those needs, and to develop a commercialization program that is based on a comprehensive evaluation of the long-term impacts that potential microgrid use cases will have on the entire grid.

b. The Commission Should Uphold Its Policy to Prohibit the Use of Fossil Fuel for Microgrids.

[26] Pub. Util. Code Section 8371.

[27] OIR, p. 2.

The Commission has a long-standing policy of transitioning away from fossil fuels, including diesel backup generators and natural gas-powered generation, to achieve a grid with more than 60 percent of its electricity from renewable resources by 2030.[28] While SB 1339 does not expressly prohibit the use of fossil fuels for generators serving microgrids, allowing the use of fossil fuel generators within microgrids contravenes State and Commission goals to reduce greenhouse gas emissions.[29] The Commission adopted several policies and measures to achieve California's emissions goals. For example, in September 2016, the Commission adopted Decision (D.)14-12-056[30] which prohibits the investor-owned utilities (IOUs) from using the following list of resources to reduce their load during demand response (DR) events.

- Distributed generation technologies using diesel
- Natural gas
- Gasoline
- Propane
- Liquefied petroleum gas

Relatedly, section 769(a) defines distributed resources as renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies. The Commission should continue this established policy and ensure that separate rates and tariffs not compensate a customer for the use of diesel backup or natural gas generation, consistent with Resolution E-4906.[31] To discourage the continued use of fossil fuels in commercial microgrids, the Commission should ensure that microgrid rates and tariffs do not compensate a microgrid owner or developer for generation using fossil fuels.

In the early stages of commercialization, the Public Advocates Office is open to allowing the inclusion of the resources listed in D.14-12-056 if they are needed by the customer to meet emergency operations standards (see Section III.2.c.) developed in this OIR (such as the

[28] Microgrid Roadmap, p. 3.

[29] OIR, p. 2.

[30] D.16-09-056, *Decision Adopting Guidance for Future Demand Response Portfolios and Modifying Decision 14-12-024*, September 29, 2016, issued in R.13-09-01.

[31] Resolution E-4906, Approval, with modifications, of Southern California Edison Company's, Pacific Gas and Electric Company's, and San Diego Gas & Electric Company's prohibited resources restrictions for demand response programs as directed in Resolution E-4838, and associated Verification Plan, p.7.

requirement to island for a certain number of hours). If existing technologies are currently unable to meet such standards, then the use of non-renewable resources could be permitted in a short-term, prescribed manner to allow for necessary microgrid technological developments.

c. The OIR Should Develop Emergency Operations Standards and Public Safety Standards for Microgrids.

Islanding[32] in the event of an emergency or blackout is described in the OIR as one of the "[b]roader state policy goals in which microgrids may play a role."[33] It will allow microgrids to assist in "adapting to the impacts of a changing climate"[34] and "protecting the health, safety, and lives of California residents during catastrophic events, such as wildfires, floods, earthquakes, extreme weather, or cyber-attacks."[35]

Existing research on microgrids supports the case that microgrids may be well suited to provide emergency services. A Commission report entitled *Microgrids: A Regulatory Perspective* describes efforts by New York, Connecticut, and New Jersey to utilize microgrids in response to the power outages experienced during Hurricane Sandy.[36] For example, the Blue Lake Rancheria microgrid, which services a hotel, casino, and event center in Humboldt County, California (CA), is certified to serve as a Red Cross emergency shelter during emergency situations.[37]

If a microgrid will have a public service responsibility during an outage or emergency – by supplying power to a public facility or acting as an emergency shelter – it should meet a specific series of emergency management standards. This is important given the enormity of what is at stake in an emergency and the importance of knowing ahead of time what a critical

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[32] "Islanding" refers to the section of the microgrid definition in the OIR that states that a microgrid "can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure." OIR, p. 1.

[33] *Id*. p. 2.

[34] OIR, p. 2

[35] *Id*.

[36] Christopher Villarreal et al., *Microgrids: A Regulatory Perspective*, CPUC, April 14, 2014, p. 8, *available at* https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Divisions/Policy_and_Planning/PPD_Work/PPDMicrogridPaper414.pdf.

