

PUBLIC UTILITIES COMMISSION

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November 4, 2022

Advice Letter 6153-E-B

Sidney Bob Dietz II
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94177
E-mail: PGETariffs@pge.com

**SUBJECT: Joint Submittal - San Diego Gas & Electric Evaluation Process to Assess
Microgrid Isolation Technologies Pursuant to Decision 21-01-018**

Dear Mr. Dietz:

Pacific Gas and Electric Company Advice Letter 6153-E-B is effective as of June 23, 2022, per Resolution E-5194.

Sincerely,

A handwritten signature in black ink that reads "Leuwam Tesfai".

Leuwam Tesfai
Deputy Executive Director for Energy and Climate Policy/
Director, Energy Division
California Public Utilities Commission



Clay Faber – Director
Regulatory Affairs
8330 Century Park Ct
San Diego, CA 92123

CFaber@sdge.com

August 25, 2021

ADVICE LETTER 3734-E-B

San Diego Gas & Electric Company (U 902-E)

ADVICE LETTER 6153-E-B

Pacific Gas & Electric Company (U 39-E)

ADVICE LETTER 4462-E-B

Southern California Edison Company (U 338-E)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

SUBJECT: SUPPLEMENTAL: JOINT UTILITY EVALUATION PROCESS AND CRITERIA TO ASSESS MICROGRID DIFFERENT ISOLATION TECHNOLOGIES PURSUANT TO DECISION 21-01-018

PURPOSE

San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE) and Pacific Gas and Electric Company (PG&E) (individually a “Utility” and collectively, the “Joint Utilities”) submit this supplemental Tier 2 advice letter (AL) to:

- 1) Clarify certain aspects of the proposed criteria and evaluation process to assess different isolation technologies as put forth in the original SDG&E AL 3734-E, PG&E AL 6153-E, and SCE AL 4462-E (collectively referred to as “Advice 3734-E et al.”).;
- 2) Provide additional information regarding the proposed evaluation process.

This supplemental advice letter is submitted in compliance with the requirements of Decision (D.) 21-01-018 (Decision) to define the criteria and evaluation process to assess different isolation technologies, including utility-scale technologies capable of handling California’s complexity and diversity as specified by the Decision.

On July 29, 2021, the Joint Utilities submitted a supplemental advice letter to Advice 3734-E et al. Subsequent to submittal, it was noted by Energy Division that Attachment A was omitted. The Joint Utilities are submitting this supplemental to include Attachment A. This supplemental advice letter replaces Advice 3734-E and 3734-E-A et al. in its entirety.

BACKGROUND

On September 12, 2019, the Commission initiated Rulemaking (R.) 19-09-009 to design a framework for the commercialization of microgrids in accordance with Senate Bill (SB) 1339 and to account for the Commission's commitment to technologies and activities that may be useful for achieving overall resiliency goals.

The *Assigned Commissioner's Scoping Memo and Ruling for Track 1* divided the proceeding into three tracks.¹ Track 1 encompasses the Commission's goal of deploying resiliency solutions in areas that are prone to outage events and wildfires, with the goal of putting some microgrid and other resiliency strategies in place by spring or summer 2020, if not sooner.^{2,3} Track 2 of this proceeding encompasses the more complex issues and contours of SB 1339 implementation, including developing standards, protocols, guidelines, methods, rates, and tariffs to support and reduce barriers to microgrid deployment statewide, while prioritizing system, public, and worker safety, and avoiding cost shifts between customers.

On July 23, 2020, the assigned Administrative Law Judge issued a ruling with a proposal prepared by the Commission's Energy Division, titled, *Facilitating the Commercialization of Microgrids Pursuant to Senate Bill 1339* (Staff Proposal). The Staff Proposal recommended requiring the utilities to develop a pilot program to evaluate the safety and reliability of utilizing low-cost methods to provide electrical isolation for backup power applications and to identify and propose solutions for any implementation and deployment issues.⁴

On January 21, 2021, the Commission issued the Decision adopting microgrid rates, tariffs, and rules to facilitate the commercialization of microgrids pursuant to SB 1339. The Decision's Ordering Paragraph (OP) 9 adopts the Staff Proposal's recommendation, with modification, by requiring the utilities to evaluate low-cost, reliable electrical isolation methods.

