

PUBLIC UTILITIES COMMISSION  
505 Van Ness Avenue  
San Francisco CA 94102-3298



**Pacific Gas & Electric Company**  
**ELC (Corp ID 39)**  
**Status of Advice Letter 6744E**  
**As of December 6, 2022**

Subject: Addition of Subaccounts to the Modifications to PG&E's Interconnection Application Forms to Incorporate Anti-Islanding Options in the Application Portal Pursuant to the Rule 21 Working Group 4 Decision 21-06-002

Division Assigned: Energy

Date Filed: 10-21-2022

Date to Calendar: 10-28-2022

Authorizing Documents: D2106002

<b>Disposition:</b>	<b>Accepted</b>
<b>Effective Date:</b>	<b>11-30-2022</b>

Resolution Required: No

Resolution Number: None

Commission Meeting Date: None

CPUC Contact Information:

[edtariffunit@cpuc.ca.gov](mailto:edtariffunit@cpuc.ca.gov)

AL Certificate Contact Information:

Stuart Rubio  
(415) 973-4587  
[PGETariffs@pge.com](mailto:PGETariffs@pge.com)

**PUBLIC UTILITIES COMMISSION**  
505 Van Ness Avenue  
San Francisco CA 94102-3298



To: Energy Company Filing Advice Letter

From: Energy Division PAL Coordinator

Subject: Your Advice Letter Filing

The Energy Division of the California Public Utilities Commission has processed your recent Advice Letter (AL) filing and is returning an AL status certificate for your records.

The AL status certificate indicates:

- Advice Letter Number
- Name of Filer
- CPUC Corporate ID number of Filer
- Subject of Filing
- Date Filed
- Disposition of Filing (Accepted, Rejected, Withdrawn, etc.)
- Effective Date of Filing
- Other Miscellaneous Information (e.g., Resolution, if applicable, etc.)

The Energy Division has made no changes to your copy of the Advice Letter Filing; please review your Advice Letter Filing with the information contained in the AL status certificate, and update your Advice Letter and tariff records accordingly.

All inquiries to the California Public Utilities Commission on the status of your Advice Letter Filing will be answered by Energy Division staff based on the information contained in the Energy Division's PAL database from which the AL status certificate is generated. If you have any questions on this matter please contact the:

Energy Division's Tariff Unit by e-mail to  
**[edtariffunit@cpuc.ca.gov](mailto:edtariffunit@cpuc.ca.gov)**

October 21, 2022

**Advice 6744-E**

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

**Subject: Modifications to PG&E's Interconnection Application Forms to Incorporate Anti-Islanding Options in the Application Portal Pursuant to the Rule 21 Working Group 4 Decision 21-06-002**

**Purpose**

Pacific Gas and Electric Company (PG&E) hereby submits this Tier 2 advice letter to propose modifications to PG&E's existing Rule 21 interconnection application form's associated technology-specific attachments to support options for anti-islanding pursuant to the California Public Utilities Commission (CPUC, Commission) Decision (D.) 21-06-002, Ordering Paragraph (OP) 13 on Proposal 18e. These changes will also be reflected in PG&E online application portal, *Your Projects*.

**Background****Rulemaking 17-07-007**

Rulemaking 17-07-007 the *Order Instituting Rulemaking to Consider Streamlining Interconnection of Distributed Energy Resources and Improvements to Rule 21*, was initiated in late 2017 where "the primary objective in this proceeding is to streamline the interconnection application process, which the adopted proposals aim to accomplish."<sup>1</sup>

In the original scoping memo and subsequent refinements, the proceeding was broken into three phases. The issues to be addressed in the first phase was further divided up between four working groups. Each Working Group convened with the Commission, the IOUs<sup>2</sup> and various other parties over a period, culminating in a final working group report. That report was then used to inform the Commission in the preparation of a final decision addressing implementation of the various working group's issues.

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<sup>1</sup> D. 21-06-002 Background, p2

<sup>2</sup> The IOUs, or investor-owned utilities, consist of Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company.

Pertinent to this advice letter, the November 16, 2018, Assigned Commissioner's Amended Scoping Memo and Joint Administrative Law Judge Ruling (Amended Scoping Memo) revised the scope and schedule for this proceeding in response to the Motion of the California Solar & Storage Association (CALSSA).

### **Working Group Four**

Working Group Four first convened February 12, 2020, with twelve subsequent in-person and virtual meetings. On August 13, 2020, representatives of Working Group Four filed the final Working Group Four Report (Report). The final Working Group Four Report was submitted August 12, 2020.<sup>3</sup> As noted in the Report, parties and other stakeholders participated in discussion of and developed proposals on the issues, including Proposal 18e.<sup>4</sup>

Issue 18 was included as related to this advice letter and was among four issues identified in the Amended Scoping Memo. It is:

*Issue 18: Should the Commission adopt changes to anti-islanding screen parameters to reflect research on islanding risks when using UL 1741-certified inverters in order to prevent unnecessary mitigations? If yes, what should those changes entail?<sup>5</sup>*

Rule 21 defines islanding as:

*Island; Islanding: A condition on Distribution Provider's Distribution System in which one or more Generating Facilities deliver power to Customers using a portion of Distribution Provider's Distribution System that is electrically isolated from the remainder of Distribution Provider's Distribution System.<sup>6</sup>*

The isolation is often the result of a system fault, and can create unsafe situations on the distribution grid for utility personnel and other customers.

And anti-islanding in Rule 21 is defined as:

*Anti-Islanding: A control scheme installed as part of the Generating or Interconnection Facility that senses and prevents the formation of an Unintended Island.<sup>7</sup>*

Currently Rule 21 Screen L includes an islanding test.

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<sup>3</sup> [WG 4 Report](#) dated August 12, 2020.