[37] Maia Cheli, *Blue Lake Rancheria Receives FEMA's 2017 Whole Community Preparedness Award*, Schatz Energy, October 2, 2017, *available at* https://schatzcenter.org/2017/10/blue-lake-rancheria-receives-femas-2017-whole-community-preparedness-award/.

facility's[38] role will be. The questions that these standards should address include, but are not limited to:

- What types of facilities should be deemed critical and, therefore, subject to these emergency management standards for microgrid deployment?
- What testing should utilities be required to perform to ensure that the microgrid will island as designed?
- If a critical facility served by a microgrid has committed to serving as an emergency shelter, should there be a required length of time that the facility should be electrically-islanded with the microgrid?
- Should microgrids designated with an emergency management responsibility be required to maintain a minimum state of charge (SOC) for on-site battery storage?
- Should there be prescribed decision making and operational protocols for the personnel and software that control the microgrid in the event of an emergency?

The potential benefits of microgrids in emergency scenarios was made particularly clear during the Public Safety Power Shutoff (PSPS) events of early October 2019. These events not only illustrate the role that microgrids could play during shutoffs,[39] but also highlight the importance of pre-set standards, communications, planning, and coordination.[40] The capabilities and commitments of microgrids in these emergency situations must be made perfectly clear before they are needed. This proceeding should leverage the state's emergency management expertise and establish technical and operational standards that ensure microgrids can be relied upon in an emergency.

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[38] Critical facility is defined in Decision (D.)19-05-042, Appendix A, De-energization Phase 1 Guidelines. A5-A6.

[39] "Recent power shutdowns by Pacific Gas &Electric (PG&E) — and the likelihood of more to come — has renewed the urgency of a microgrid feasibility study being carried out for the Northern California City of Calistoga…Clean Coalition, which is carrying out the microgrid feasibility assessment, is now working with PG&E, Calistoga's city manager and city council to scope out and design a community microgrid that will encompass a designated resilience zone.." Andrew Burger,. *Threat of Wildfires and Power Shutdowns Heightens Urgency for Microgrid in California Community*. Microgrid Knowledge. August 5, 2019, *available at* https://microgridknowledge.com/power-shutdowns-calistoga-california-microgrid/.

[40] Ivan Penn, '"This Did Not Go Well": Inside PG&E's Blackout Control Room,' *The New York Times*. October 12, 2019, *available at* https://www.nytimes.com/2019/10/12/business/pge-california-outage.html?searchResultPosition=4.

3. The Appropriate Prioritization or Sequencing of Topics

The Public Advocates Office recommends the following prioritization and sequencing of issues to be addressed in this proceeding:

> (1) Review the significant work California has done with microgrids to date in order to avoid duplicative research and to identify use cases that provide grid and ratepayer benefits, and for which the Commission should develop a commercialization program within this proceeding;
>
> (2) Develop methods to reduce barriers to the development of microgrids that conform to the identified beneficial use cases; and
>
> (3) Develop standards to guide the interconnection and operation of public benefit microgrids, as well as the design of programs, rates and tariffs as needed to reduce barriers to the development of public benefit microgrids.

By sequencing the issues to be addressed in this proceeding as described, the Commission will decrease the effort required to design programs, rates and tariffs; and those efforts will be focused on microgrid functions that are most likely to provide broad public benefits. The Public Advocates Office recommends that these steps be considered in sequence within three proceeding phases, with each phase consisting of workshops and stakeholder comments. The preliminary schedule in the OIR anticipates a single ruling on the proposed approach to implementing SB 1339, followed by comments and alternate proposals from parties, both in the third quarter of 2020.[41] The Commission should be able to accomplish the sequencing of the three phases with workshops and comments in the first through third quarters of 2020, with final proposals at the end of the third quarter followed by a proposed decision in the fourth quarter of 2020. The Commission does not necessarily need to issue a proposed decision at the conclusion of each of the three phases proposed by the Public Advocates Office; however, it would help if the Commission provides direction prior to the start of each phase.

