

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE



May 31, 2022

Advice Letter 6539-E-A

Erik Jacobson
Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177

**SUBJECT: Modifications to PG&E's Interconnection Application Form 79-1174-02
Attachment H to Support the Vehicle-to-Grid Pathway Pursuant to the Rule
21 Working Group 2 and 3 Decision 20-09-035, with Modifications Pursuant
to Resolution E-5165.**

Dear Mr. Jacobson:

Advice Letter 6539-E-A is effective as of May 16, 2022.

Sincerely,

A handwritten signature in dark ink, appearing to read "Pete Skala".

Pete Skala
Interim Deputy Executive Director for Energy and Climate Policy/
Interim Director, Energy Division, CPUC

April 12, 2022

Advice Letter 6539-E-A

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Supplemental: Modifications to PG&E's Interconnection Application Form 79-1174-02 Attachment H to Support the Vehicle-to-Grid Pathway Pursuant to the Rule 21 Working Group 2 and 3 Decision 20-09-035, with Modifications Pursuant to Resolution E-5165

Purpose

Pacific Gas and Electric Company (PG&E) hereby submits this supplemental Tier 2 advice letter to propose additional modifications to PG&E's existing Form 79-1174-02 Attachment H, PG&E's *Rule 21 Interconnection Application Form Attachment for Energy Storage Technology*, to implement changes from PG&E's Advice Letter (AL) 6500-E, supporting the "Vehicle to Grid" (V2G) pathway pursuant to the Working Group 2 and 3 Decision (D.) 20-09-035 (the "Decision"), with modifications pursuant to Resolution E-5165. These changes will also be reflected in PG&E online application portal, *Your Projects*, replacing some of the manual processes currently in place.

This supplemental advice letter replaces original AL 6539-E in its entirety.

Background

The Commission adopted Order Instituting Rulemaking (R.) 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.

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

The Decision resolved the set of issues assigned to Working Groups Two and Three and the recommendations from Vehicle-to-Grid Alternating Current Subgroup. Among other things, the Decision considered issues and adopted proposals related to the interconnection of electric vehicles and related charging infrastructure and devices, including Proposals 23e and 23i:

- **OP 41:** Proposal 23e is adopted. Interconnection applicants with a V2G DC EVSE system may request permission to switch to bidirectional mode after completing the Rule 21 interconnection process and receiving permission to operate from a utility. Only the manufacturer or approved third-party installer may program or enable bidirectional operation after the permission to operate is given by a utility.
- **OP 42:** The Utilities shall meet and confer to develop a consistent, to the extent possible, set of implementation steps for Proposal 23e, as required by OP 42. No later than six months from the issuance of this decision, Utilities shall present and discuss the proposed implementation at a Vehicle-to-Grid workshop, facilitated by Utilities. If Commission approval is needed for the implementation steps, Utilities shall request approval in a Tier 3 Advice Letter submitted no later than 60 days following the workshop.
- **OP 44:** Proposal 23i is adopted. V2G AC system pilots are exempt, temporarily, from Rule 21 smart inverter requirements. The Utilities shall host a series of meetings with stakeholders to develop a temporary interconnection pathway for pilots seeking V2G AC interconnection that will ensure the necessary safety precautions. The first of these meetings shall begin no later than 30 days from the issuance of this decision. Following these meetings, Utilities shall propose a temporary pathway in the same Vehicle-to-Grid Workshop directed in OP 42. Utilities shall request approval of the pathway in the Tier 3 Advice Letter submitted no later than 60 days following the workshop.

Advice Letter 6209-E¹

On May 28, 2021, pursuant to Ordering Paragraphs (OP) 41-42 and 44 of the Decision, San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE), and Pacific Gas and Electric Company (PG&E) – collectively, the Utilities – submitted a Joint Advice Letter (AL) 3774-E (SDG&E), 4510-E (SCE), and 6209-E (PG&E) requesting Commission approval for:

- 1) a temporary pathway for pilots seeking vehicle-to-grid alternating current (V2G AC) interconnection that will ensure the necessary safety precautions, and
- 2) implementation steps for interconnection applicants with Electric Vehicle Supply Equipment (EVSE) with stationary inverter for direct current charging of vehicles (V2G DC EVSE) system to request permission to switch to bidirectional mode after completing the Rule 21 interconnection process and receiving permission to operate from a Utility.

