

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



March 25, 2022

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Director, Regulatory Relations  
c/o Megan Lawson  
Pacific Gas and Electric Company  
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Operations  
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**SUBJECT: Pacific Gas and Electric Company (PG&E) AL 6303-E, Southern California Edison (SCE) AL 4571-E, and San Diego Gas & Electric Company (SDG&E) AL 3837-E, Joint Utility Advice Letter to Present a “Set Active Power Mode” Proposal Compiled from Smart Inverter Working Group Discussions Pursuant to Decision 21-09-035 Ordering Paragraph 47**

Dear Mr. Dietz, Ms. Menon, and Mr. Anderson:

Joint Advice Letter (AL) PG&E 6303-E, SCE 4571-E, and SDG&E 3837-E (Joint AL) to present a “Set Active Power Mode”<sup>1</sup> (Function 4) proposal compiled from Smart Inverter Working Group discussions is approved effective October 26, 2021.

The Commission adopted Proposal 27c of Working Group 3 in Ordering Paragraph (OP) 47<sup>2</sup> of Decision (D) 20-09-035. In compliance with OP 47; PG&E, SCE, and SDG&E (Joint Utilities)

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<sup>1</sup> This function establishes the active power that a distributed energy resource (DER) system produces or uses at its electrical connection point (ECP) or, in aggregate with other DER systems and loads, exports or imports at the point of common coupling (PCC) or some other referenced point.

<sup>2</sup> OP 47 of D.20-09-035 states “The Smart Inverter Working Group shall refine the Set Active Power Mode function technical specifications. The group shall convene to refine the technical specifications, no later than nine months after the final approval of standards for IEEE 1547 and UL 1741. No later than 15 months following the publication of IEEE 1547.1, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall jointly seek approval of the technical specifications, on behalf of the Smart Inverter Working Group, through submission of a Tier 3 Advice Letter.”

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filed a Joint AL on August 23, 2021, approximately 15 months after the IEEE 1547.1 test procedures<sup>3</sup> were published on May 21, 2020.

The Joint Utilities convened with the Smart Inverter Working Group (SIWG) from May through August 2021 and used the input, comments, and proposals gathered from SIWG members to arrive at a set of technical specifications that are deemed to be appropriate for Set Active Power Mode function. The AL proposed refinements to the technical specifications for Function 4 that include: charging and discharging indication, enabling and disabling the function, transition time to active power mode, time to achieve new active power level, prioritization of this function over others, measurement accuracy, ability to be scheduled, and communication requirements.<sup>4</sup>

The Joint Utilities stated that this function will continue to evolve as new standards are developed. Therefore, these technical specifications are meant to address short term needs, under mutual agreement, while national standards are developed.<sup>5</sup>

The Energy Division finds reasonable to approve refinement of these technical specifications of Function 4.

The AL was filed with a Tier 3 designation. However, the utilities' designation is not binding on the reviewing Industrial Division.<sup>6</sup> There is no Electric Rule 21 change proposed in the AL. Energy Division also did not receive any protests to the Joint AL.

The Joint Utilities also indicated that: 1) smart inverter Function 4 will not be a requirement for allowing interconnection under Rule 21, 2) this function will be used under mutual agreement between utilities and DER customer/installer/developer, 3) this function will continue to evolve via standards development (*e.g.*, IEEE 1547.9, IEEE 1547, etc.), and 4) when this function is developed and adopted in a national standard, Rule 21 will be updated to align with those requirements.<sup>7</sup>

Therefore, according to General Order (GO) 96-B, Industry Rule 5.1(4)<sup>8</sup>, the Joint AL should be reclassified to Tier 1 because the refinement of these technical specifications of Function 4 will only be invoked under mutual agreement between utilities and DER customer/installer/developer. It is not a requirement for allowing interconnection under Rule 21 and there is no change to the standard interconnection agreements.<sup>9</sup>

Please contact David K. Lee of the Energy Division at [dkl@cpuc.ca.gov](mailto:dkl@cpuc.ca.gov) if you have any questions.