<sup>4</sup> IBID p14

<sup>5</sup> IBID p6, 11

<sup>6</sup> Current Rule 21 sheet 26

<sup>7</sup> IBID sheet 17

Also, Rule 21 in discussing Screen L notes, “PG&E will temporarily apply anti-islanding tests until the resolution of Issue 18\* in R. 17-07-007, Working Group Four Report made effective in PG&E’s tariffs.”<sup>8</sup>

By way of background, the Report notes:

*If a fault occurs on the distribution system, any Distributed Energy Resource (DER) connected to the system must quickly de-energize (or go off-line) so that there is not an unintentional “island” formed (i.e., a portion of the distribution grid remains energized). Unintentional islanding, which is defined as an unplanned island that last greater than two seconds, is a concern....”* [and goes on to describe five risks that result from islanding.]<sup>9</sup>

While individual inverters must be certified as being anti-islanding, the Report goes on to explain a specific area of concern that needs to be addressed in Issue 18:

*Anti-islanding capability has always been tested on the individual inverter level per the test procedures of IEEE 1547.1. Recent research [footnote 22] has shown that there may be distribution system concerns that affect the ability of an individual inverters to successfully detect an island. For instance, it has been shown that interactions between inverters and rotating machines can decrease anti-islanding effectiveness. It has been shown that some anti-islanding algorithms may be more effective than others, and different algorithms have less to do with any individual inverter (since all are certified to have adequate individual anti-islanding capabilities) and more to do with a variety of different types of interactions between equipment on the distribution system. As a result, it is becoming clear that unintentional islanding is a distributions system issue, and yet individual inverters are being called on to address the issue.*

Footnote 22: Gonzalez, A. Ellis, M. Ropp, C. Mouw, D. Shutz and S. Perlenfein, “Unintentional Islanding Detection Performance with Mixed DER Types,” Sandia National Laboratories report SAND2018-8431, July 2018, <https://www.osti.gov/servlets/purl/1463446M><sup>10</sup>.

Additionally, some DER that use non-inverter based “rotating machine” types of generators, PG&E conducts additional screening of [such] DERs for the risks of islanding, and when those DERs fail those screens they may be required to install reclosers on machine generators and/or Direct Transfer Trip (DTT) at the substation so that they can be shut down or separated from the transmission system during a grid outage or fault, for which the customer is required to pay. This can add significant costs in the interconnection (~\$500,000 for DTT and ~\$80,000 for recloser) and

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<sup>8</sup> IBID sheet 159

<sup>9</sup> Report p14

<sup>10</sup> Report p21

significant delays (18-24 months). It is claimed this requirement can impact project economics.<sup>11</sup>

As a result of the above concerns, nine proposals (Proposals 18-a through 18-i) were presented in the Report to address the anti-island concerns raised in Issue 18. Proposal 18e is the subject of this advice letter.

Proposal 18e required, among other things, that PG&E adopt new anti-islanding screens (see D. 21-06-002 Appendix D) in its interconnection process that consider aggregate generation relative to minimum load, aggregate machine generation or aggregate uncertified distributed generation to total generation ratio, fixed power factor modes, and inverter anti-islanding “types”. The new screens would be used to verify or ensure islands are terminated in two seconds in accordance with Rule 21, when there is a question of whether a system configuration may result in an island lasting more than two seconds.

### **Decision 21-06-002 Ordering Paragraph 13**<sup>12</sup>

Decision 21-06-002 was issued to address the remaining Phase 1 issues including those from Working Group 4. Pertinent to this advice letter, it address Proposal 18e.

In D. 21-06-002, OP 13, the Commission directs that:

*13. Proposal 18e is adopted and only applies to utilities that perform enhanced anti-islanding screening based on Sandia studies. **Required utilities shall implement new anti-islanding screens, as indicated in Appendix D, in their Interconnection application process that consider aggregator generation relative to minimum load, aggregate machine generation or aggregate uncertified distributed generation to total generation ratio, fixed power factor modes, and inverter anti-islanding types. The proposed screens are used to verify or ensure islands are terminated in two seconds or less in accordance with Rule 21 Section H.1a.iii and Section 4.b. No later than August 12, 2022, required utilities shall host a workshop with inverter manufacturers and stakeholders to discuss changes to: i) the definition of preferred anti-islanding methods and ii) the threshold in Screen 5 of Appendix D of this Decision.** [emphasis added]*

### **This Advice Letter**

This advice letter makes modifications to the attachments to PG&E’s existing Form 79-1174-02, PG&E’s Rule 21 Interconnection Application Form (listed below) in support of implementing the anti-islanding screens required in CPUC D.21-06-002 OP 13. PG&E will need information about the project’s inverter anti-islanding detection method in order

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<sup>11</sup> Report see p17

<sup>12</sup> [D. 21-06-002](#) - Decision Addressing Remaining Phase I Issues - Issued June 4, 2021

to conduct the new anti-islanding screening and determine if direct transfer trip (DTT) scheme is required.

Specifically, PG&E adds a new section to its interconnection application forms as shown below:

E – Anti-Islanding Detection Method				
Please select an Anti-Islanding Detection Method				
Group 1 – Frequency Shift with continuous positive frequency feedback	Group 1 ____	Group 1 ____	Group 1 ____	Group 1 ____
Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback	Group 2A ____	Group 2A ____	Group 2A ____	Group 2A ____
Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz	Group 2B ____	Group 2B ____	Group 2B ____	Group 2B ____
Group 2C – Frequency shift with unidirectional frequency feedback	Group 2C ____	Group 2C ____	Group 2C ____	Group 2C ____
Group 3 – Monitors change of impedance	Group 3 ____	Group 3 ____	Group 3 ____	Group 3 ____
Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)	Group 4 ____	Group 4 ____	Group 4 ____	Group 4 ____
Group 5 – Passive methods like rate of change of frequency, vector shift	Group 5 ____	Group 5 ____	Group 5 ____	Group 5 ____
Group 6 – Produces negative sequence current and monitor voltage	Group 6 ____	Group 6 ____	Group 6 ____	Group 6 ____

PG&E proposes to incorporate this new section into the following forms.

- Form 79-1174-02D: Rule 21 Generator Interconnection Application - Attachment D (SOLAR (PV) TECHNOLOGY)
- Form 79-1174-02E: Rule 21 Generator Interconnection Application - Attachment E (WIND TURBINE TECHNOLOGY)
- Form 79-1174-02F: Rule 21 Generator Interconnection Application - Attachment F (MACHINE-BASED TECHNOLOGY)
- Form 79-1174-02G: Rule 21 Generator Interconnection Application - Attachment G (FUEL CELL TECHNOLOGY)
- Form 79-1174-02H: Rule 21 Generator Interconnection Application - Attachment H (ENERGY STORAGE TECHNOLOGY)

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

### **Protests**

Anyone wishing to protest this submittal may do so by letter sent electronically via E-mail, no later than November 10, 2022, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division  
ED Tariff Unit  
E-mail: EDTariffUnit@cpuc.ca.gov

The protest shall also be electronically sent to PG&E via E-mail at the address shown below on the same date it is electronically delivered to the Commission:

Sidney Bob Dietz II  
Director, Regulatory Relations  
c/o Megan Lawson  
E-mail: PGETariffs@pge.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 and 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).