Resolution E-5165

[Resolution E-5165](#), issued November 4, 2021, provided a disposition of the joint Utilities' ALs. Page 2 of the resolution summarized the modifications made (with citations included in brackets [] correlating the changes to the Resolution E-5165 ordering paragraph):

This Resolution approves with modifications the proposed implementation plans for proposals 23e and 23i put forth in the Joint Advice Letter SDG&E AL 3774-E, SCE AL 4510-E, and PG&E 6209-E. As it relates to the grace period as part of proposal 23e, the CPUC hereby affirms the term "model year" refers to the year the EVSE was manufactured [not in an ordering paragraph]. This Resolution requires the Utilities to reevaluate relay requirements for V2G AC projects should a certification for relaying within a power control system become available [**OP 3**]. Regarding requests for an exceedance of the limitations placed on the V2G AC pilot, the CPUC clarifies that the Utility must either accept or decline the request within 30 calendar days and provide a rationale if declining [**OP 4**]. Finally, this Resolution requests an Advice Letter no later than the end of the pilot period articulating lessons learned and recommendations for a permanent interconnection pathway [**OP 5**].

Additionally, per OP 2 - "The Utilities shall continue to work toward offering a single, streamlined process to customers submitting interconnection requests that include both

¹ [AL 6209-E](#) - Joint Advice Letter Proposing Interconnection Pathway For Vehicle-To-Grid Alternating Current Projects And Implementation Steps For Direct Current Electric Vehicle Supply Equipment Projects, Pursuant To Decision 20-09-035

load and generation. The Utilities shall also report on these efforts at a meeting of the Interconnection Discussion Forum within 120 days of the issuance of this Resolution.”

Advice Letter 6500-E²

Following the Commission’s issuance of Resolution E-5165, the Utilities subsequently submitted Joint AL 6500-E (PG&E), 3955-E (SDG&E), and 4718-E (SCE) to incorporate the modifications from Resolution E-5165. AL 6500-E is currently pending before the Commission.

This Advice Letter

In order to implement the proposals from ALs 6209-E and 6500-E and support the V2G pathway, this advice letter makes modifications to PG&E’s existing Form 79-1174-02 Attachment H, PG&E’s *Rule 21 Interconnection Application Form Attachment for Energy Storage Technology* (V2G being a type of storage). The proposed modifications will enable simple tracking of V2G interconnections, and also allow PG&E to confirm V2G DC-ready EVSE devices meet applicable certification requirements.

Specifically, PG&E adds a new section to Form 79-1174-02 Attachment H as shown below (**new additions added through this supplemental AL 6539-E-A are denoted in red**):

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Z - Vehicle to Grid	_____ EVSE	_____ EVSE	_____ EVSE	_____ EVSE
Will the inverter be located in the Electric Vehicle Service Equipment (EVSE) or in the Electric Vehicle (EV) itself?	_____ EV	_____ EV	_____ EV	_____ EV
	_____	_____	_____	_____
Please provide Electric Vehicle details.	Vehicle Make	Vehicle Make	Vehicle Make	Vehicle Make
	_____	_____	_____	_____
	Vehicle Model	Vehicle Model	Vehicle Model	Vehicle Model
	_____	_____	_____	_____

² [AL 6500-E](#) - Joint Advice Letter Proposing Interconnection Pathway For Vehicle-To-Grid Alternating Current Projects And Implementation Steps For Direct Current Electric Vehicle Supply Equipment Projects, Pursuant To Decision 20-09-035, with Modifications Pursuant to Resolution E-5165

If inverter is in the EVSE, please provide EVSE model manufacture year.	EV Year 	EV Year 	EV Year 	EV Year
	EVSE Model Year	EVSE Model Year	EVSE Model Year	EVSE Model Year
If inverter is in the EVSE, is the EVSE newly installed?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

These updates will also be incorporated into PG&E's online interconnection application portal, *Your Projects*.

For convenience of the reader, PG&E has included "track-change" or "redline" revisions of Form 79-1174-02H in Attachment 2.