[41] OIR, p. 9.

a. Phase 1: Review California's Experiences with Microgrids To Avoid Duplicative Research and Establish Use Cases

The effort to commercialize microgrids should build upon work the Commission and the California Energy Commission (CEC) have accomplished using federal funding assistance.[42,43] The first phase of this proceeding should fully leverage these efforts with the goal of: 1) incorporating the most relevant research and institutional knowledge into the decision-making process and 2) establishing 'use cases' for microgrids that provide grid and ratepayer benefits.

In 2008, the Commission initiated Rulemaking (R.) 08-12-009 to consider smart grid technologies pursuant to federal legislation (the Energy Security and Independence Act of 2007 or "EISA").[44] Shortly thereafter, the California Legislature passed, and Governor Schwarzenegger signed into law, SB 17, which made it the "policy of the state to modernize the state's electrical transmission and distribution system to maintain safe, reliable, efficient, and secure electrical service."[45]

The state and federal interest in a more modernized electrical infrastructure, or smart grid, helped propel investments in microgrids. In California, Southern California Edison Company (SCE) conducted its Irvine Smart Grid Demonstration project[46] that, in part, tested islanding.[47] San Diego Gas & Electric Company (SDG&E) conducted its Borrego Springs Microgrid Project to "improve the security and reliability of electricity supply and to lower cost

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[42] *See* Department of Energy, Recovery Act State Memos: California, June 1, 2010, *available at*: https://www.energy.gov/sites/prod/files/edg/recovery/documents/Recovery_Act_Memo_California.pdf.

[43] Rey Gonzales, Jose Aliaga-Caro, and Peter Klauer, *A Roadmap for Commercializing Microgrids in California*, July 26, 2017, *available at* http://docketpublic.energy.ca.gov/PublicDocuments/16-EPIC-01/TN220364_20170725T151033_A_Roadmap_for_Commercializing_Microgrids_in_California.pdf.

[44] R. 08-12-009, *Ordering Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System*, December 22, 2008.

[45] Pub. Util. Code Section 8360.

[46] SCE Final Technical Report, Irvine Smart Grid Demonstration, a Regional Smart Grid Demonstration Project, Sponsoring Office: U.S. Department of Energy – National Energy Technology Laboratory, *available at* https://www.osti.gov/servlets/purl/1234553.

[47] The Department of Energy defines the microgrid as "a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island mode." Dan T. Ton and Merrill A. Smith, *The U.S. Department of Energy's Microgrid Initiative*, The Electricity Journal, Elsevier Inc, p. 84. *available at* https://www.energy.gov/sites/prod/files/2016/06/f32/The%20US%20Department%20of%20Energy%27s%20Microgrid%20Initiative.pdf.

to consumers."[48] Pacific Gas and Electric Company (PG&E) and SDG&E identified microgrid investments as part of their Commission-mandated Smart Grid Deployment Plans.[49] The state's microgrid investments accelerated with the adoption of the Commission's Electric Program Investment Charge (EPIC) Program.[50] Under the EPIC Program, the Commission granted 80% of the program's approximate $1.4 billion total budget to the CEC to invest in research and development, technology demonstration and deployment, and market facilitation.[51] The CEC employed its EPIC funds to facilitate numerous microgrid projects within California.[52] The CEC reports that it invested approximately $84.5 million with approximately $73.4 million in match funds for microgrids.[53] In April 2019, the CEC presented on seven of these microgrid projects and provided lessons learned that should inform this OIR.[54] Beyond the EPIC Program, the Commission and CEC also collaborated on the creation of a microgrid road map,[55] and the CEC published its "Microgrid Analysis and Case Studies Report."[56,57]

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[48] SDG&E RDSI Project Overview, SDG&E Borrego Springs Microgrid Demonstration Project, DOE Peer Review November 3, 2010, *available at* https://www.energy.gov/sites/prod/files/SG%202010%20Peer%20Review%20-%20Borrego%20Springs%20Microgrid%20-%20Tom%20Bialek,%20SDG%26E.pdf.

[49] Application (A.).11-06-006, SDG&E Smart Grid Deployment Plan: 2011-2020, Attachment A, *passim*, June 6, 2011. *See also*, A.11-06-029, PG&E's Smart Grid Deployment Plan, Appendix A, p. 19, June 30, 2019.