Within 30 days of issuance of the Decision, OP 9 requires the utilities to file Tier 2 advice letters that define their proposed criteria and evaluation process to assess different technologies to isolate customer premises "to safely provide backup power from distributed generation or a storage resource to customer loads during a wider grid outage..."⁵ In addition, the Decision encourages coordination and collaboration between the Joint Utilities on evaluation plans to reduce the potential for duplicative efforts.⁶

¹ *Assigned Commissioner's Scoping Memo and Ruling for Track 1* (December 20, 2019), at 2.

² *Id.* at 3.

³ On June 11, 2020, the Commission adopted Decision (D.) 20-06-017 that included a number of requirements to accelerate the interconnection of resiliency projects in advance of the upcoming wildfire season; modernize tariffs to maximize social resiliency benefits; and promote collaborative engagement between large investor-owned utilities (utilities) and local and tribal governments.

⁴ Administrative Law Judge's Ruling, July 23, 2020, Attachment 1 – Staff Proposal, at 24.

⁵ Decision, Finding of Fact 28, at 105.

⁶ Decision, at 79.

On April 6, 2021, the Joint Utilities submitted an advice letter that proposed a common evaluation criteria and process “to develop a pathway for diverse technologies to support disconnection of a premise’s entire electrical service to support electrical isolation during a wider grid outage,” pursuant to Section 3.5.3 of the Decision.⁷ Advice 3474-E et al. proposed an evaluation criteria and process that would help ensure that the evaluations and assessments are open, transparent, and subject to equitable treatment of different technologies and suppliers on a non-preferential basis, and that the evaluations also include utility-scale technologies capable of handling California’s complex and diverse customer needs safely and reliably, as required by the Decision.

On April 26, 2021, several stakeholders submitted protests to the Joint Utilities’ advice letter arguing, among other issues, that the proposed timeline for individual or joint utility initial review and testing of products is unreasonable. Based on a review of stakeholder protests and discussions with Energy Division staff, the Joint Utilities submit this supplemental advice letter to clarify and provide additional details on the criteria and evaluation process for assessing electrical isolation technologies on a customer’s premise.

DISCUSSION – EVALUATION CRITERIA AND PROCESS

A microgrid with a behind-the-meter (BTM) source allows a customer to electrically island and isolate themselves from the Utility being the source. When islanded, BTM generation resources continue to operate and provide power to the premise, which creates a high potential for electrical current to back-feed onto the grid absent an isolation device, or transfer switch.

The potential to back-feed and energize the distribution line cannot be understated. While the Joint Utilities support technologies that allow the customer to self-supply power during a Public Safety Power Shutoff (PSPS) event, if not properly isolated from the grid or a failure occurs by the isolating device, the distribution line could become energized. Such back-feed introduces the same fire potential risk the Joint Utilities are trying to mitigate with PSPS. In addition, the safety of our employees, contractors and the public will depend on the ability for the isolation device to function properly and prevent back-feed of a de-energized distribution line. Visible electrical isolation devices are the Utilities’ best way to protect against back-feed to keep our workers and the public safe, especially during drastic conditions when an active PSPS is occurring.

The Joint Utilities support new technologies to enable microgrids that will ensure system, worker, and public safety, in accordance with PU Code §8371(d). However, equipment connected behind the meter and those that physically touch the Joint Utilities’ meters on customer premises must be certified to the most current industry standards and codes. Standards development organizations (SDOs)⁸ publish industry standards for a broad range of equipment. The United States Occupational Safety and Health Administration (OSHA) further enforces additional standards that ensure occupational safety for workers.⁹ In accordance with federal regulations, OSHA maintains a list of Nationally Recognized Testing Laboratories (NRTLs) that test and certify electrical equipment to all applicable national standards.

⁷ *Id.*, Conclusion of Law 20, at 108-109.

⁸ Underwriters Laboratories (UL), Institute of Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), among others.

⁹ 29 CFR Part 1910.

The Supplier Technical Checklist outlined in Attachment A provides a comprehensive list of the technical requirements that any supplier must provide to the Joint Utilities in order to complete the evaluation process for new isolation technology. In addition to certifications, all device installations must meet National and California Electrical Code requirements, including permitting through the local authority/government with jurisdiction.