No cost information is required for this advice letter. This advice letter will not increase any rate or charge, cause the withdrawal of service, or conflict with any other schedule or rule.

Protest

Pursuant to GO 96-B, General Rule 7.5.1, PG&E requests to maintain the original protest and comment period designated in Advice 6539-E and not reopen the protest period

Effective Date

Pursuant to General Order (GO) 96-B, Rule 5.2, this advice letter is submitted with a Tier 2 designation. PG&E requests that this Tier 2 advice submittal become effective on May 16, 2022, to coincide with planned implementation of these updates into PG&E's online application portal, *Your Projects*.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically to parties shown on the attached list and the parties on the service list for 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. 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. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

/S/

Sidney Bob Dietz II
Director, Regulatory Relations

Attachments:

Attachment 1: Clean Tariff
Attachment 2: Redline Tariff Revision

cc: Service List 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 U39 E)

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) #: 6539-E-A

Tier Designation: 2

Subject of AL: Supplemental: Modifications to PG&E's Interconnection Application Form 79-1174-02 Attachment H to Support the Vehicle-to-Grid Pathway Pursuant to the Rule 21 Working Group 2 and 3 Decision 20-09-035, with Modifications Pursuant to Resolution E-5165

Keywords (choose from CPUC listing): Compliance, Rule 21

AL Type: ☐ Monthly ☐ Quarterly ☐ Annual ☒ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.20-09-035, Resolution E-5165

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: 5/16/22

No. of tariff sheets: 3

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: See Attachment 1

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

California Public Utilities Commission
Energy Division Tariff Unit Email:
EDTariffUnit@cpuc.ca.gov

Contact Name: Sidnev Bob Dietz II. c/o Megan Lawson
Title: Director, Regulatory Relations
Utility/Entity Name: Pacific Gas and Electric Company

Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email: PGETariffs@pge.com

Contact Name:
Title:
Utility/Entity Name:

Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

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

Clear Form

Cal P.U.C. Sheet No.	Title of Sheet	Cancelling Cal P.U.C. Sheet No.
52880-E	Electric Sample Form No. 79-1174-02H Rule 21 Generator Interconnection Application - Attachment H Sheet 1	52493-E
52881-E	ELECTRIC TABLE OF CONTENTS Sheet 1	52871-E
52882-E	ELECTRIC TABLE OF CONTENTS Sheet 25	52495-E



Electric Sample Form No. 79-1174-02H
Rule 21 Generator Interconnection Application - Attachment H

Sheet 1

**Please Refer to Attached
Sample Form**

(Continued)

Advice 6539-E-A
Decision D.20-09-035

Issued by
Robert S. Kenney
Vice President, Regulatory Affairs

Submitted April 12, 2022
Effective _____
Resolution E-5165



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Please complete the following table for the specific generator technology indicated.

Instructions				
Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Please indicate the number of each "type" and quantity of Generator being installed. Be sure all Generators classified as one "type" are identical in all respects. If only one type of Generator is to be used, only one column needs to be completed.				
A - Generator/Inverter Manufacturer Enter the brand name of the Generator.				
B - Generator/Inverter Model Enter the model name or number assigned by the manufacturer of the Generator.				
C - Generator/Inverter Software Version If this Generator's control and or protective functions are dependent on a software program supplied by the manufacturer of the equipment, please provide the version or release number for the software that will be used.				
D - Is the Generator/Inverter certified? Applicant has verified that all major solar system components are on the verified equipment list maintained by the California Energy Commission and other equipment, as determined by PG&E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory. See PG&E's Rule 21, Section L for additional information regarding Generator certification.	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
E - Generator Design Please indicate the design of each Generator. Designate "Inverter" anytime an inverter is used as the interface between the Generator and the electric system regardless of the primary power production/storage device used.	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
F - Gross Nameplate Rating (kVA) This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate. This value is not required where the manufacturer provides only a kW rating. However, where both kVA and kW values are available, please indicate both.				
G - Energy Storage Electrical Source Function (in addition, please complete section: "Additional Information Required for Energy Storage")	Max kWh Capacity:	Max kWh Capacity:	Max kWh Capacity:	Max kWh Capacity:
	Rated kW Discharge:	Rated kW Discharge:	Rated kW Discharge:	Rated kW Discharge:
H - Operating Voltage This value should be the voltage rating designated by the manufacturer and used in this Generating Facility. Please indicate phase-to-phase voltages for 3-phase installations. See PG&E's Rule 21, Section H.2.b. and Table H.1., for additional information.				
I - Power Factor Rating This value should be the nominal power factor rating designated by the manufacturer for the Generator. See PG&E's Rule 21, Section H.2.i. for additional information.				
J - PF Adjustment Range Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values. See PG&E's Rule 21, Section H.2.i.				
K - Wiring Configuration Please indicate whether the Generator is a single-phase or three-phase device. See PG&E's Rule 21, Section H.3.				



