

Resiliency and Microgrids Working Group (RMWG) – Interconnection Sessions Overview and Discussion Prompts

I. Overview

Background

Existing interconnection processes – Rule 21, Wholesale Distribution Access Tariff (WDAT/WDT), CAISO Generation Interconnection Procedure (CAISO Tariff) – do not have explicit requirements for microgrids. While none of these tariffs preclude the interconnection of microgrids, the absence of standardized requirements may lead to longer interconnection application approval timelines for microgrids that include generation or storage resources which are capable of parallel connection with the electric grid. Interconnection requirements do not apply to microgrids operating in islanded mode. No comprehensive tariff currently exists for microgrids utilizing a utility’s distribution grid during islanded mode operations (e.g., community microgrid); however, the CPUC has approved, on an experimental basis, PG&E’S [Community Microgrid Enablement Tariff \(CMET\)](#). CMET identifies several areas relevant to the interconnection sessions of this working group, such as the need for a microgrid islanding study when a utility’s distribution grid is utilized during islanded mode operations.

Rule 21 is a CPUC jurisdictional tariff owned and implemented by the investor owned utilities (IOUs). Rule 21 applies to:

- Net Energy Metering (NEM) facilities,
- Non-export facilities that don’t export or sell electricity, and
- Public Utility Regulatory Policies Act (PURPA) Qualifying Facilities (QFs) connected to the distribution system that sell all of their generated electricity to the host utility.

WDAT (WDT for PG&E) is a FERC jurisdictional tariff owned and implemented by the IOUs. It applies to interconnections to the distribution system where the generated electricity is sold into the CAISO wholesale market. The CPUC is a stakeholder relative to these tariffs and cannot directly make modifications to them.

The CAISO tariff is a FERC jurisdictional tariff owned and implemented by the CAISO. It applies to interconnections to the transmission system where the generated electricity is sold into the CAISO wholesale market or sold directly to a utility. The CPUC is a stakeholder relative to this tariff and cannot directly make modifications to it.

Objective

In addition to interconnection requirements for grid-connected mode microgrid operations, the interconnection phase of the resiliency and microgrids working group will cover controls, communications, and islanded mode microgrid operations where interconnection requirements are not applicable. The primary objective is identification of any microgrid specific issues that currently, or foreseeably, might impede the interconnection process for microgrids with resources that can parallel with the electric grid. Additional objectives are to inform the multi-property microgrid tariff discussions (e.g., microgrid islanding study) and to identify other actions, excluding those related to

finance or compensation, that could improve the regulatory landscape for microgrids. Developing recommendations for identified issues is an expected outcome from these working group sessions. Examples of potential outcomes are:

- Identification of specific work to be completed by a formal working group,
- Development of specific language for proposals to modify Rule 21,
- Recommendation to develop a new Rule applicable to islanded mode operations when a microgrid utilizes a utility's distribution grid, or
- Development of specific language for potential inclusion in a multi-property microgrid tariff.

These sessions of the working group are for exploring microgrid specific topics. For example, microgrid controllers have no explicit requirements in Rule 21 which may impede timely approval of interconnection requests. Topics that are general in nature, previously subject of a CPUC decision, scoped into another CPUC proceeding, or addressed during other sessions of the working group will not be discussed during the interconnection sessions of the working group. Examples of issues that will not be discussed are:

- Legal issues or interpretations related to Public Utilities Code § 218,
- Cost allocation of system upgrades determined necessary by interconnection studies unless specifically related to multi-property microgrids,
- Interconnection request application processing timelines,
- Contractual terms or operating agreements for microgrids, and
- Financing and compensation issues.

To be constructive, discussions in this working group should be aligned with the CPUC's role and authority. While it may be useful to identify microgrid specific gaps or issues in WDAT/WDT or the CAISO tariff, it would not be appropriate to develop specific language recommendations for those tariffs during this informal working group. Developing specific language recommendations for Rule 21 or a new microgrid specific Rule within CPUC jurisdiction would be appropriate.

The discussion prompts below raise topics that have previously been identified by staff, stakeholders, and the IOUs. This is not an exhaustive list of issues that may be considered during the interconnection sessions of the working group. Stakeholders and the IOUs are encouraged to introduce additional microgrid specific issues and topics. Within the bounds described above (i.e., microgrid specific), determination of specific scope and issues for the interconnection sessions of the working group will be finalized during interactive discussion at the first session on August 12, 2021.

