

Resiliency & Microgrids Rulemaking 19-09-009

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California Public
Utilities Commission

Agenda

1. Overview of Senate Bill 1339
2. Opportunities and Challenges to Microgrid Development
3. Implementation Approach
4. Key Decisions and Pending Decisions

Overview of Senate Bill 1339



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Overview of Senate Bill 1339

Enacted in 2018, SB 1339 directs the CPUC, in consultation with the CEC and CAISO, to undertake activities to further develop policies related to microgrids by 12/1/2020. To facilitate commercialization of microgrids, components include:

- Rates, tariffs, and rules, as necessary
- Remove barriers for deploying microgrids across large IOU territories
- Without shifting costs onto non-benefiting customers
- Prioritizing and ensuring worker, public, and the electric system's safety and reliability

Publicly Owned Utility - The bill would require the governing board of a local POU to develop and make available a standardized process for the interconnection of a customer-supported microgrid, including separate electrical rates and tariffs, as necessary.

8372. (a) Within 180 days of the first request from a customer or developer to establish a microgrid, the governing board of a local publicly owned electric utility shall develop and make available a standardized process for the interconnection of a customer-supported microgrid, including separate electrical rates and tariffs, as necessary.

(b) The governing board shall ensure the microgrid rates and charges do not shift costs to, or from, a microgrid customer or nonmicrogrid customer, and shall ensure each microgrid and its components comply with the local publicly owned electric utility's applicable regulatory requirements.

Opportunities and Challenges to Microgrid Development

For a complete list of barriers and proposals, please refer to the “Microgrids and Resiliency Staff Concept Paper” (July 2020). Link here: <https://www.cpuc.ca.gov/resiliencyandmicrogrids/>



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Opportunities

Microgrid Value Propositions – types of values different microgrids could potentially provide:

- Backup power
- Greenhouse Gas and Criteria Pollutant Emissions Reduction
- Resource Adequacy
- Energy Efficiency, Demand Management, and Distributed Energy Resources
- Customer Choice
- Resiliency

Regulatory Barrier

Public Utilities Code 218

Background: Commonly referred to as the “over-the-fence” rule, essentially requires any entity who wishes to sell power to more than two contiguous parcels or across a street to become an electrical corporation (“public utility”). If an entity becomes an electric corporation, it is a public utility subject to CPUC regulations, including customer service, public safety, rate regulation and reporting.

Why It Exists: PUC 218 serves an important public purpose, in assuring fair and reasonable rates, safe and reliable electricity available to all. Public utilities are responsible for safety, reliability and interconnections to the larger grid, thus consideration must be given to utilities’ grid responsibilities, control, operation and maintenance of their distribution infrastructure, and transparency of microgrid operations that may affect grid operations.

Issue: There is a cost to set up and respond to PUC proceedings as an electrical corporation respondent subject to regulation. The cost and regulatory requirements can be prohibitive, serving as a barrier to microgrid development.

Important Questions, examples:

- How to ensure reliable service for customers served by the microgrid;
- Do customers have the option to opt out of a microgrid project that may increase costs on their utility bills;
- Is there any protection for “customers” of microgrids to ensure they are not paying excessive costs for the microgrid services;
- who is liable for any damage caused by the electric distribution system when a third-party is operating the microgrid?

Financial and Permitting Barriers

Financial Barrier: High Project Costs

Microgrids, especially in-front-of-the-meter projects, are very capital- and engineering-intensive, leading to high initial costs.

Financial Barrier: Availability of Financing

Upfront capital expenditures of microgrid systems present cost barriers. Large utilities have the cash flow available to pay for the project assets until the cost is absorbed by their business revenue. Other kinds of project owners typically must pursue other options to overcome this type of financial barrier.

Permitting Barrier: Lack of consistency across AHJs in permitting battery energy storage systems

Inspection and permitting of battery installations is overseen by individual Authorities Having Jurisdiction, and to date there has been no concerted effort to standardize inspections state-wide. This has led to longer project timelines and uncertain outcomes for developers trying to build battery energy storage systems as they must navigate different land use and zoning codes by jurisdiction.

Technical Barriers

Lack of Load Visibility to Distribution System Operators

Whenever behind the meter distribution generation serves load that is also behind the meter, the load is masked from the distribution system operator.

With high enough penetration of distributed generation, including that within microgrids, load visibility problems may occur on the transmission and sub-transmission systems making it more difficult to continuously balance supply with demand.

Protecting Workers and Customers

A ubiquitous safety feature of utility system design is the use of overcurrent protection relays. The existing interconnection processes have significant requirements to ensure the safe interconnection and operation of equipment to protect workers and customers.