[50] D.12-05-037, *Phase 2 Decision Establishing Purposes and Governance for Electric Program Investment Charge and Establishing Funding Collections for 2013-2020*, May 31, 2012, issued in R.11-10-003.

[51] *Id*., Ordering Paragraph 5, p. 100.

[52] EPIC-Funded Microgrid Projects: Lessons Learned, CEC Workshop Presentation, April 26, 2019, p. 5, *available at* https://ww2.energy.ca.gov/research/notices/2019-04-26_workshop/presentations/DC%20Microgrid%20Lessons%20Learned%20Presentation.pdf.

[53] Note, some of the projects and funding identified may come, not only from EPIC, but also the CEC's Natural Gas RD&D fund.

[54] EPIC-Funded Microgrid Projects: Lessons Learned, CEC Workshop Presentation, *available at* https://ww2.energy.ca.gov/research/notices/2019-04-26_workshop/presentations/DC%20Microgrid%20Lessons%20Learned%20Presentation.pdf.

[55] Rey Gonzales, Jose Aliaga-Caro, and Peter Klauer, *A Roadmap for Commercializing Microgrids in California*, July 26, 2017, *available at* http://docketpublic.energy.ca.gov/PublicDocuments/16-EPIC-01/TN220364_20170725T151033_A_Roadmap_for_Commercializing_Microgrids_in_California.pdf.

[56] Energy Research and Development Division, *Final Project Report, Microgrid Analysis and Case Studies Report, California, North America, and Global Case Studies*, August 2018; *available at* https://ww2.energy.ca.gov/2018publications/CEC-500-2018-022/CEC-500-2018-022.pdf.

[57] *See*, CEC *Microgrid Assessment and Recommendations to Guide Future Investments Report*, July 2015, *ava* https://ww2.energy.ca.gov/2015publications/CEC-500-2015-071/CEC-500-2015-071.pdf; and

Further, in implementing Section 769 within the Distribution Resource Plan proceeding, R.14-08-013, the Commission ordered parties to "[d]evelop a specification for a demonstration project where the Utility would serve as a distribution system operator of a microgrid where DERs (both third party- and utility-owned) serve a significant portion of customer load and reliability services."[58] The Commission further considered utility microgrid concepts and proposals as part of the IOUs' applications filed pursuant to Assembly Bill 2868.[59]

Additionally, the United States Department of Defense (DOD) has invested in multiple microgrids throughout California that may also serve to inform this OIR. Specifically, the DOD operates, or will operate, microgrids at the following locations:

- DOD-Electric Power Research Institute (EPRI) Naval Base Ventura County Microgrid Project (Port Hueneme, CA)[60]
- Marine Corps Air Station Miramar Installation Microgrid (Miramar, CA)[61]
- U.S. Army Fort Irwin Microgrid (San Bernardino County, CA)[62]

As demonstrated above, California has generated a wealth of potential knowledge and lessons learned from its microgrid investments. This knowledge is further supported by the information gathered through other microgrid developments, such as the DOD's microgrid initiatives. It is important that the experiences gained thus far are used as a foundation for identifying use cases that provide grid and ratepayer benefits and that are suited for a commercialization program to be developed within this proceeding.

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[58] R.14-08-013, *Assigned Commissioner's Ruling on Guidance for Public Utilities Code Section 769 – Distribution Resource Planning*, Attachment, February 6, 2015, p. 7. The Commission approved or disapproved of the utilities microgrid demonstration project proposals in D.17-02-007 and D.17-06-012.

[59] D.19-06-032, *Decision Implement the AB 2868 Energy Storage Program and Investment Framework and Approving AB 2868 Applications with Modification*, July 7, 2019, pp. 20-22, issued in A.18-03-01 *et al.*

[60] *DOD-EPRI Naval Base Ventura County Microgrid Project*, presentation by Dr. Robert B. Schainker at CEC Microgrid Workshop, September 6, 2016; *available at*: https://ww2.energy.ca.gov/research/epic/documents/2016-09-06_workshop/presentations/05%20EPRI-Naval%20Base%20Ventura%20County.pdf.