Meeting Dates and Proposed Topics

1. August 12, 2021 2 p.m. – 4 p.m.
 - Overview of interconnection sessions of resiliency and microgrids working group
 - Update from Southern California Edison on DC metering in compliance with D.21-01-018 ordering paragraph 11
 - Interactive discussion of scope and topic identification for remaining interconnection sessions of working group (see discussion prompts below)

2. August 27, 2021 2:15 p.m. – 4:30 p.m. (Note: This is a Friday)
 - Presentation by Pacific Gas and Electric on Microgrid Islanding Study
 - Operational requirements microgrids utilizing a utility distribution grid when in islanded mode
 - From technical perspective only, discuss concept of a community microgrid that serves only critical facility loads (i.e., non-critical facility loads are de-energized)
3. September 9, 2021 (afternoon) (tentative)
 - Presentation by San Diego Gas & Electric – Experience integrating microgrids into their system
 - Presentation by TBD on microgrid controls
4. September 23, 2021(afternoon) (tentative)
 - Potential microgrid controller specifications and requirements
 - Ensuring microgrid interoperability with evolving distribution grid
5. October 14, 2021 (morning) (tentative) (Note: SIWG meets in the afternoon)
 - Additional topics identified by stakeholders and IOUs
 - Finalize recommendations

II. Discussion Prompts for August 12, 2021, Working Group

DC Metering

- Now that power control systems (PCS) are explicitly allowed in Rule 21 for DC-coupled battery energy storage systems, are there uses cases within the CPUC’s jurisdiction for DC metering?
- [P.U.C. § 8371 \(f\)](#) requires a DC metering standard to be developed within Rule 21. Are there any foreseeable unintended consequences or other considerations?

Microgrid Performance, Functional, and Operating Requirements

- What attributes or characteristics of microgrids are not adequately addressed by Rule 21?
- Should specifications or requirements for microgrid controllers be developed? Some areas to consider:
 - Functional requirements (e.g., disconnect/reconnect transition/synchronization),
 - Communications (e.g., IEEE 2030.5-202018 - IEEE Standard for Smart Energy Profile Application Protocol, Common Smart Inverter Profile),
 - Cybersecurity,
 - Commissioning, and
 - In which areas, if any, are existing Rule 21 requirements for inverters applicable and adequate?
- Are there overlaps or interactions with the Unintentional Islanding Working Group from D.21-06-002? See [D.21-06-002 Appendix B](#).

Interaction between Rule 21, WDAT, CAISO tariff

- [D.20-09-035](#) found no changes necessary to help projects moving from Rule 21 queue to WDAT queue.
- Are there any other issues to be considered?

Other potential topics

- Should a set of definitions/glossary for microgrids and associated equipment be developed to facilitate use of common verbiage?
- Microgrids are a single controllable entity that can limit the amount of electricity imported or exported.
 - Could a microgrid with a multitude of generation resources, battery energy storage systems, and EV chargers be studied as group based on the aggregate operating characteristics of the microgrid?
 - What types of assurances and controls (e.g., relays) would be required to allow future consideration of this approach?
 - What changes, if any, to the existing interconnection process or existing service upgrade process (for load addition) may be warranted now or in the future?
- Islanded operations of microgrids where all elements of the microgrid are on a single premise and on the customer side of the utility meter are outside of the CPUC's and utility's jurisdictions. However, islanded operations that utilize a utility's distribution grid are subject to these jurisdictions. Are there issues not considered by CMEIT that should be in the scope of these working group sessions?
- Some stakeholders have suggested additional interconnection application single-line diagram templates would be useful.
 - Based on IOU filings in compliance with [D.20-06-017 ordering paragraph 4](#), there was very minimal use of the templates previously ordered by D.20-06-017.¹
 - Because more complex microgrids (e.g., those including rotational machines) are less likely to have standardized designs and equipment, the use case for additional templates is not immediately clear.

¹ PG&E [compliance filing](#), SDG&E [compliance filing](#), and SCE [compliance filing](#).