1. Process for submittal of isolation technology by a third-party to Joint Utilities.

Any supplier that desires to submit isolation technology for evaluation and review by the Joint Utilities must send an email¹⁰ to the Utilities with the subject line: "Request for Evaluation of Isolation Technology." A supplier submitting a product for Utility evaluation must be well advanced in the design and development and the product must have a high probability of commercialization and only require Utilities' input for evaluation (and not design). In that email, the supplier should provide, among other information:

- full contact information for the supplier, including email, phone number, and physical mailing address;
- state clearly if this technology is being tested with another one of the three California investor-owned utilities that are the subject of this advice letter to ensure appropriate coordination of resources;
- a detailed narrative description of the isolation technology or device;
- proof that such technology or device has received NRTL certification to the most current industry standards adopted by the applicable SDOs and communication from the national standard organization why that standard applies to this technology;¹¹
- independent lab testing results justifying the certification and already completed for the electrical isolation technology or device;
- detailed diagrams, manuals, and pictures of the technology or device that can be shared with the Joint Utilities – in a public, non-confidential manner – to allow for better understanding of the product and capabilities;
- proposed relationship with the Utility and customer, and impacts on customer service and experience;¹² and
- any other information that the supplier believes may be helpful to Joint Utilities in evaluating the technical, safety and operational aspects of the technology or device for use or installation by the respective customers of the Joint Utilities or for use or installation on a utility-scale level.

¹⁰ Upon approval of this advice letter, the Joint Utilities will notice the service list with the advice letter and provide a dedicated email address for each utility for suppliers to submit requests for technology evaluation.

¹¹ The supplier should consult with SDOs regarding what standards and test procedures are applicable to the specific technology or device.

¹² Utility troubleshooters provide 24/7 customer service. Troubleshooters will be unable to commence field work until customer-owned isolation technology installed at the meter socket is removed.

If a supplier provides information on testing results and/or pilots in other utility territories, including those that are out-of-state, it will be used to help inform the Joint Utilities' understanding of the product, but it will not be a substitute for the Joint Utilities' collective or individual testing requirements (see Section 8). In addition to the design of customer electric panels varying between different portions of the country, the Joint Utilities each have customized systems for functional and integration testing designed to meet requirements specific to each Utility. The Commission also has its own General Orders, and the Joint Utilities need to ensure a supplier's product complies with California standards.

2. Required timeframe for Joint Utilities to respond to the suppliers with a specific evaluation plan for the submitted technology.

Within 30 business days of receiving the required information, the Utility to which the request was submitted will contact the supplier and request any follow-up information needed, start coordinating technical meetings, ask for a demonstration of the technology or device, or make other relevant requests necessary for that Utility to conduct its evaluations of the technology or device. In addition, the Utility will provide the supplier with a draft "test and evaluation" agreement that will include terms and conditions for conducting the evaluation and assessment, modeled on the Commission's requirements for standard technology demonstration projects funded by utility customers under its Electric Program Investment Charge and Smart Grid Pilots decisions.¹³

The proposed 30-business day timeframe for the Utility to contact the supplier and do follow-up is contingent on the number of suppliers requesting evaluation by the Utility at that point in time and contingent on the status of any emergency events. If the Utility has multiple suppliers requesting evaluation of their products simultaneously, the Utility staff will not be able to meet the 30-business day timeframe given review of multiple products while conducting their day-to-day work responsibilities. There will need to be some flexibility regarding the timeframe based on the number of suppliers in the queue for evaluation or other operational priorities (e.g., activation of Emergency Operations Centers, mutual assistance and etc.) occurring requiring increased resources to support.

3. Required timeframe for completion of an initial evaluation by Joint Utilities.

Each of the Joint Utilities will notify the supplier via email when it has determined that it has received sufficient information to properly evaluate the technology or device. Unless otherwise noted in the email, each of the Joint Utilities will complete its evaluation and provide its written report on the evaluation within 90 days of the email noting receipt of sufficient information. Each Utility will also keep the supplier reasonably informed about the progress of the evaluation, including any issues that are noted or delays in reviewing submittal.

¹³ See D.20-08-042, at 2-7, summarizing prior Commission decisions adopting criteria for technology demonstration projects; D.13-03-032, at 6-8, summarizing Commission criteria for approval of Smart Grid-related pilot technologies under Smart Grid decisions.

Each Utility will undertake parallel actions whenever feasible to complete evaluation of a supplier's product. Parallel actions may include, but not be limited to, drafting and review of the testing plans while a supplier completes the NRTL certification, or if the product is already NRTL certified to all applicable UL standards, the Utility can conduct the lab testing and functional and integration testing as described in Attachment A in parallel. While parallel action may be possible, all proposed technologies will continue to be required to meet all of the standards and requirements set forth in this Advice Letter for certification, whether testing occurs in parallel or in series, to ensure the safety of electric service to customers, employees and the public.