### **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 December 12, 2022, to coincide with planned implementation of these updates into PG&E's online application portal, *YourProjects*. In the event this Advice Letter is not made effective before December 12, 2022, PG&E will implement these fields into our online application portal as optional fields.

**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 Forms  
Attachment 2 – Redline Form Revisions

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 (U 39 E)

Utility type:

- ELC       GAS       WATER  
 PLC       HEAT

Contact Person: Stuart Rubio

Phone #: (415) 973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: SHR8@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) #: 6744-E

Tier Designation: 2

Subject of AL: Addition of Subaccounts to the Modifications to PG&E's Interconnection Application Forms to Incorporate Anti-Islanding Options in the Application Portal Pursuant to the Rule 21 Working Group 4 Decision 21-06-002

Keywords (choose from CPUC listing): Compliance, Forms

AL Type:  Monthly  Quarterly  Annual  One-Time  Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.21-06-002

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: N/A

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: 12/12/22

No. of tariff sheets: 7

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 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 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](mailto: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: (415)973-2093  
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

<b>Cal P.U.C. Sheet No.</b>	<b>Title of Sheet</b>	<b>Cancelling Cal P.U.C. Sheet No.</b>
54484-E	Electric Sample Form No. 79-1174-02D Rule 21 Generator Interconnection Application - Attachment D Sheet 1	54071-E
54485-E	Electric Sample Form No. 79-1174-02E Rule 21 Generator Interconnection Application - Attachment E Sheet 1	54072-E
54486-E	Electric Sample Form No. 79-1174-02F Rule 21 Generator Interconnection Application - Attachment F Sheet 1	54073-E
54487-E	Electric Sample Form No. 79-1174-02G Rule 21 Generator Interconnection Application - Attachment G Sheet 1	54074-E
54488-E	Electric Sample Form No. 79-1174-02H Rule 21 Generator Interconnection Application - Attachment H Sheet 1	54075-E
54489-E	ELECTRIC TABLE OF CONTENTS Sheet 1	54449-E
54490-E	ELECTRIC TABLE OF CONTENTS Sheet 25	54077-E



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

Sheet 1

**Please Refer to Attached  
Sample Form**

(Continued)

*Advice* 6744-E  
*Decision* D.21-06-002

*Issued by*  
**Meredith Allen**  
*Vice President, Regulatory Affairs*

*Submitted* October 21, 2022  
*Effective* December 12, 2022  
*Resolution*



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

### Part I - Describing the Generating Facility and Host Customer's Electrical Facilities

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

Instructions				
Inverter	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>Please indicate the number of each <b>"type"</b> and <b>quantity</b> of Generator being installed</p> <p>Be sure all Generators classified as one "type" are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E's Rule 21, Section L for additional information regarding Generator certification.</p>	<p style="text-align: center;">___ Yes</p> <p style="text-align: center;">___ No</p>	<p style="text-align: center;">___ Yes</p> <p style="text-align: center;">___ No</p>	<p style="text-align: center;">___ Yes</p> <p style="text-align: center;">___ No</p>	<p style="text-align: center;">___ Yes</p> <p style="text-align: center;">___ No</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>E – Anti-Islanding Detection Method</b> Please select an Anti-Islanding Detection Method  Group 1 – Frequency Shift with continuous positive frequency feedback  Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback  Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz  Group 2C – Frequency shift with unidirectional frequency feedback  Group 3 – Monitors change of impedance  Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)  Group 5 – Passive methods like rate of change of frequency, vector shift  Group 6 – Produces negative sequence current and monitor voltage	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____
<b>F –Volt-Var Smart Inverter Setting</b> <i>If proposing non-default inverter settings, please provide:</i> Power Factor Value  Inverter Power Factor  Volt-Var Voltage Values  Volt-Var Reactive Values  Volt-Watt Real Power Values	V1 _____  Q1 _____  V1 _____  Q1 _____  P1 _____	V2 _____  Q2 _____  V2 _____  Q2 _____  P2 _____	V3 _____  Q3 _____  V3 _____  Q3 _____  P3 _____	V4 _____  Q4 _____  V4 _____  Q4 _____  P4 _____



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
G - Modules.	<p>_____ Manufacturer</p> <p>_____ Model #.</p> <p>_____ Quantity</p>			
<p>H - Gross Nameplate Rating (kVA)</p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p>I - Operating Voltage</p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p>J - Power Factor Rating</p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p>K - PF Adjustment Range</p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p>L - Wiring Configuration</p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>M - AC Disconnect</b></p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes</p> <p>____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes</p> <p>____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes</p> <p>____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes</p> <p>____ No</p>
<p><b>N - Lineside Tap</b></p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	<p>____ Customer side</p> <p>____ PG&amp;E side</p>			
<p><b>O - Warranty or Service Agreement</b></p> <p>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.</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>P - Solar Ready Electric Panel</b></p> <p>Is the Generating Facility connecting to a circuit breaker on the supply side of the main breaker?</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>Q - Green Meter Adapter (GMA)</b></p> <p>Will a GMA be installed?</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>R - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</b></p> <p>Does this interconnection meet the DIH and Greenbook Requirements</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>S - Gas Clearance Requirements</b></p> <p>Certify that this interconnection meets Greenbook Gas Clearance Requirements?</p>	<p>____ Yes</p> <p>____ No</p>			