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<sup>3</sup> IEEE P1547.1 is a draft standard for conformance test procedures for equipment interconnecting distributed energy resources with the electric power systems.

<sup>4</sup> Joint AL at 3.

<sup>5</sup> Joint AL at 2.

<sup>6</sup> In accordance with General Order 96B, General Rule 7.6.1.

<sup>7</sup> Joint AL at 2.

<sup>8</sup> General Order (GO) 96-B, Industry Rule 5.1(4) states that: "A Contract that conforms to a Commission order authorizing the Contract, and that requests no deviation from the authorizing order (*e.g.*, a gas storage Contract in exact conformity with Decision 93-02-013)."

<sup>9</sup> Confirmed by the Joint Utilities by emails on October 28, 2021.

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Sincerely,

 FOR

Pete Skala

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

cc: Service Lists R.17-07-007

August 23, 2021

**Advice 6303-E**

(Pacific Gas and Electric Company ID U 39 E)

**Advice 3837-E**

(San Diego Gas & Electric Company U 902 E)

**Advice 4571-E**

(Southern California Edison Company U 338 E)

Public Utilities Commission of the State of California

**Subject: Joint Utility Advice Letter to Present a “Set Active Power Mode” Proposal Compiled from Smart Inverter Working Group Discussions Pursuant to Decision 21-09-035 Ordering Paragraph 47**

**I. Purpose**

Pacific Gas and Electric Company (“PG&E”), Southern California Edison Company (“SCE”), and San Diego Gas & Electric Company (“SDG&E”) (collectively, “the Joint Utilities”) hereby submit this Tier 3 Advice Letter (“AL”) in compliance with the California Public Utilities Commission (“CPUC” or “Commission”) Decision 20-09-035 (“Decision”) Ordering Paragraph (“OP”) 47.

**II. Background**

The Commission adopted Order Instituting Rulemaking 17-07-007 on July 13, 2017, to consider a variety of refinements to the interconnection of distributed energy resources under Electric Tariff Rule 21 of the Utilities and the equivalent tariff rules of the small and multi-jurisdictional electric utilities.<sup>1</sup>

The October 2, 2017, *Scoping Memo of Assigned Commissioner and Administrative Law Judge* (“Scoping Memo”) set forth the scope and schedule of the proceeding. The proceeding will be conducted in three phases that will address technical issues, cost-related issues, and issues related to small multi-jurisdictional utilities. The Scoping Memo established the working group process, whereby resolution of the technical issues of the proceeding would be proposed by six working groups, Working Groups One through Six.

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<sup>1</sup> See R.17-07-007 at 2.

Further, there were several iterations of the responsibilities and design of each Working Group, including the issues scoped into each.

The Decision resolves the set of issues assigned to Working Groups Two and Three and the recommendations from Vehicle-to-Grid Alternating Current Subgroup. The Commission adopted Proposal 27c as follows:

The Smart Inverter Working Group shall refine the Set Active Power Mode function technical specifications. The group shall convene to refine the technical specifications, no later than nine months after the final approval of standards for IEEE 1547 and UL 1741. No later than 15 months following the publication of IEEE 1547.1, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall jointly seek approval of the technical specifications, on behalf of the Smart Inverter Working Group, through submission of a Tier 3 Advice Letter.<sup>2</sup>

The IEEE1547.1 test procedures were published May 21, 2020. The Joint Utilities submit this Tier 3 AL to comply with OP 47 of the Decision.

### **III. Discussion**

The Joint Utilities would like to thank Smart Inverter Working Group (“SIWG”) members for providing excellent input, proposals, and counter proposals to address the Commission OP 47 requirement. The Joint Utilities used all this information to arrive at a set of technical specifications that are deemed to be appropriate for this function at this time. The Joint Utilities understand that this function will continue to evolve as new standards are developed. Therefore, these technical specifications are meant to address short term needs, under mutual agreement, while national standards are developed.