The proposed 90-day timeframe for completing the Utility's evaluation includes consideration of the need to schedule time at Utility testing facilities or an external testing facility at least 30 days in advance and other Commission orders requiring testing of technologies at the Utility laboratories.

An alternative path that a Utility can discuss with suppliers, if requested, would be for the supplier to request and reimburse an independent OSHA-certified lab to perform the utility-required lab testing. However, the Functional and Integration Testing (as described in Attachment A) will need to be performed by each of the Joint Utilities at its respective labs since each has customized systems that will require specific functional testing requirement to meet its end-to-end testing, including different metering technologies.

4. Process for engaging with and providing Utility feedback to the submitter of the technology.

Consistent with other iterative and collaborative technology evaluations, the Utility and the supplier will reasonably cooperate with each other to complete the evaluation in a reasonable timeframe as described in this supplemental advice letter. The Utility and the supplier will establish a reasonable schedule of calls, meetings, or other means of providing feedback and progress during the evaluation process. Recognizing that each product will be unique and some will be more complex than others, the Utility will need to tailor engagement with a supplier accordingly to ensure that the technical safety and reliability evaluation can be completed.

As described in Section 7 below, the Joint Utilities' technical evaluation teams are not positioned to assist third parties in the design and development of their products. A supplier submitting a product for Utility evaluation must be well advanced in the design and development of a product, and the product must have a high probability of commercialization.

5. Expectations for engagement by and response to Utility feedback from submitter of the technology.

During the evaluation process, the supplier may receive requests for additional information and responses to interim test and assessment results from a Utility. The supplier should respond as soon as reasonably practicable given the circumstances, keeping in mind that the evaluation process may be delayed if the supplier is not able to promptly respond.

6. Process for identifying which, if any, standards or safety requirements are applicable and must be certified or tested by a Nationally Recognized Testing Laboratory (e.g., Intertek, UL).

Suppliers shall seek certification at a NRTL to the most current industry standards adopted by the applicable SDO. The supplier is responsible for asking the SDO what specific standards would apply that align with their technology or if a new standard needs to be developed. This process should be completed in advance of submittal to one or more of the Joint Utilities, given that the NRTL certification process may yield additional standards or safety requirements based on the technology type and its unique characteristics. It is wholly the responsibility of the supplier to demonstrate readiness prior to one or more of the Joint Utilities conducting the evaluations and assessments.

The submitted technology must comply with the most current applicable standards, such as and not limited to those identified in Table 1 of Attachment A. In addition, the submitted technology must meet OSHA standards to ensure the worker's safety and to identify specific hazardous conditions at the jobsite.¹⁴

7. Identification of which evaluation steps can be completed prior to certification or testing by a Nationally Recognized Testing Laboratory and which must be completed after certification or testing.

Upon receipt of a supplier's request for evaluation and review of an isolation technology, the Utility will coordinate with the supplier to organize a "kick-off" meeting for one or more of the Joint Utilities, individually or collectively, to meet and discuss the Utility evaluation process, the necessary documentation, and other requirements. Depending on the current state of a supplier's product, the kick-off meeting will take one of two forms:

a. Product is Developed but Not Yet NRTL-Certified

If a supplier submits a product for Joint Utility evaluation that has not yet been tested and certified by a NRTL as meeting all applicable national standards, the kick-off meeting will be used to: (1) provide Utility-specific resource information to the supplier (e.g., utility meter socket specification document); (2) discuss which national standards may be applicable to the technology; and (3) provide details of the Utility evaluation process and necessary requirements to move to the evaluation phase.

Also, depending on the state of a product, the Utility may provide initial cursory feedback on a supplier's product if it believes it will assist a supplier's ability to meet the Utility's specification requirements in the future. However, the Joint Utilities are not positioned to assist third parties in the design and development of their products. The Joint Utilities' staff (funded via customer rates) that would be responsible for the review and evaluation typically will consist of electrical metering engineers and distribution planning engineers whose other day-to-day work responsibilities will necessarily limit the role of the Utility to the evaluation and testing criteria set forth in this Advice Letter.