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>T - Basic Single Line Diagram (SLD)</p> <p>If the interconnection is eligible to use a Basic SLD, please include the requested information.</p>	<p>_____</p> <p>Panel Voltage (Volts)</p> <p>_____</p> <p>Main Breaker (Amps)</p> <p>_____</p> <p>PV Breaker Size (Amps)</p>	<p>_____</p> <p>Panel Voltage (Volts)</p> <p>_____</p> <p>Main Breaker (Amps)</p> <p>_____</p> <p>PV Breaker Size (Amps)</p>	<p>_____</p> <p>Panel Voltage (Volts)</p> <p>_____</p> <p>Main Breaker (Amps)</p> <p>_____</p> <p>PV Breaker Size (Amps)</p>	<p>_____</p> <p>Panel Voltage (Volts)</p> <p>_____</p> <p>Main Breaker (Amps)</p> <p>_____</p> <p>PV Breaker Size (Amps)</p>
<p>U - Back-up Generator Operation</p> <p>Will the generator be operated as a back-up?</p> <p>If yes, please indicate the control device that will be used.</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>
<p>V - Limited Export</p> <p>Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>_____ Yes _____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>W – Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p>  <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Customer-owned Telemetry - Gateway <input type="checkbox"/> Customer-owned Telemetry - Aggregator <input type="checkbox"/> Mini RTU</p> <p><input type="checkbox"/> Customer-side net load metering <input type="checkbox"/> Replace PG&amp;E meter with a Mark V meter and terminal block <input type="checkbox"/> Add terminal block to existing PG&amp;E Mark V meter <input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter <input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.</p>			

**Part II Solar Statistics Data Fields**

Per Appendix A of CPUC D. 14-11-001, the following data fields must all be completed, in their entirety, in order to initiate PG&E’s interconnection review of the proposed Generating Facility. *Only complete Part II if the solar generating facility is serving as part of a Net Energy Metering (NEM2) arrangement.*

**A. Customer Sector** (Check one)

- |                                           |                                      |                                     |
|-------------------------------------------|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> Residential      | <input type="checkbox"/> Educational | <input type="checkbox"/> Industrial |
| <input type="checkbox"/> Commercial       | <input type="checkbox"/> Military    | <input type="checkbox"/> Non-Profit |
| <input type="checkbox"/> Other Government |                                      |                                     |



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

**B. Are Performance Monitoring and Reporting Services (PMRS) being utilized?**

Yes       No

If yes, please indicate who is receiving the data? (check all that apply)

Customer

3<sup>rd</sup> Party (list name) \_\_\_\_\_

**C. Are there electric vehicles charging on site at the above generating facility address?**

Yes       No

If yes, please indicate how many electric vehicles \_\_\_\_\_

**D. System Ownership and Financing**

**i. System Owner** (check one):

PG&E Customer Owned

If PG&E Customer Owned, please answer the following:

Indicate the System Cost paid by Customer: \$ \_\_\_\_\_

Property Assessed Clean Energy (PACE) Financed?

Yes

No

If Yes, PACE financed by which entity? \_\_\_\_\_

If you have non-PACE financing or a lease, please fill in the information below

\_\_\_\_\_  
Financial Institution/Lessor Name

\_\_\_\_\_  
Financial Institution/Lessor Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip

Third Party Owned

If Third Party Owned, please answer the following:

Claimed Federal Investment Tax Credit (ITC) Cost Basis: \$ \_\_\_\_\_

Name of Developer at the time of sale:  
\_\_\_\_\_

Contract Type:     PPA     Lease     Pre-Paid Lease     Other \_\_\_\_\_

**ii. Rebate Information:**

Did you participate in a California rebate program?     Yes     No

Please indicate the rebate program that you participated in: \_\_\_\_\_

Rebate Amount: \$ \_\_\_\_\_

If you are participating in the Single-family Affordable Solar Home (SASH) program, please provide SASH project number: \_\_\_\_\_



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

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### E. Additional Generating Facility Information (Solar PV Only)

i. Mounting Method:     Rooftop     Ground     Mixed

ii. Tracking Type:     Fixed     Single-Axis     Dual-Axis     Mixed

If fixed, please indicate: Tilt: \_\_\_\_\_ degrees    Azimuth: \_\_\_\_\_ degrees

F. Installer's/Vendor's California State Contractor License Number: \_\_\_\_\_

### G. CPUC Consumer Protection Requirements Pursuant to Decision 21-06-026

#### a. Home Improvement Salesperson (HIS) Registration Number

Was a Home Improvement Salesperson (HIS) involved in the development of your project?

Yes     No

California Public Utilities Commission (CPUC) Decision 21-02-026 requires "*the Home Improvement Salesperson (HIS) registration number of solar providers who are required to have a HIS registration number, while enabling solar providers who are not required to have a HIS registration number to indicate they are exempt and to instead provide the applicable contractor's license.*"

If you checked "Yes" above:

Please provide the Home Improvement Salesperson (HIS) registration number below.

Home Improvement Salesperson (HIS) registration number:

\_\_\_\_\_



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

Sheet 1

**Please Refer to Attached  
Sample Form**

(Continued)

*Advice* 6744-E  
*Decision* D.21-06-002

*Issued by*  
**Meredith Allen**  
*Vice President, Regulatory Affairs*

*Submitted* October 21, 2022  
*Effective* December 12, 2022  
*Resolution*



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE 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
<p>Please indicate the number of each <b>“type” and quantity</b> of Generator being installed</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>	Type: _____ Qty.: _____	Type: _____ Qty.: _____	Type: _____ Qty.: _____	Type: _____ Qty.: _____
<b>A - Generator/Inverter Manufacturer</b> Enter the brand name of the Generator.				
<b>B - Generator/Inverter Model</b> Enter the model name or number assigned by the manufacturer of the Generator.				
<b>C - Generator/Inverter Software Version</b> 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.				
<b>D - Is the Inverter certified?</b> 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



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>E – Anti-Islanding Detection Method</b> Please select an Anti-Islanding Detection Method  Group 1 – Frequency Shift with continuous positive frequency feedback  Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback  Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz  Group 2C – Frequency shift with unidirectional frequency feedback  Group 3 – Monitors change of impedance  Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)  Group 5 – Passive methods like rate of change of frequency, vector shift  Group 6 – Produces negative sequence current and monitor voltage	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____
<b>F –Volt-Var Smart Inverter Setting</b> <i>If proposing non-default inverter settings, please provide:</i> Power Factor Value  Inverter Power Factor  Volt-Var Voltage Values  Volt-Var Reactive Values  Volt-Watt Real Power Values	V1 _____  Q1 _____  V1 _____ Q1 _____  P1 _____	V2 _____  Q2 _____  V2 _____ Q2 _____  P2 _____	V3 _____  Q3 _____  V3 _____ Q3 _____  P3 _____	V4 _____  Q4 _____  V4 _____ Q4 _____  P4 _____