#### **A. Convening the Smart Inverter Working Group**

The Joint Utilities convened with the SIWG from May through August 2021 to discuss the Set Active Power Mode (Function 4). The input, comments, and proposals provided by SIWG team members were used to develop the final technical specifications described in this advice letter. As required by OP 47, the Joint Utilities submit these functional requirements on behalf of the SIWG. Because of the diversity of input and to account for the fact that no national standard currently exists, it should be noted that these functional requirements adhere to the following principles:

1. At this time, this Smart Inverter function will not be a requirement for allowing interconnection under Rule 21.
2. The function will be used under mutual agreement between IOU and DER customer/installer/developer.

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<sup>2</sup> Decision, at OP 47.

3. It is understood that this function will continue to evolve via standards development (e.g., IEEE1547.9, IEEE1547, etc.).
4. When the function is developed and adopted in a national standard, Rule 21 will be updated to align with those requirements.
5. Given the wide range of stakeholder input, the specifications outlined below may not fully reflect all input from stakeholders.
6. The technical specifications outlined below have been developed to reflect as much common input as possible from SIWG stakeholders.

#### **B. Refining the Technical Specifications for Function 4**

The technical description is based on IEEE1547-2018 language (such as sections 4.6.3-Limit Active Power, 4.7- Prioritization of DER responses, 10.6.12-Limit Maximum Active Power). This function is not required for Rule 21 interconnection and will be implemented under mutual agreement.

When sufficient energy capacity is available, the Inverter shall:

- Be capable of operating at a set output level on percentage range of (-100% to +100%) of its Active power nameplate rating
- or
- If inverter is configured differently from its corresponding nameplate rating (per IEEE1547-2018, Clause 10.4), the inverter shall be capable of operating at a set output level as a percentage (-100% to +100%) of its configured Active power nameplate rating.
- **Charging or Discharging indication**
    - Positive signed (0 to +100) depicts generation or “discharging for storage systems”
    - Negative signed\* (-100% to 0) depicts “charging for storage systems”
  - **Enable/Disable:** This function shall be capable of being enabled and disabled.
  - **Mode Transition Time:** The transition to active power mode shall be no more than 30 seconds from the time the inverter receives the command. The time delay of this function is not intended to be changeable from factory settings. The inverter is not required to operate at the requested set point during the Transition Time period.
  - **Time to Achieve New Active Power Level:** After the inverter has engaged this function, the time the inverter takes to transition from one Active Power level to a new Active Power level shall be smoothly over a period of no less than 5 seconds, and no more than 300 seconds, consistent with IEEE1547-2018, section 4.6.3.
  - **Prioritization:** Active power shall take precedence over all other requirements in IEEE1547-2018 Clause 5 and Clause 6, and 4.6.2, with the exception of requirements specified in IEEE1547-2018 section 4.7. This priority is not intended to be changeable at this time, and is set based on mutual agreement.

- **Measurement Accuracy:** Set Active Power Measurement Accuracy shall meet IEEE1547-2018, Section 4.4 (Measurement Accuracy).
- **Schedulable:** This function shall be able to be scheduled, equivalent to all other inverter operational functions. This function is an operational requirement.
- **Communication Requirements:** Should be based on Rule 21 Section Hh, as it may be updated from time to time based on IEEE1547-2018.
- When sufficient energy is not available to meet the requested power level, the inverter [DER] shall operate at the maximum available power level.

\* Negative signed operations (Charging) is not required for Rule 21 interconnection purposes and can be provided under mutual agreement.

#### IV. Protests

**\*\*\*Due to the COVID-19 pandemic, PG&E is currently unable to receive protests or comments to this advice letter via U.S. mail or fax. Please submit protests or comments to this advice letter to [EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov) and [PGETariffs@pge.com](mailto:PGETariffs@pge.com).\*\*\***

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile, or E-mail, no later than September 13, 2021, which is 21 days<sup>3</sup> after the date of this submittal. Protests must be submitted to:

CPUC Energy Division  
ED Tariff Unit  
505 Van Ness Avenue, 4<sup>th</sup> Floor  
San Francisco, California 94102

Facsimile: (415) 703-2200  
E-mail: [EDTariffUnit@cpuc.ca.gov](mailto:EDTariffUnit@cpuc.ca.gov)

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above. The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

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<sup>3</sup> The 20-day protest period concludes on a weekend; therefore, PG&E is moving this date to the following business day.