¹⁴ 29 CFR Part 1910

b. Product Is NRTL-Certified and Meets All Applicable National Standards

If a supplier submits a product for Utility evaluation that has been tested and certified by a NRTL as meeting all applicable national standards, the kick-off meeting will be used to: (1) review list of all required documentation and ensure supplier has clear understanding of what documentation is required; (2) ascertain the product is NRTL-listed and the submitted product test data is adequate; and (3) review steps in the Utility evaluation process, including provision of product samples and subsequent Utility lab tests.

However, for the Utilities' evaluations and assessments to be safe and complete, the submitted technology must undergo product testing and final report by the NRTL prior to the Utility's testing of the product. If Utility testing of a product were performed prior to NRTL certification, it is likely that testing will have to be repeated if the design of the product were later modified due to the NRTL certification process. Since Utility customers will be funding the testing of third-party supplier products, it would be unreasonable and inefficient to lab test a product before it is NRTL certified and then potentially have to fund re-tests of the product if the design changes. Finally, there is also risk to the health and safety of Utility personnel performing the lab testing if the product is not adequately designed with appropriate safety layers reviewed and certified by a NRTL.

8. Discussion of circumstances when lab or field testing by the Joint Utilities will be required in addition to certification by a Nationally Recognized Testing Laboratory to applicable standards (e.g., UL 414 and UL 1741).

The Utility will perform additional testing that is independent of the UL testing performed by a NRTL. The Utility's testing will examine the effects of the electrical isolation technology on the Utility's Advanced Metering Infrastructure (AMI) system (e.g., metering accuracy), ability to withstand high-voltage surges, and if the product can safely perform as intended based on inverter specifications. The Joint Utilities do not expect to repeat any testing already completed as part of product's certification by a NRTL to applicable national standards, unless necessary as described in Section 9.

In addition, each of the Joint Utilities, in reviewing a product for its service territory, will accept the test results of another of the Joint Utilities for those tests that are agnostic to the unique characteristics of each Utility system and AMI. This coordination among the Joint Utilities to accept each other's test results applies only in specific applicable circumstances and, for example, would not apply to testing of interaction with each utility's AMI systems and for metering accuracy.

The Joint Utilities also recognize that the Decision was neither specific nor restrictive regarding the evaluation of only at the meter technologies but can also include Utility evaluation of in-front-of-meter (IFOM) isolation technologies. However, given that any IFOM solutions would be on a utility's distribution system, each of the Joint Utilities already has processes to procure necessary IFOM isolation devices to meet operational needs.

9. Justification by Joint Utilities for repeating any testing (e.g., high-voltage, environmental performance testing) already completed as part of certification to a national standard by a Nationally Recognized Testing Laboratory.

In some circumstances a Utility may need to replicate testing completed by the supplier or its contracted third-party. Based on the Joint Utilities' experience with nascent technologies that have not been deployed for mass-market commercial use, anomalies have been found during review of NRTL test data and/or Utility testing of products that previously have been tested by suppliers. Recognizing the role of the Utility in conducting the final review and testing before a product is deployed, it is important for the Utility to review test data and to validate a NRTL test if there are anomalies or other questions about a test result.

The Utility will collaborate with the supplier to detect and address any such anomalies that affect the safety, reliability, inter-operability, and performance of the technology or device for utility-grade tariffed customer service and interconnection. Upon remediation, the Utility will conduct regression testing to validate intended performance and functionality. Depending on location of installation and technology, additional measures may be required before final approval, including training of Utility workforce, development of new Utility standards or updates to existing standards, and coordination changes to ensure that operation of the technology does not conflict with or introduce safety challenges outside of daily tasks incurred by the Utility.

The Joint Utilities' recent experience with review and evaluation of a nascent technology, where the supplier claimed that it was NRTL certified to the applicable UL Standard demonstrated why it is critical for the Utility to in certain instances assess and validate that it is indeed the case. The Joint Utilities identified that that the UL Standard under which the product was certified did not appear to cover certain safety and reliability components built into the product. The Joint Utilities engaged UL, as the SDO, which then confirmed that the novel product was not covered under that specific UL Standard or any other UL standard, and that the SDO would need to develop an annex to an existing UL standard to cover the product. One of the reasons provided by UL to the Joint Utilities is that no existing UL Standard considers how the various components within the new and innovative technology interacts with each other while ensuring it is safe and reliable operation. Though this situation may not occur frequently, the Joint Utilities may need to assess the validity of a product certified to a national standard by a NRTL.

10. Identification of an evaluation approach for examining the use of advanced metering infrastructure, and technologies that leverage it, to enable electrical isolation as a viable resilience strategy, as identified on page 4 of the July 3, 2020, R.19-09-009 scoping ruling.