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>G - Generator Design</b></p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	<p>___ Synch</p> <p>___ Induct.</p> <p>___ Inverter</p>			
<p><b>H - Gross Nameplate Rating (kVA)</b></p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>I - Operating Voltage</b></p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>J - Power Factor Rating</b></p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>K - PF Adjustment Range</b></p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p><b>L - Wiring Configuration</b></p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>M - (MP) 3-Phase Winding Configuration</p> <p>(Choose One)</p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	<p><input type="checkbox"/> 3 Wire Delta</p> <p><input type="checkbox"/> 3 Wire Wye</p> <p><input type="checkbox"/> 4 Wire Wye</p>	<p><input type="checkbox"/> 3 Wire Delta</p> <p><input type="checkbox"/> 3 Wire Wye</p> <p><input type="checkbox"/> 4 Wire Wye</p>	<p><input type="checkbox"/> 3 Wire Delta</p> <p><input type="checkbox"/> 3 Wire Wye</p> <p><input type="checkbox"/> 4 Wire Wye</p>	<p><input type="checkbox"/> 3 Wire Delta</p> <p><input type="checkbox"/> 3 Wire Wye</p> <p><input type="checkbox"/> 4 Wire Wye</p>
<p>N - (MP) Neutral Grounding System Used</p> <p>(Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<p><input type="checkbox"/> Ungrounded</p> <p><input type="checkbox"/> Solidly Grounded</p> <p><input type="checkbox"/> Ground Resistor</p> <p><input type="checkbox"/> Ohms</p>	<p><input type="checkbox"/> Ungrounded</p> <p><input type="checkbox"/> Solidly Grounded</p> <p><input type="checkbox"/> Ground Resistor</p> <p><input type="checkbox"/> Ohms</p>	<p><input type="checkbox"/> Ungrounded</p> <p><input type="checkbox"/> Solidly Grounded</p> <p><input type="checkbox"/> Ground Resistor</p> <p><input type="checkbox"/> Ohms</p>	<p><input type="checkbox"/> Ungrounded</p> <p><input type="checkbox"/> Solidly Grounded</p> <p><input type="checkbox"/> Ground Resistor</p> <p><input type="checkbox"/> Ohms</p>
<p>O - Induction Generators Only:</p> <p style="padding-left: 40px;">Locked Rotor Current: _____ (Amps)</p> <p style="padding-left: 40px;"><b>Stator Resistance:</b> _____ (%)</p> <p style="padding-left: 40px;">Stator Leakage Reactance: _____ (%)</p> <p style="padding-left: 40px;">Rotor Resistance: _____ (%)</p> <p style="padding-left: 40px;">Rotor Leakage Reactance: _____ (%)</p> <p>If the Generator is of an induction design, please provide the "locked rotor current" value supplied by the manufacturer.</p> <p>If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current.</p> <p>If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>
<p>P - Short Circuit Current Produced by Generator</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>
<p>Q - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<p>Manufacturer _____</p> <p>Model # _____</p> <p>Rating (amps) _____</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Manufacturer _____</p> <p>Model # _____</p> <p>Rating (amps) _____</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Manufacturer _____</p> <p>Model # _____</p> <p>Rating (amps) _____</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p>Manufacturer _____</p> <p>Model # _____</p> <p>Rating (amps) _____</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>R - Lineside Tap</b> 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: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.	<input type="checkbox"/> Customer side  <input type="checkbox"/> PG&E side			
<b>S – Warranty or Service Agreement</b> 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.	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>T - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</b> Does this interconnection meet the DIH and Greenbook Requirements	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>U - Gas Clearance Requirements</b> Certify that this interconnection meets Greenbook Gas Clearance Requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>V - Back-up Generator Operation</b> Will the generator be operated as a back-up?  If yes, please indicate control device.	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker
<b>W - Limited Export</b> Will the generator export be limited?  If yes, please indicate how export will be limited.	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS - Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter





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

Sheet 1

**Please Refer to Attached  
Sample Form**

(Continued)

*Advice* 6744-E  
*Decision* D.21-06-002

*Issued by*  
**Meredith Allen**  
*Vice President, Regulatory Affairs*

*Submitted* October 21, 2022  
*Effective* December 12, 2022  
*Resolution*



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED 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
<p>Please indicate the number of each <b>“type”</b> and <b>quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>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.</p>				
<p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.  See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>E – Anti-Islanding Detection Method</b> Please select an Anti-Islanding Detection Method  Group 1 – Frequency Shift with continuous positive frequency feedback  Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback  Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz  Group 2C – Frequency shift with unidirectional frequency feedback  Group 3 – Monitors change of impedance  Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)  Group 5 – Passive methods like rate of change of frequency, vector shift  Group 6 – Produces negative sequence current and monitor voltage	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____
<b>F –Volt-Var Smart Inverter Setting</b> <i>If proposing non-default inverter settings, please provide:</i> Power Factor Value  Inverter Power Factor  Volt-Var Voltage Values  Volt-Var Reactive Values  Volt-Watt Real Power Values	V1 _____  Q1 _____  V1 _____ Q1 _____  P1 _____	V2 _____  Q2 _____  V2 _____ Q2 _____  P2 _____	V3 _____  Q3 _____  V3 _____ Q3 _____  P3 _____	V4 _____  Q4 _____  V4 _____ Q4 _____  P4 _____