- For PG&E:** Sidney Bob Dietz II  
Director, Regulatory Relations  
c/o Megan Lawson  
Pacific Gas and Electric Company  
77 Beale Street, Mail Code B13U  
P.O. Box 770000  
San Francisco, California 94177  
Facsimile: (415) 973-3582  
E-mail: [PGETariffs@pge.com](mailto:PGETariffs@pge.com)
- For SCE:** Shinjini C. Menon  
Managing Director, State Regulatory Operations  
Southern California Edison Company  
8631 Rush Street  
Rosemead, California 91770  
Telephone: (626) 302-3377  
Facsimile: (626) 302-6396  
E-mail: [AdviceTariffManager@sce.com](mailto:AdviceTariffManager@sce.com)
- Tara S. Kaushik  
Managing Director, Regulatory Relations  
c/o Karyn Gansecki  
Southern California Edison Company  
601 Van Ness Avenue, Suite 2030  
San Francisco, California 94102  
Facsimile: (415) 929-5544  
E-mail: [Karyn.Gansecki@sce.com](mailto:Karyn.Gansecki@sce.com)
- For SDG&E:** Attn: Greg Anderson  
Regulatory Tariff Manager  
8330 Century Park Court, CP31F  
San Diego, CA 92123-1548  
E-Mail: [GAnderson@sdge.com](mailto:GAnderson@sdge.com) and [SDGETariffs@sdge.com](mailto:SDGETariffs@sdge.com)

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

**V. Effective Date**

PG&E requests that this Tier 3 advice submittal become effective upon Commission approval.

**VI. Notice**

In accordance with General Order 96-B, Section IV, a copy of this Advice Letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service lists R.17-07-007. Address changes to the General Order 96-B service list should be directed to PG&E at email address [PGETariffs@pge.com](mailto:PGETariffs@pge.com). For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at [Process\\_Office@cpuc.ca.gov](mailto:Process_Office@cpuc.ca.gov). Send all electronic approvals to [PGETariffs@pge.com](mailto:PGETariffs@pge.com). Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

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/S/

Sidney Bob Dietz II  
Director, Regulatory Relations

cc: Service Lists R.17-07-007



# ADVICE LETTER SUMMARY

## ENERGY UTILITY



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

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39E)

Utility type:

- ELC       GAS       WATER  
 PLC       HEAT

Contact Person: Kimberly Loo

Phone #: (415)973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: KELM@pge.com

EXPLANATION OF UTILITY TYPE

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

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 6303-E

Tier Designation: 3

Subject of AL: Joint Utility Advice Letter to Present a "Set Active Power Mode" Proposal Compiled from Smart Inverter Working Group Discussions Pursuant to Decision 21-09-035 Ordering Paragraph 47

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 #: D.21-09-035

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested?  Yes  No

If yes, specification of confidential information:

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:

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

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 proposed<sup>1</sup>: N/A

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

<sup>1</sup>Discuss 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](mailto:EDTariffUnit@cpuc.ca.gov)

Name: Sidney Bob Dietz II, c/o Megan Lawson  
Title: Director, Regulatory Relations  
Utility Name: Pacific Gas and Electric Company  
Address: 77 Beale Street, Mail Code B13U  
City: San Francisco, CA 94177  
State: California Zip: 94177  
Telephone (xxx) xxx-xxxx: (415)973-2093  
Facsimile (xxx) xxx-xxxx: (415)973-3582  
Email: [PGETariffs@pge.com](mailto:PGETariffs@pge.com)

Name:  
Title:  
Utility Name:  
Address:  
City:  
State: District of Columbia Zip:  
Telephone (xxx) xxx-xxxx:  
Facsimile (xxx) xxx-xxxx:  
Email:

**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

Chevron Pipeline and Power  
City of Palo Alto

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