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
L - (MP) 3-Phase Winding Configuration (Choose One) For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye
M - (MP) Neutral Grounding System Used (Choose One) Wye connected generating units are often grounded – either through a resistor or directly, depending upon the nature of the electrical system to which the Generator is connected. If the grounding method used at this facility is not listed, please attach additional descriptive information.	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms
N - Short Circuit Current Produced by Generator:	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
O – Prime Mover Type Please indicate the type and fuel used as the prime mover or source of energy for the Generator. 1 = Natural Gas 2 = Diesel Fueled 3 = Other Fuel	1 2 3	1 2 3	1 2 3	1 2 3
P - AC Disconnect For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect. See PG&E's Rule 21, Section H.1.d Located within 10 feet of the PG&E meter?	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Q - Energy Storage (ES) System (For important sizing information related to DC-Coupled configurations, see sizing note below).	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units
R - Lineside Tap Where is the point of interconnection in relation to the main breaker? PG&E has special requirements for a lineside tap. Contact PG&E at: Rule21Gen@PGE.com for more information.	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side
S – Warranty or Service Agreement Applicant has verified that (i) a warranty of at least 10 years has been provided on all equipment and on its installation, or (ii) have a 10-year service warranty or executed “agreement” ensuring proper maintenance and continued system performance.	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No
T - Distribution Interconnect Handbook (DIH) and Greenbook Requirements Does this interconnection meet the DIH and Greenbook Requirements	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No
U - Gas Clearance Requirements Certify that this interconnection meets Greenbook Gas Clearance Requirements?	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
V - Basic Single Line Diagram (SLD) If the interconnection is eligible to use a Basic SLD, please include the requested information.	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)
Can this system be used as a back-up generator? If so, please include the requested information for the back-up controller or other device.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.
W - Back-up Generator Operation Will the generator be operated as a back-up? If yes, please indicate control device.	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker
X - Limited Export Will the generator export be limited? If yes, please indicate how export will be limited.	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Y - Telemetry Will the Generating Facility Gross Nameplate Rating exceed 1 MW? If yes, please select a Telemetry Option. If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.	☐ Yes ☐ No ☐ Customer-owned Telemetry - Gateway ☐ Customer-owned Telemetry - Aggregator ☐ Mini RTU ☐ Customer-side net load metering ☐ Replace PG&E meter with a Mark V meter and terminal block ☐ Add terminal block to existing PG&E Mark V meter ☐ Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter ☐ Install customer-owned meter in existing dual socket meter cabinet.			
Z - Vehicle to Grid Will the inverter be located in the Electric Vehicle Service Equipment (EVSE) or in the Electric Vehicle (EV) itself? Please provide Electric Vehicle details. If inverter is in the EVSE, please provide EVSE model manufacture year. If inverter is in the EVSE, is the EVSE newly installed?	☐ EVSE ☐ EV Vehicle Make Vehicle Model EV Year EVSE Model Year ☐ Yes ☐ No	☐ EVSE ☐ EV Vehicle Make Vehicle Model EV Year EVSE Model Year ☐ Yes ☐ No	☐ EVSE ☐ EV Vehicle Make Vehicle Model EV Year EVSE Model Year ☐ Yes ☐ No	☐ EVSE ☐ EV Vehicle Make Vehicle Model EV Year EVSE Model Year ☐ Yes ☐ No



INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Energy Storage Charging Function:

Rated Charge Demand (Load): _____ kW

Estimated annual Net Energy Usage* of the energy storage device(s): _____ kWh

*Net Energy usage = (kWh input, including charging, storage device auxiliary loads and losses) – (kWh output including discharging)