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>G - Gross Nameplate Rating (kVA)</b></p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p style="padding-left: 40px;">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.</p>				
<p><b>H - Operating Voltage</b></p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>I - Power Factor Rating</b></p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>J - PF Adjustment Range</b></p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p><b>K - Wiring Configuration</b></p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				
<p><b>L - (MP) 3-Phase Winding Configuration</b> (Choose One)</p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>M - (MP) Neutral Grounding System Used (Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<p>___ Ungrounded</p> <p>___ Solidly Grounded</p> <p>___ Ground Resistor ___ Ohms</p>	<p>___ Ungrounded</p> <p>___ Solidly Grounded</p> <p>___ Ground Resistor ___ Ohms</p>	<p>___ Ungrounded</p> <p>___ Solidly Grounded</p> <p>___ Ground Resistor ___ Ohms</p>	<p>___ Ungrounded</p> <p>___ Solidly Grounded</p> <p>___ Ground Resistor ___ Ohms</p>
<p>N – <i>Synchronous Generators Only</i>: If the Generator is of a synchronous design, please provide the synchronous reactance, transient reactance, and subtransient reactance values supplied by the manufacturer. This information is necessary to determine the short circuit contribution of the Generator and as data in load flow and short circuit computer models of PG&amp;E's Electric System. If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</p>				
<p>Synchronous Reactance:</p> <p>Transient Reactance:</p> <p>Subtransient Reactance:</p>	<p>_____ (Xd %)</p> <p>_____ (Xd %)</p> <p>_____ (Xd %)</p>	<p>_____ (Xd %)</p> <p>_____ (Xd %)</p> <p>_____ (Xd %)</p>	<p>_____ (Xd %)</p> <p>_____ (Xd %)</p> <p>_____ (Xd %)</p>	<p>_____ (Xd %)</p> <p>_____ (Xd %)</p> <p>_____ (Xd %)</p>
<p>O - <i>Induction Generators Only</i>:</p>				
<p>Locked Rotor Current:</p> <p><b>Stator Resistance:</b></p> <p>Stator Leakage Reactance:</p> <p>Rotor Resistance:</p> <p>Rotor Leakage Reactance:</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>
<p>If the Generator is of an induction design, please provide the "locked rotor current" value supplied by the manufacturer.</p> <p>If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current.</p> <p>If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</p>	<p>_____ (%)</p>	<p>_____ (%)</p>	<p>_____ (%)</p>	<p>_____ (%)</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
P - Short Circuit Current Produced by Generator:	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
Q – For Generators that are Started as a “Motor” Only: This information is needed only for Generators that are started by “motoring” the generator.  See PG&E’s Rule 21, Sections L.3.d. and L.7.b. for significance and additional information.  If this question was answered in Part IV, question C of this Application, it need not be answered here.  1. In-Rush Current:  2. Host Customer’s Service Entrance Panel (Main Panel) Continuous Current Rating:	_____ (Amps)  _____ (Amps)	_____ (Amps)  _____ (Amps)	_____ (Amps)  _____ (Amps)	_____ (Amps)  _____ (Amps)
R – 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
S - 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			
T - 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: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a>  for more information.	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>U – Warranty or Service Agreement</b> 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
<b>V - Cogeneration</b> Please indicate whether this Generating Facility meets the definition of cogeneration in PUC 216.6 (5% useful thermal and 42.5% efficient):	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>W - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</b> Does this interconnection meet the DIH and Greenbook Requirements	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>X - Gas Clearance Requirements</b> Certify that this interconnection meets Greenbook Gas Clearance Requirements?	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>Y - Back-up Generator Operation</b> Will the generator be operated as a back-up?  If yes, please indicate control device.	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker
<b>Z - Limited Export</b> Will the generator export be limited?  If yes, please indicate how export will be limited.	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>AA - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>			<p><input type="checkbox"/> Customer-owned Telemetry - Gateway</p> <p><input type="checkbox"/> Customer-owned Telemetry - Aggregator</p> <p><input type="checkbox"/> Mini RTU</p> <p><input type="checkbox"/> Customer-side net load metering</p> <p><input type="checkbox"/> Replace PG&amp;E meter with a Mark V meter and terminal block</p> <p><input type="checkbox"/> Add terminal block to existing PG&amp;E Mark V meter</p> <p><input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter</p> <p><input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.</p>



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

Sheet 1

**Please Refer to Attached  
Sample Form**

(Continued)

*Advice* 6744-E  
*Decision* D.21-06-002

*Issued by*  
**Meredith Allen**  
*Vice President, Regulatory Affairs*

*Submitted* October 21, 2022  
*Effective* December 12, 2022  
*Resolution*



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL 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
<p>Please indicate the number of each <b>“type” and quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>E – Anti-Islanding Detection Method</b></p> <p>Please select an Anti-Islanding Detection Method</p> <p>Group 1 – Frequency Shift with continuous positive frequency feedback</p> <p>Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback</p> <p>Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz</p> <p>Group 2C – Frequency shift with unidirectional frequency feedback</p> <p>Group 3 – Monitors change of impedance</p> <p>Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)</p> <p>Group 5 – Passive methods like rate of change of frequency, vector shift</p> <p>Group 6 – Produces negative sequence current and monitor voltage</p>	<p>Group 1 ____</p> <p>Group 2A ____</p> <p>Group 2B ____</p> <p>Group 2C ____</p> <p>Group 3 ____</p> <p>Group 4 ____</p> <p>Group 5 ____</p> <p>Group 6 ____</p>	<p>Group 1 ____</p> <p>Group 2A ____</p> <p>Group 2B ____</p> <p>Group 2C ____</p> <p>Group 3 ____</p> <p>Group 4 ____</p> <p>Group 5 ____</p> <p>Group 6 ____</p>	<p>Group 1 ____</p> <p>Group 2A ____</p> <p>Group 2B ____</p> <p>Group 2C ____</p> <p>Group 3 ____</p> <p>Group 4 ____</p> <p>Group 5 ____</p> <p>Group 6 ____</p>	<p>Group 1 ____</p> <p>Group 2A ____</p> <p>Group 2B ____</p> <p>Group 2C ____</p> <p>Group 3 ____</p> <p>Group 4 ____</p> <p>Group 5 ____</p> <p>Group 6 ____</p>
<p><b>F –Volt-Var Smart Inverter Setting</b></p> <p><i>If proposing non-default inverter settings, please provide:</i></p> <p>Power Factor Value</p> <p>Inverter Power Factor</p> <p>Volt-Var Voltage Values</p> <p>Volt-Var Reactive Values</p> <p>Volt-Watt Real Power Values</p>	<p>V1 _____</p> <p>Q1 _____</p> <p>V1 _____</p> <p>Q1 _____</p> <p>P1 _____</p>	<p>V2 _____</p> <p>Q2 _____</p> <p>V2 _____</p> <p>Q2 _____</p> <p>P2 _____</p>	<p>V3 _____</p> <p>Q3 _____</p> <p>V3 _____</p> <p>Q3 _____</p> <p>P3 _____</p>	<p>V4 _____</p> <p>Q4 _____</p> <p>V4 _____</p> <p>Q4 _____</p> <p>P4 _____</p>
<p><b>G - Generator Design</b></p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	<p>____ Synch</p> <p>____ Induct.</p> <p>____ Inverter</p>			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>H - Gross Nameplate Rating (kVA)</b></p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>I - Operating Voltage</b></p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>J - Power Factor Rating</b></p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>K - PF Adjustment Range</b></p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p><b>L - Wiring Configuration</b></p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				
<p><b>M - (MP) 3-Phase Winding Configuration (Choose One)</b></p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	___ 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