[61] MCAC Miramar Microgrid Presentation, presented on May 2, 2019; *available at* https://www.energy.gov/sites/prod/files/2019/05/f62/5-fupwg-spring-2019-wasco.pdf.

[62] Resolution E-4840, *Authorizing Southern California Edison to develop and implement a microgrid demonstration project with the United States Department of Defense at the United States Army National Training Center, Fort Irwin, California*, June 16, 2019.

b. Phase 2: Identify and Develop Standards and Methods to Reduce Barriers Without Shifting Costs Between Ratepayers.

Once the use cases are finalized in Phase 1, the Commission should identify barriers to the various use cases and develop methods to reduce those barriers. In researching barriers to the development of microgrids, the Commission should compile an inventory of technical and procedural barriers encountered by experienced microgrid developers, such as the costs and operational procedures required to interconnect and safely island microgrids from the larger utility grid. The Commission should also examine other energy sector and other commercialization programs to derive lessons learned. As part of this effort, the Commission should conduct workshops with parties to discuss methods that are likely to be successful at addressing the barriers without shifting costs between ratepayers.

Focusing on the reduction of barriers without also shifting costs between ratepayers should lead the Commission to focus on reducing the number of artificial barriers between microgrid providers and grid operators. The Public Advocates Office identifies these artificial barriers as information-based and procedure-based limitations, the resolution of which should reduce costs for developers, utilities, and ratepayers alike. For example, setting clear definitions of what type of projects should be targeted for microgrid solutions will allow developers to avoid funding of unviable projects. This might also mean focusing, at least initially, on potential solutions that have broad public benefits, such as microgrid solutions for hospitals, schools, and other entities that provide resources to the public at large or that provide critical assistance during emergency conditions, rather than focusing on projects that might only help a single business or group of homeowners.

c. Phase 3: Develop Appropriate Microgrid Standards, Programs, Rules, Rates, and Tariffs

After the Commission has narrowed the focus of the commercialization program, it should endeavor to design the specific standards, programs, rules, rates, and/or tariffs that conform to the barrier reduction methods identified in Phase 2. The Public Advocates Office recommends that Phase 3 be conducted in two concurrent tracks to more efficiently address the different topics of microgrid engineering issues, program design, and rate design. Concurrent tracks are also likely to be required to meet the statutory deadlines of SB 1339 to implement the requirements of Section 8371 by December 1, 2020. Track 1 should develop microgrid standards; including revisions to existing permitting, interconnection, and operational procedures

as well as new standards and protocols specifically needed for the safe development, interconnection, and operation of microgrids within the larger grid. It is in Track 1 where the Commission should develop the emergency service standards discussed in section III.2.c. of these comments. The Commission should design specific programs, rates and/or tariffs to address barriers identified in Phase 2 in a separate and concurrent Track 2.

4. Specific Issues Previously Addressed or Underway in Other Commission Proceedings That Require Coordination with This Rulemaking.

This Microgrid OIR overlaps with other proceedings that have either occurred or are ongoing at the Commission. To avoid duplicative work and to ensure the most up-to-date information is used to develop microgrid policies, the Public Advocates Office recommends coordination with the proceedings described below (organized by topic).

a. Regarding the Assessment of the Grid Services a Microgrid Can Provide and the Integration of Microgrids onto the Distribution System

The Commission currently oversees several proceedings related to DERs with which this OIR should coordinate. These proceedings will provide valuable insights to this OIR. In addition to their value as sources of backup power in an outage, microgrid literature has also touted the ability of such systems to provide voltage and frequency support. For example, the Commission publication *Microgrids: A Regulatory Perspective* asserted that microgrids can "serve as a multi-function grid resource,"[63] stating that system operators can call on microgrids as a source of frequency or voltage support. Such services are also described as a microgrid benefit in the CEC's *Roadmap for Commercializing Microgrids in California*.[64] However, there has been relatively little analysis done of the instances during which DERs and microgrid systems have provided such services, and how much value they provided in terms of, for example, the deferral of new distribution infrastructure. The Commission, through the IRP, DRP, and IDER rulemakings is attempting to assess and value DERs for various uses. The Commission should not presume that microgrids would require payments for grid services until

[63] Christopher Villarreal et al., *Microgrids: A Regulatory Perspective*, CPUC, April 14, 2014, p. 8, *available at* https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Divisions/Policy_and_Planning/PPD_Work/PPDMicrogridPaper414.pdf.