Attachment A Supplier Technical Checklist contains the general evaluation approach for examining isolation technologies, including AMI. The Utility will make clear evaluation criteria used for the assessment of any AMI proposed for review by the supplier – e.g., physical inspections, power on/off, voltage variations, full load testing, light load testing, no load testing, disconnect/reconnect if applicable, firmware, and configuration updates if applicable, hardware/software interface (including cybersecurity), local, and remote functionalities.

11. Discussion of circumstances when customer-supplied technology would be allowed and justification by Joint Utilities for any circumstances requiring utility-supplied technology.

Technologies installed within the Utility workspace must demonstrably mitigate any safety risk and not pose interoperability issues with Utility infrastructure, such as the meter. Further, the isolation device must not interfere with the Utilities' ability to retrieve meter data, secure customer data, perform maintenance on owned assets, and control the connection and disconnection of customer premises.

The Joint Utilities' respective evaluation criteria and plans will support functional testing of submitted technology that touches, connects to, or affects the Utility meter or meter functionality, both during initial installation and upon subsequent operation and maintenance. The evaluation process will dictate, on a case-by-case basis, whether the technology will be customer-supplied or utility-supplied.

The Joint Utilities' respective evaluation and assessment reports regarding different supplier technologies and devices will also include, as appropriate, any legal issues associated with the technologies and devices, including ownership and open access to the technologies and devices. The installation of customer-supplied and/or customer-owned equipment between the Utility meter and the customer panel raises a variety of concerns that will be resolved in collaboration with suppliers based on the specific supplier technologies. This collaboration on ownership and other contractual and operational issues (e.g., access to device, liability, etc.) can begin in parallel with the Utility's technical evaluation of a product. The collaboration on the ownership model and other contractual issues will be informed by the technical safety and reliability evaluation.

When an isolation device is installed between the Utility service point and the meter, there may be situations where Utility access to the device is necessary. For example, in case of device failure that impacts service to the customer, the Utility would need access to the diagnostic information to restore power safely and avoid unnecessary delayed response. Additionally, any insights that would provide information on the health of the installation, such as potential hot sockets or arcing, should be provided to the Utility to ensure safety and to prevent potential fire incidents.¹⁵

Decisions on Utility, third-party, or customer ownership and/or control of, and access to, the isolation device will depend on:

- the results of the technical safety and reliability evaluation conducted under this the process in this advice letter;
- impacts to customer service and experience;
- Physical location of technology being installed;
- commercial and manufacturing availability complying with the technical evaluation; and
- any formal guidance and approval required from the Commission, as appropriate.

¹⁵ For example, PG&E's SmartMeter technology currently has capabilities to provide information on the health of the meter socket, such as temperatures above 130 degrees Fahrenheit for consecutive periods of time. This temperature information helps ensure safety and prevent potential fire incidents at the customer panel. Third-party electrical isolation technologies installed between a PG&E SmartMeter and the meter socket would no longer allow PG&E to monitor the meter socket health with the embedded SmartMeter technology.

Whether the device is customer-owned, controlled, and maintained or Utility-owned, controlled, and maintained, novel agreements and processes may be necessary to govern the following:

- Utility and supplier roles/responsibilities during the installation process
- Utility and supplier roles/responsibility to respond to customer requests for service (including unexpected disconnection from the grid and after-hours calls)
- Utility and supplier ability/responsibility to inspect and maintain the installation/configuration (including configuration of panel connection to device)
- Utility/supplier ability/responsibility to remove the customer device (either for a short period for inspection or for an indefinite period due to device failure)
- Utility/supplier ability/responsibility to re-install customer device following removal
- Utility/supplier ability/responsibility to understand current status of the device
- Defined processes/procedures/limitations for Utility/vendor to activate the device and disconnect and reconnect customer from the grid.
- Processes/limitations on aggregations of customers simultaneously disconnecting or reconnecting to the grid
- Utility/vendor ability/responsibility to manually override the device in response to customer request.
- Utility ability to verify that customer generation equipment will revert to anti-islanding functionality in the event the isolation switch is inoperable or removed.
- Utility and supplier roles/responsibility when there are multiple suppliers with proprietary or non-proprietary at-the-meter electrical isolation technologies and how to respond to customer requests when issues with service arise.
- Defined processes/procedures for transferring responsibility for maintenance/removal of the device if the supplier that developed the at-the-meter electrical isolation technology goes bankrupt or out of business for other reasons.
- Additional consumer protections as needed to ensure safe, reliable service.