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>N - (MP) Neutral Grounding System Used (Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms
O - Short Circuit Current Produced by Generator	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
<p>P – Prime Mover Type</p> <p>Please indicate the type and fuel used as the prime mover or source of energy for the Generator.</p> <p>1 = Natural Gas            2 = Diesel Fueled            3 = Other Fuel</p>	1   2   3	1   2   3	1   2   3	1   2   3
<p>Q - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	_____ Manufacturer _____ Model # _____ Rating (amps)  <input type="checkbox"/> Yes <input type="checkbox"/> No			
<p>R - Lineside Tap</p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	_____ Customer side  <input type="checkbox"/> PG&E side			
<p>S – Warranty or Service Agreement</p> <p>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.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<b>T - Cogeneration</b> Please indicate whether this Generating Facility meets the definition of cogeneration in PUC 216.6 (5% useful thermal and 42.5% efficient):	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>U - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</b> Does this interconnection meet the DIH and Greenbook Requirements	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>V - Gas Clearance Requirements</b> Certify that this interconnection meets Greenbook Gas Clearance Requirements?	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No	___ Yes ___ No
<b>W - Back-up Generator Operation</b> Will the generator be operated as a back-up?  If yes, please indicate control device.	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	___ Yes ___ No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker
<b>X - Limited Export</b> Will the generator export be limited?  If yes, please indicate how export will be limited.	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	___ Yes ___ No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>Y - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Customer-owned Telemetry - Gateway</p> <p><input type="checkbox"/> Customer-owned Telemetry - Aggregator</p> <p><input type="checkbox"/> Mini RTU</p> <p><input type="checkbox"/> Customer-side net load metering</p> <p><input type="checkbox"/> Replace PG&amp;E meter with a Mark V meter and terminal block</p> <p><input type="checkbox"/> Add terminal block to existing PG&amp;E Mark V meter</p> <p><input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter</p> <p><input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.</p>			



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

Sheet 1

**Please Refer to Attached  
Sample Form**

(Continued)

*Advice* 6744-E  
*Decision* D.21-06-002

*Issued by*  
**Meredith Allen**  
*Vice President, Regulatory Affairs*

*Submitted* October 21, 2022  
*Effective* December 12, 2022  
*Resolution*



# 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
<p>Please indicate the number of each <b>“type”</b> and <b>quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> 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
<b>E – Anti-Islanding Detection Method</b> Please select an Anti-Islanding Detection Method  Group 1 – Frequency Shift with continuous positive frequency feedback  Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback  Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz  Group 2C – Frequency shift with unidirectional frequency feedback  Group 3 – Monitors change of impedance  Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)  Group 5 – Passive methods like rate of change of frequency, vector shift  Group 6 – Produces negative sequence current and monitor voltage	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____	Group 1 ____  Group 2A ____  Group 2B ____  Group 2C ____  Group 3 ____  Group 4 ____  Group 5 ____  Group 6 ____
<b>F –Volt-Var Smart Inverter Setting</b> <i>If proposing non-default inverter settings, please provide:</i> Power Factor Value  Inverter Power Factor  Volt-Var Voltage Values  Volt-Var Reactive Values  Volt-Watt Real Power Values	V1 _____  Q1 _____  V1 _____ Q1 _____  P1 _____	V2 _____  Q2 _____  V2 _____ Q2 _____  P2 _____	V3 _____  Q3 _____  V3 _____ Q3 _____  P3 _____	V4 _____  Q4 _____  V4 _____ Q4 _____  P4 _____



# 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
<p><b>G - Generator Design</b></p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	_____ Synch _____ Induct. _____ Inverter			
<p><b>H - Gross Nameplate Rating (kVA)</b></p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>I - Energy Storage Electrical Source Function</b> (in addition, please complete section: "Additional Information Required for Energy Storage")</p>	Max kWh Capacity: _____ Rated kW Discharge: _____			
<p><b>J - Operating Voltage</b></p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>K - Power Factor Rating</b></p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>L - PF Adjustment Range</b></p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				



# 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
<b>M - Wiring Configuration</b> Please indicate whether the Generator is a single-phase or three-phase device. See PG&E's Rule 21, Section H.3.				
<b>N - (MP) 3-Phase Winding Configuration (Choose One)</b> 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
<b>O - (MP) Neutral Grounding System Used (Choose One)</b> 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			
<b>P - Short Circuit Current Produced by Generator:</b>	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
<b>Q – Prime Mover Type</b> 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
<b>R - AC Disconnect</b> 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)	_____ Manufacturer  _____ Model #  _____ Rating (amps)	_____ Manufacturer  _____ Model #  _____ Rating (amps)	_____ Manufacturer  _____ Model #  _____ Rating (amps)
	___ 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
<b>S - Energy Storage (ES) System</b> (For important sizing information related to DC-Coupled configurations, see sizing note below).	_____ Manufacturer  _____ Model #  _____ Quantity of Units			
<b>T - Lineside Tap</b> 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: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side	_____ Customer side  _____ PG&E side
<b>U – Warranty or Service Agreement</b> 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
<b>V - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</b> Does this interconnection meet the DIH and Greenbook Requirements	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No	____ Yes ____ No
<b>W - Gas Clearance Requirements</b> 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
<p><b>X - Basic Single Line Diagram (SLD)</b> If the interconnection is eligible to use a Basic SLD, please include the requested information.</p> <p>Can this system be used as a back-up generator?</p> <p>If so, please include the requested information for the back-up controller or other device.</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>____ Yes ____ No</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>____ Yes ____ No</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>____ Yes ____ No</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>____ Yes ____ No</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>
<p><b>Y - Back-up Generator Operation</b> Will the generator be operated as a back-up?</p> <p>If yes, please indicate control device.</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>
<p><b>Z - Limited Export</b> Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>____ Yes ____ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>



# 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
<p>AA - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p>   <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Customer-owned Telemetry - Gateway <input type="checkbox"/> Customer-owned Telemetry - Aggregator <input type="checkbox"/> Mini RTU  <input type="checkbox"/> Customer-side net load metering <input type="checkbox"/> Replace PG&E meter with a Mark V meter and terminal block <input type="checkbox"/> Add terminal block to existing PG&E Mark V meter <input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter <input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.			