[64] Microgrids Roadmap, p. 19.

these proceedings have determined that grid services are indeed needed from microgrids and that any payments are based on the actual value of such services.

This proceeding should leverage the efforts of these other proceedings to determine the track record of DERs and microgrids in providing grid services such as frequency or voltage support when and where they are needed. This information will lay a necessary groundwork for determining policies, tariffs, and rates for microgrids. Similarly, the Rule 21 proceeding[65] relates to this OIR because microgrids, as defined in SB 1339, can connect to, disconnect from, or run in parallel with larger portions of the electrical grid.[66]

b. Regarding the Development of Emergency Operations Standards

There are several active proceedings with which this OIR should coordinate regarding emergency management and public safety standards. For example, certain GRC proceedings include investments in microgrids for emergency operations. PG&E's current Test Year (TY) 2020 GRC Application (A.) 18-12-009 requests funding to create wildfire "resilience zones" to "facilitate the provisions of temporary power to community services…during [Public Safety Power Shutoff] PSPS operations."[67] This pending request appears to include the provision of establishing islanded operation similar to a microgrid. Finally, the De-energization proceeding is committed to "examine [the Commission's] rules allowing electric utilities under the Commission's jurisdiction to de-energize power lines in case of dangerous conditions that threaten life or property in California."[68] The Microgrid OIR should coordinate with these proceedings to ensure microgrid emergency operations standards comport with the most up-to-date emergency management practices in California.

c. Regarding the Use and Optimization of Energy Storage Resources

Energy storage is included as a principal component of microgrids in SB 1339.[69] This OIR, therefore, should coordinate with the Commission's storage decisions and proceedings that

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[65] R.17-07-007.

[66] Pub. Util. Code Section 8371 (f).

[67] A.18-12-009, PG&E 2020 General Rate Case, Exhibit PG&E-4, pp. 9-38 to 9-39.

[68] R. 18-12-005, Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions, December 19, 2018.

[69] "'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. Pub. Util. Code Section 8371(d).

seek to determine the most effective ways to deploy such resources. In D.18-01-003, the Commission adopted eleven rules to govern evaluation of multiple-use applications (MUA) of energy storage in order to provide direction to the utilities on how to "promote the ability of storage resources to realize their full economic value when they are capable of providing multiple benefits and services to the electricity system."[70] In adopting these rules, the Commission concluded that the rules would establish the priorities for providing reliability services when multiple services can be delivered by the same energy storage resource, and enabling market actors to select the most optimal and cost-effective uses cases.[71] The three large electric utilities – PG&E, SCE, and SDG&E - are required to reflect all eleven MUA rules "in all procurement processes in which energy storage is procured."[72] And these eleven rules should be evaluated for potential application within a commercialization program for microgrids, as applicable. Additionally, this proceeding should coordinate policies with the Self-Generation Incentive Program (SGIP) proceeding (R.12-11-005) to ensure that policies developed in the microgrid proceeding are consistent with the SGIP program incentive eligibility rules.

Going forward, the scope of this OIR should take a flexible approach to coordination. Depending on how microgrid use cases and benefits are defined, proceedings may need to be added or removed from those detailed in these comments.

IV. CONCLUSION

For the above stated reason, the Public Advocates Office recommends that the scope of the OIR includes all issues identified in the preliminary scoping memo and those recommended by the Public Advocates Office.

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[70] D. 18-01-003, R. 15-03-011, Decision on Multiple-Use Application Issues, p. 1.

[71] *Id*. Conclusions of Law 2 and 3, p. 27.

[72] D.18-01-003, Ordering Paragraph 3, p. 28.

Respectfully submitted,

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