Each of the Joint Utilities will collaborate with suppliers to determine mutually acceptable processes, procedures, and agreements to address the above concerns and other issues that may be identified.

12. Process and proposed timeframe for completing detailed evaluation by Joint Utilities, inclusive of a determination and explanation regarding whether the proposed technology is approved for use and for reflecting that determination in the Joint Utilities' service rule

See response to section 3, above.

13. Process and frequency for reporting, to the Commission, summaries and outcomes of technology evaluations undertaken by Joint Utilities, including information from the perspective of the submitter of the technology and a summary of any irresolvable disputes between the evaluating utility and the submitter of the technology.

A Utility's evaluation and assessment reports will be provided upon request to the Commission and will include comments on the reports by the respective suppliers, based on advance availability of the draft reports to the suppliers. Information and results may be considered proprietary and may, therefore, be submitted with a request for confidential treatment.

EFFECTIVE DATE

This filing is subject to Energy Division disposition and should be classified as Tier 2 pursuant to OP 9 of D.21-01-018. The Joint Utilities respectfully request that this Advice Letter become effective on September 24, 2021, which 30 days subsequent to the date of this supplemental submittal.

PROTEST

Pursuant to the Commission's General Order 96-B, Section 7.5.1, the submittal of this supplement does not automatically continue or reopen the protest period of the Advice Letter. The Commission's Energy Division, on its own motion or at the request of any person, may issue a notice continuing or reopening the protest period. Any new protest shall be limited to the substance of the supplement or additional information. To the extent the Commission issues a notice allowing additional protests to be submitted, the address for mailing or delivering a protest to the Commission is:

CPUC Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Copies of the protest should also be sent via e-mail to the attention of the Energy Division Tariff Unit (EDTariffUnit@cpuc.ca.gov). A copy of the protest should also be sent via e-mail to the address shown below on the same date it is mailed or delivered to the Commission.

SDG&E

Attn: Greg Anderson
Regulatory Tariff Manager
E-Mail: GAnderson@sdge.com and SDGETariffs@sdge.com

PG&E

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NOTICE

A copy of this filing has been served on the Utilities and interested parties shown on the attached list and Service List R.19-09-009, by providing them a copy electronically. Address changes should be directed to SDG&E Tariffs by e-mail at SDGETariffs@sdge.com.

/s/ Clay Faber

CLAY FABER
Director – Regulatory Affairs



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: San Diego Gas & Electric (U902)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Joff Morales

Phone #: 858-650-4098

E-mail: JMorales@sdge.com

E-mail Disposition Notice to: SDGETariffs@sdge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 3734-E-B

Tier Designation: 2

Subject of AL: Supplemental: Joint Utility Evaluation Process And Criteria To Assess Microgrid Different Isolation Technologies Pursuant To Decision 21-01-018

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: Decision 21-01-018

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? Yes No

If yes, specification of confidential information: N/A

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 9/24/21

No. of tariff sheets: 0

Estimated system annual revenue effect (%):

Estimated system average rate effect (%):

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Greg Anderson
Title:
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Address: 8330 Century Park Court, CP32C
City: San Diego
State: California Zip: 92123
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email: GAnderson@sdge.com

Name:
Title:
Utility Name:
Address:
City:
State: California Zip:
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General Order No. 96-B
ADVICE LETTER SUBMITTAL MAILING LIST

cc: (w/enclosures)

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CA. Public Advocates (CalPA)

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F. Oh

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Advantage Energy

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M. Cade
K. Harteloo

AT&T

Regulatory

Barkovich & Yap, Inc.

B. Barkovich

Biofuels Energy, LLC

K. Frisbie

Braun & Blaising, P.C.

S. Blaising
D. Griffiths

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Energy Strategies, Inc.

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Southern California Edison Co.

K. Gansecki

TerraVerde Renewable Partners LLC

F. Lee

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M. Hawiger

UCAN

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Service List

R.19-09-009

Attachment A Supplier Technical Checklist

The criteria, standards, and requirements outlined below are necessary for the Joint Utilities to begin the technical evaluation process for any new behind the meter isolation technology.