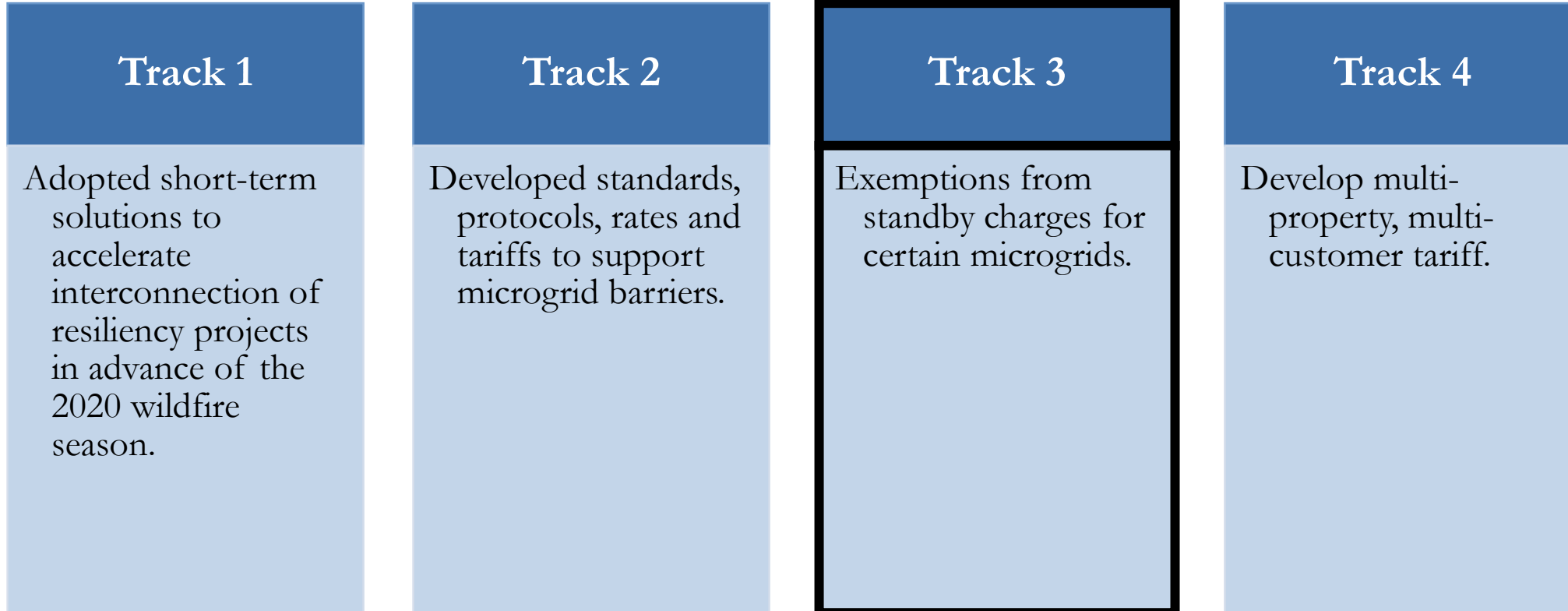
However, a large behind-the-meter microgrid may require its own coordination and protection studies for operation of the microgrid in island mode, but these studies would be the responsibility of the project developer because power flow during island mode will not occur on utility-owned equipment. In-front-of-meter microgrids operating in island mode are likely to require new processes to assess safe interconnection and operation because power flow will occur on utility owned equipment where the protection scheme is designed for the higher levels of fault current that would occur absent the in-front-of-meter microgrid.

Implementation Approach



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Implementation Approach



Key Decisions and Pending Decisions



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Implementation Status

Programs

- **Community Microgrid Enablement Program (CMEP) 2020-2022** - CMEP is designed to serve communities with the highest resilience needs. The focus of the program is on facilitating the development of front-of-the-meter, multi-property microgrids.
- **Microgrid Incentive Program** - In January 2021, the Commission authorized the program with a \$200 million budget to fund clean energy microgrids to support the critical needs of vulnerable communities impacted by grid outages and test new technologies or regulatory approaches to inform future action.
- **Clean Substation Microgrids** - The Commission authorized utilities to deploy clean substation microgrids as a pilot alternative to diesel temporary generation, and to seek cost recovery for up to \$350 million in funding for these projects if they meet certain conditions.
- **2020/2021 Temporary Generation Program** - This program involves deploying temporary generation, largely diesel generators, to substations expected to lose transmission-level power due to PSPS events, along with other use cases such as energizing mid feeder microgrids, Community Resource Centers or providing societal continuity.
- **Make-Ready Program** - This program directly supports the Temporary Generation Program and involves installing infrastructure upgrades which simplify interconnection of temporary generators to allow substations to operate in islanded mode during a PSPS or another outage event. PG&E was authorized to record costs in the microgrid memo account subject to future reasonableness review.