Will the Distribution Grid be used to charge the storage device: ☐ Yes ☐ No

If no: Provide technical description of control systems including (e.g. Nationally-certified piece of equipment, Relays/metering):

Source of energy for Charging: _____

Mechanism to prevent charging from the Distribution System: _____

If Yes: Will charging the storage device(s) increase the host facility's existing peak load demand:

☐ Yes ☐ No

If Yes: Provide the following loading information:

Amount of added peak demand: _____ kW

If no: Provide technical description of controls systems including:

Charging periods: _____

Mechanism to prevent charging from the Distribution System during host facility peak:

Expedited Interconnection Process Selection for Non-Export Energy Storage:

☐ This project meets the requirements identified in Rule 21 Section N and this process is being selected for expedited interconnection.

Note on Sizing (DC-Coupled Configurations)

The size of the storage system in DC-coupled NEM-eligible generator plus storage systems is the lesser of the shared inverter's (or inverters') nameplate capacity (capacities summed) and the storage device's (devices') maximum continuous discharge capacity (capacities summed) listed on the device's (devices') technical specification sheets. A storage device's maximum continuous discharge capacity may be listed on technical specification sheets using different terminology. Note: PG&E will use common sense to determine whether a device's technical specification sheet includes the appropriate metric for purposes of determining system size, regardless of the terminology used. If that metric is not included, PG&E may rely on the inverter's nameplate rating.

For example:

- What is the maximum continuous discharge capability for each storage unit?

_____ + _____ + _____ + _____ + _____ = . total _____

- What is each inverter's nameplate rating?

_____ + _____ + _____ + _____ + _____ = . total _____



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Advice 6539-E-A
Decision D.20-09-035

Issued by
Robert S. Kenney
Vice President, Regulatory Affairs

Submitted _____ April 12, 2022
Effective _____
Resolution _____ E-5165



ELECTRIC TABLE OF CONTENTS

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Advice 6539-E-A
April 12, 2022

Attachment 2
Redline Tariff Revision

ENERGY STORAGE TECHNOLOGY

Please complete the following table for the specific generator technology indicated.

Instructions				
Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Please indicate the number of each “type” and quantity of Generator being installed. Be sure all Generators classified as one “type” are identical in all respects. If only one type of Generator is to be used, only one column needs to be completed.				
A - Generator/Inverter Manufacturer Enter the brand name of the Generator.				
B - Generator/Inverter Model Enter the model name or number assigned by the manufacturer of the Generator.				
C - Generator/Inverter Software Version If this Generator’s control and or protective functions are dependent on a software program supplied by the manufacturer of the equipment, please provide the version or release number for the software that will be used.				
D - Is the Generator/Inverter certified? Applicant has verified that all major solar system components are on the verified equipment list maintained by the California Energy Commission and other equipment, as determined by PG&E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory. See PG&E’s Rule 21, Section L for additional information regarding Generator certification.	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
E - Generator Design Please indicate the design of each Generator. Designate “Inverter” anytime an inverter is used as the interface between the Generator and the electric system regardless of the primary power production/storage device used.	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter	____ Synch ____ Induct. ____ Inverter

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
F - Gross Nameplate Rating (kVA) This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate. This value is not required where the manufacturer provides only a kW rating. However, where both kVA and kW values are available, please indicate both.				
G - Energy Storage Electrical Source Function (in addition, please complete section: "Additional Information Required for Energy Storage")	Max kWh Capacity:	Max kWh Capacity:	Max kWh Capacity:	Max kWh Capacity:
	Rated kW Discharge:	Rated kW Discharge:	Rated kW Discharge:	Rated kW Discharge:
H - Operating Voltage This value should be the voltage rating designated by the manufacturer and used in this Generating Facility. Please indicate phase-to-phase voltages for 3-phase installations. See PG&E's Rule 21, Section H.2.b. and Table H.1., for additional information.				
I - Power Factor Rating This value should be the nominal power factor rating designated by the manufacturer for the Generator. See PG&E's Rule 21, Section H.2.i. for additional information.				
J - PF Adjustment Range Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values. See PG&E's Rule 21, Section H.2.i.				
K - Wiring Configuration Please indicate whether the Generator is a single-phase or three-phase device. See PG&E's Rule 21, Section H.3.				

INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
L - (MP) 3-Phase Winding Configuration (Choose One) For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye	___ 3 Wire Delta ___ 3 Wire Wye ___ 4 Wire Wye
M - (MP) Neutral Grounding System Used (Choose One) Wye connected generating units are often grounded – either through a resistor or directly, depending upon the nature of the electrical system to which the Generator is connected. If the grounding method used at this facility is not listed, please attach additional descriptive information.	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms	___ Ungrounded ___ Solidly Grounded ___ Ground Resistor ___ Ohms
N - Short Circuit Current Produced by Generator:	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
O – Prime Mover Type Please indicate the type and fuel used as the prime mover or source of energy for the Generator. 1 = Natural Gas 2 = Diesel Fueled 3 = Other Fuel	1 2 3	1 2 3	1 2 3	1 2 3
P - AC Disconnect For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect. See PG&E's Rule 21, Section H.1.d Located within 10 feet of the PG&E meter?	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No	_____ Manufacturer _____ Model # _____ Rating (amps) _____ Yes _____ No

INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Q - Energy Storage (ES) System (For important sizing information related to DC-Coupled configurations, see sizing note below).	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units	_____ Manufacturer _____ Model # _____ Quantity of Units
R - Lineside Tap Where is the point of interconnection in relation to the main breaker? PG&E has special requirements for a lineside tap. Contact PG&E at: Rule21Gen@PGE.com for more information.	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side	_____ Customer side _____ PG&E side
S – Warranty or Service Agreement Applicant has verified that (i) a warranty of at least 10 years has been provided on all equipment and on its installation, or (ii) have a 10-year service warranty or executed “agreement” ensuring proper maintenance and continued system performance.	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No
T - Distribution Interconnect Handbook (DIH) and Greenbook Requirements Does this interconnection meet the DIH and Greenbook Requirements	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No
U - Gas Clearance Requirements Certify that this interconnection meets Greenbook Gas Clearance Requirements?	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No	_____ Yes _____ No

INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
V - Basic Single Line Diagram (SLD) If the interconnection is eligible to use a Basic SLD, please include the requested information.	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)	Panel Voltage (Volts) Main Breaker (Amps) Storage Breaker Size (Amps)
Can this system be used as a back-up generator? If so, please include the requested information for the back-up controller or other device.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.	Yes No Manufacturer Make Model No.
W - Back-up Generator Operation Will the generator be operated as a back-up? If yes, please indicate control device.	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker	Yes No ☐ Automatic Transfer Switch ☐ Contactor ☐ Breaker
X - Limited Export Will the generator export be limited? If yes, please indicate how export will be limited.	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter	Yes No ☐ Power Control System (PCS) ☐ Relay ☐ Derated Inverter

INTERCONNECTION APPLICATION (Form 79-1174-02)

ATTACHMENT H

ENERGY STORAGE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
Y - Telemetry Will the Generating Facility Gross Nameplate Rating exceed 1 MW? If yes, please select a Telemetry Option. If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.	☐ Yes ☐ No ☐ Customer-owned Telemetry - Gateway ☐ Customer-owned Telemetry - Aggregator ☐ Mini RTU ☐ Customer-side net load metering ☐ Replace PG&E meter with a Mark V meter and terminal block ☐ Add terminal block to existing PG&E Mark V meter ☐ Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter ☐ Install customer-owned meter in existing dual socket meter cabinet.			
Z - Vehicle to Grid <u>Will the inverter be located in the Electric Vehicle Service Equipment (EVSE) or in the Electric Vehicle (EV) itself?</u> <u>Please provide Electric Vehicle details.</u> <u>If inverter is in the EVSE, please provide EVSE model manufacture year.</u> <u>If inverter is in the EVSE, is the EVSE newly installed?</u>	<u>EVSE</u> <u>EV</u> <u>Vehicle Make</u> <u>Vehicle Model</u> <u>EV Year</u> <u>EVSE Model Year</u> <u>Yes</u> <u>No</u>	<u>EVSE</u> <u>EV</u> <u>Vehicle Make</u> <u>Vehicle Model</u> <u>EV Year</u> <u>EVSE Model Year</u> <u>Yes</u> <u>No</u>	<u>EVSE</u> <u>EV</u> <u>Vehicle Make</u> <u>Vehicle Model</u> <u>EV Year</u> <u>EVSE Model Year</u> <u>Yes</u> <u>No</u>	<u>EVSE</u> <u>EV</u> <u>Vehicle Make</u> <u>Vehicle Model</u> <u>EV Year</u> <u>EVSE Model Year</u> <u>Yes</u> <u>No</u>