1. Certified test report by a Nationally Recognized Testing Laboratory documenting the tests completed and their results. A certified test report documenting the tests and their results. The test report will be signed by the supplier's chief engineer and include all charts, graphs, and data recorded during testing, including a full copy of the exponent report.
2. Proof of compliance with the most current certifications to applicable national standards, including detailed test results and meta data, in advance of evaluation by the Joint Utilities.¹ The standards identified in Table 1 below shall be applied, but not limited, to the microgrid ecosystem.
3. Compliance with the following tariffs relating to interconnection, cybersecurity, and customer data privacy:
 - a) Rule 21 – Generation Facility Interconnection (section Hh.1c)
 - b) Rule 25 – Release of Customer Data to Third Parties
 - c) Rule 27 – Privacy and Security Protections for Energy
 - d) Rule 27.1 – Access to Energy Usage and Usage-Related Data While Protecting of Personal Data
4. No product shall be installed on customer premise before all test and certification requirements are met and approved by Joint Utilities.
5. Detailed description and cutsheets of the new product or technology.
6. Electrical schematics, firmware/software schematics, detailed description of operating system (e.g., sync settings), failure mechanism, and communications systems.
7. Installation, maintenance documents, and training materials, plus details on the O&M cost projections.
8. A full functioning system to be installed in the Utilities' labs. Utility testing is necessary to validate the new technology, confirm application with internal equipment unique to each Utility, and develop internal standards to train workforce.
 - a) *Lab Testing*: 6-8 samples, 3+ months. Collaborations amongst the Joint Utilities on certain tests can be allowed.

¹ It is wholly the responsibility of the supplier to demonstrate readiness prior to Joint Utilities conducting evaluations and assessments, including applicable cyber security standards and penetration testing results. Additional standards and/or safety requirements certification may be identified, depending on the technology type and integration with Utility system.

- b) *Functional and Integration Testing*: 3+ month duration, where each Utility will conduct its own independent end to end testing.
- c) *Pilot Testing*: Field test, with a joint effort from the supplier, where the device is installed at a customer's premise. The pilot identifies areas for possible training for Utility field personnel and validate field functionality in various climate zones. The duration of the pilot may vary unless agreed upon between the supplier and Utility.

Table 1 – Devices and Standards

Device	Applicable Suggested Behind the Meter Standard ²
Transfer Switch	<ul style="list-style-type: none"> ▪ UL 1008: Transfer Switch Equipment ▪ NFPA 110: Emergency and Standby Power Systems ▪ IEEE 446: IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications ▪ NEMA ICS10: Automatic Transfer Switches
Metered-Mounted Transfer Switch	<ul style="list-style-type: none"> ▪ UL 1008M: Meter-Mounted Transfer Switch Equipment, which includes parameters for UL 414 Safety Meter Sockets Standard ▪ UL 508: Industrial Control Equipment for Electric Motors ▪ UL 1449: Surge Protective Devices ▪ ANSI C12.1: Code for Electricity Metering – Service Switch ▪ OSHA 1910.147: standard for service and maintenance of equipment that can energize and harm employees. ▪ UL 489: Circuit Breakers
Electric Meter	<ul style="list-style-type: none"> ▪ UL 2735: Electric Utility Meter Safety Standard and Conformity Assessment ▪ ANSI C12.1: Code for Electricity Metering
Meter Socket	<ul style="list-style-type: none"> ▪ UL 414: Safety Meter Sockets Standard, updated in 2020 for heat-rise test ▪ ANSI C12.1: Code for Electricity Metering
Smart Inverter	<ul style="list-style-type: none"> ▪ UL 1741: Test Procedure for Inverters, Converters, Controllers, and DER Equipment ▪ IEEE 1547: Standard for Interconnecting Distributed Resources with Electric Power Systems ▪ IEEE 2030.5: Standard for Communications Protocol

² General standards currently required for equipment that comprises a microgrid. The standards that apply to any technology or equipment depend on the unique characteristics and function of that equipment. Consultation with SDOs may be necessary to confirm which national standards may be applicable to the isolation technologies, depending on equipment design.

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency
Financing

California Alternative Energy and
Advanced Transportation Financing
Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Cenergy Power
Center for Biological Diversity

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City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

East Bay Community Energy Ellison
Schneider & Harris LLP Energy
Management Service
Engineers and Scientists of California

GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz &
Ritchie

Green Power Institute
Hanna & Morton
ICF

IGS Energy

International Power Technology
Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated
Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead
Electric Company
Western Manufactured Housing
Communities Association (WMA)
Yep Energy