Implementation Status

**Note: The following activities varies in scale and are in different stages of the proceeding.*

Tariff Changes

- **Rule 2** - SCE amended its Rule 2 so any language and/or any examples of added or special facilities is removed so that Rule 2 deviations are not needed for an added or special facilities microgrid project.
- **Rule 18/Rule 19** - IOUs amended Rule 18 and Rule 19 to allow the supply of electricity for this subset of customers.
- **Behind-the-Meter Microgrid Tariff** – This is a new microgrid tariff that involves a single customer establishing a microgrid at a single account.
- **Net Energy Metering** – IOUs modified their NEM tariffs to allow energy storage systems that are interconnected under the condition that they charge from solar to temporarily import from (but not export to) the grid upon receiving advanced notification from the utility of an upcoming Public Safety Power Shutoff.
- **Standby Charges** - On June 9, the Commission published a proposed decision to direct the IOUs to provide rate schedule(s) that suspend the capacity reservation component of their standby charge for eligible microgrids. The proposed decision is scheduled to be voted on in July 2021.
- **Multi-Property Tariffs** - In Spring 2021, the Resiliency and Microgrids Working group explored different tariff elements that would enable multi-property and multi-customer microgrids. Working group participants to present their tariff proposals (rate schedules, rules, contracts, etc.). [\[In Progress\]](#)

Implementation Status

Technology Development

- **Isolation Devices** - IOUs to define the criteria and evaluation process to assess the different isolation technologies. [In Progress]
- **Direct Current Metering Activities** - SCE to lead the IOUs on the direct current metering activities. [In Progress]
- **Local Area Distribution Controls Project** - SDG&E procured a local area distribution controller necessary to augment and interoperate with SDG&E's existing Advanced Distribution Management System (ADMS) and supervisory control and data acquisition (SCADA) system.

Utility Process Improvements

- **Engagement Guide**- IOUs to show how they plan to develop a resiliency project engagement guide.
- **Semi-Annual Meetings** - IOUs to document their plans to conduct semi-annual workshops designed to help empower local and tribal jurisdictions with better understanding of grid operations, utility infrastructure, and the nature of weather events.
- **Data Portal** - IOUs to provide a plan for developing a separate, access-restricted data portal for sharing information with local and tribal governments.
- **Streamlined Interconnection** - IOUs included pre-approved template single-line diagrams for their interconnection application process.

Implementation Status

CPUC Transparency and Accountability

- **Resiliency and Microgrids Working Group** - The RMWG aims to help parties and staff identify and refine concrete, actionable proposals for later introduction into the formal proceeding. [\[In Progress\]](#)
- **Third Party Evaluation** - Energy Division to engage a neutral third-party contractor to review and evaluate the effectiveness of the changes to the electric rules adopted by the Track 1 and 2 decisions. [\[Scheduled for 2024\]](#)

For more information:

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<https://www.cpuc.ca.gov/resiliencyandmicrogrids/>



Backup Slides

Regulatory Barriers cont.

Distribution and Transmission System Data Access

Local government agencies seeking to build In Front of the Meter resilience solutions need access to IOU distribution and transmission system data to craft area appropriate resilience solutions, such as microgrids. Stakeholders acknowledge the need to work with the IOU to build these solutions safely, however they have in the past complained about a perceived lack of transparency by the IOU regarding rules surrounding sharing sensitive data.

Related to this, Confidentiality, Cybersecurity, and Critical Energy/Electric Infrastructure Information rules present a clear barrier to the development of microgrids and resilience solutions.

Lack of Standardized Metrics for Measuring Resiliency and Resiliency Value

Determining an approach to quantifying resilience value is critical for investment decision making, rate-making and emergency planning as we address the vulnerability and changing nature of our energy system.

Utilities and regulators can use the information to make decisions on infrastructure investments and balance costs between ratepayers. Local governments need to develop the most efficient, cost-effective and resilient emergency mitigation plans. Developers and private customers need to be able to understand how their priorities, designs and decision making will affect their project.

Microgrid Incentive Program

Funding - \$200M

Timeline -

- Spring 2021: CPUC approved the program concept.
- Summer 2021: Program administrators to solicit input on the program elements via public workshops.
- Winter 2021: Anticipated program launch.

Design Considerations

- Vulnerable Populations:
 - Low-income, disadvantaged, access and functional needs (AFN), and/or critical facility
 - Impacted by grid outages (PSPS or other)
- Duration: Maintain identified customer load for a suggested 96-hour duration
- Eligibility: Multi-customer solutions eligible for incentive (single-customer behind-the-meter ineligible)
- Emissions: Technologies must result in equal or better than grid power emissions

Data Access Work

Engagement Guide – IOUs to show how they plan to develop a resiliency project engagement guide.

Semi- Annual Meetings – to help empower local and tribal jurisdictions with better understanding of grid operations, utility infrastructure, and the nature of weather events.

Data Portal – IOUs to provide a plan for developing a separate, access-restricted data portal for sharing information with local and tribal governments. Currently, all IOU's portal plans are approved. PG&E intends to deploy their data portal in approximately July 2021. Due to technology constraints, SCE and SDG&E are in the process of building out their portals on longer timelines.

Resiliency & Microgrid Working Group

The RMWG aims to help parties and staff identify and refine concrete, actionable proposals for later introduction into the formal proceeding.

Month	Resiliency and Microgrids Working Group Topics			
February	Standby Charges	Multi-Property Microgrid Tariff		
March				
April				
May				
June			Value of Resiliency	
July				
August				
September				Microgrid Interconnection
October				
November				
December	Customer-Facing Microgrid Tariff Revisit			
January				
February				