ENERGY STORAGE TECHNOLOGY

Energy Storage Charging Function:

Rated Charge Demand (Load): _____ kW

Estimated annual Net Energy Usage* of the energy storage device(s): _____ kWh

*Net Energy usage = (kWh input, including charging, storage device auxiliary loads and losses) – (kWh output including discharging)

Will the Distribution Grid be used to charge the storage device: ☐ Yes ☐ No

If no: Provide technical description of control systems including (e.g. Nationally-certified piece of equipment, Relays/metering):

Source of energy for Charging: _____

Mechanism to prevent charging from the Distribution System: _____

If Yes: Will charging the storage device(s) increase the host facility's existing peak load demand:

☐ Yes ☐ No

If Yes: Provide the following loading information:

Amount of added peak demand: _____ kW

If no: Provide technical description of controls systems including:

Charging periods: _____

Mechanism to prevent charging from the Distribution System during host facility peak:

Expedited Interconnection Process Selection for Non-Export Energy Storage:

☐ This project meets the requirements identified in Rule 21 Section N and this process is being selected for expedited interconnection.

Note on Sizing (DC-Coupled Configurations)

The size of the storage system in DC-coupled NEM-eligible generator plus storage systems is the lesser of the shared inverter's (or inverters') nameplate capacity (capacities summed) and the storage device's (devices') maximum continuous discharge capacity (capacities summed) listed on the device's (devices') technical specification sheets. A storage device's maximum continuous discharge capacity may be listed on technical specification sheets using different terminology. Note: PG&E will use common sense to determine whether a device's technical specification sheet includes the appropriate metric for purposes of determining system size, regardless of the terminology used. If that metric is not included, PG&E may rely on the inverter's nameplate rating.

For example:

- What is the maximum continuous discharge capability for each storage unit?

_____ + _____ + _____ + _____ + _____ = . total _____

- What is each inverter's nameplate rating?

_____ + _____ + _____ + _____ + _____ = . total _____

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

AT&T Albion Power Company	East Bay Community Energy Ellison Schneider & Harris LLP Engineers and Scientists of California	Pioneer Community Energy
Alta Power Group, LLC Anderson & Poole	GenOn Energy, Inc. Goodin, MacBride, Squeri, Schlotz & Ritchie Green Power Institute Hanna & Morton ICF International Power Technology	Public Advocates Office Redwood Coast Energy Authority Regulatory & Cogeneration Service, Inc. SCD Energy Solutions San Diego Gas & Electric Company
Atlas ReFuel BART		SPURR San Francisco Water Power and Sewer Semptra Utilities
Barkovich & Yap, Inc. Braun Blasing Smith Wynne, P.C. California Cotton Ginners & Growers Assn California Energy Commission	Intertie	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.
California Hub for Energy Efficiency Financing	Intestate Gas Services, Inc. Kelly Group Ken Bohn Consulting Keyes & Fox LLP Leviton Manufacturing Co., Inc.	TransCanada Utility Cost Management Utility Power Solutions Uplight Water and Energy Consulting Wellhead Electric Company Western Manufactured Housing Communities Association (WMA) Yep Energy
California Alternative Energy and Advanced Transportation Financing Authority California Public Utilities Commission Calpine	Los Angeles County Integrated Waste Management Task Force MRW & Associates Manatt Phelps Phillips Marin Energy Authority McClintock IP McKenzie & Associates	
Cameron-Daniel, P.C. Casner, Steve Center for Biological Diversity	Modesto Irrigation District NLine Energy, Inc. NRG Solar	
Chevron Pipeline and Power City of Palo Alto	OnGrid Solar Pacific Gas and Electric Company Peninsula Clean Energy	
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		