# 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 specifications 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 \_\_\_\_\_



**ELECTRIC TABLE OF CONTENTS**

Sheet 1

**TABLE OF CONTENTS**

<b>SCHEDULE</b>	<b>TITLE OF SHEET</b>	<b>CAL P.U.C. SHEET NO.</b>	
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Preliminary Statements.....	52771,48064,52561,41723,49327,54450,54433-E		
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(Continued)

Advice 6744-E  
Decision D.21-06-002

Issued by  
**Meredith Allen**  
Vice President, Regulatory Affairs

Submitted October 21, 2022  
Effective December 12, 2022  
Resolution



**ELECTRIC TABLE OF CONTENTS**

Sheet 25

<b>FORM</b>	<b>TITLE OF SHEET</b>	<b>CAL P.U.C. SHEET NO.</b>
-------------	-----------------------	-----------------------------

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79-1174-02A	Rule 21 Generator Interconnection Application – Attachment A .....	54070-E	
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79-1174-02E	Rule 21 Generator Interconnection Application – Attachment E .....	<b>54485-E</b>	(T)
79-1174-02F	Rule 21 Generator Interconnection Application – Attachment F .....	<b>54486-E</b>	(T)
79-1174-02G	Rule 21 Generator Interconnection Application – Attachment G .....	<b>54487-E</b>	(T)
79-1174-02H	Rule 21 Generator Interconnection Application – Attachment H .....	<b>54488-E</b>	(T)
79-1174-02I	Rule 21 Generator Interconnection Application – Attachment I.....	49275-E	
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79-1175	Rule 21 Consent to Assignment Form for Non-NEM Projects.....	48657-E	
79-1181	Rule 21 Pre-Application Report Request .....	48663-E	
79-1191	Generating Facility Interconnection Agreement For Local Government Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT).....	49295-E	
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79-1198-02	Interconnection Agreement for Net Energy Metering (NEM2) and Renewable Electrical Generating Facility Sized Greater than 1,000 kW .....	50574-E	
79-1199	Agreement and Customer Authorization Non-Export Standalone Energy Storage of 30 Kilowatts or Less .....	48678-E	
79-1200	Rule 21 Generator Interconnection Agreement for Exporting Generating Facilities .....	48679-E	
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79-1211	Generating Facility Material Modification Notification Worksheet.....	50316-E	
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79-1213	Agreement and Customer Authorization Non-Export Generating Facility Sized 30 Kilowatts or Less .....	51183-E	
79-1214	Notification-Only Pilot Program Developer Eligibility Application .....	51184-E	

(Continued)

# **Attachment 2**

**Redline Form Revisions**



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

### Part I - Describing the Generating Facility and Host Customer's Electrical Facilities

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

Instructions				
Inverter	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p>Please indicate the number of each <b>"type"</b> and <b>quantity</b> of Generator being installed</p> <p>Be sure all Generators classified as one "type" are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E's Rule 21, Section L for additional information regarding Generator certification.</p>	<p style="text-align: center;">___ Yes ___ No</p>			





# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

<p><del>F—Modules:</del></p>	<p style="text-align: center;"><del>Manufacturer</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Model #.</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Quantity</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/>	<p style="text-align: center;"><del>Manufacturer</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Model #.</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Quantity</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/>	<p style="text-align: center;"><del>Manufacturer</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Model #.</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Quantity</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/>	<p style="text-align: center;"><del>Manufacturer</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Model #.</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/> <p style="text-align: center;"><del>Quantity</del></p> <hr style="border: 0; border-top: 1px solid black; margin: 2px 0;"/>
<p><del>G—Gross Nameplate Rating (kVA)</del></p> <p><del>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</del></p> <p><del>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.</del></p>				
<p><del>H—Operating Voltage</del></p> <p><del>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</del></p> <p><del>Please indicate phase to phase voltages for 3-phase installations.</del></p> <p><del>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</del></p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<u>G - Modules.</u>	<u>Manufacturer</u>  <u>Model #.</u>  <u>Quantity</u>	<u>Manufacturer</u>  <u>Model #.</u>  <u>Quantity</u>	<u>Manufacturer</u>  <u>Model #.</u>  <u>Quantity</u>	<u>Manufacturer</u>  <u>Model #.</u>  <u>Quantity</u>
<u>H - Gross Nameplate Rating (kVA)</u>  <u>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</u>  <u>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.</u>				
<u>I - Operating Voltage</u>  <u>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</u>  <u>Please indicate phase-to-phase voltages for 3-phase installations.</u>  <u>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</u>				
<u>J - Power Factor Rating</u>  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.				
<u>JK - PF Adjustment Range</u>  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.				
<u>KL - Wiring Configuration</u>  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 D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>LM</b> - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<p>Manufacturer</p> <hr/> <p>Model #</p> <hr/> <p>Rating (amps)</p> <hr/> <p>___ Yes ___ No</p>	<p>Manufacturer</p> <hr/> <p>Model #</p> <hr/> <p>Rating (amps)</p> <hr/> <p>___ Yes ___ No</p>	<p>Manufacturer</p> <hr/> <p>Model #</p> <hr/> <p>Rating (amps)</p> <hr/> <p>___ Yes ___ No</p>	<p>Manufacturer</p> <hr/> <p>Model #</p> <hr/> <p>Rating (amps)</p> <hr/> <p>___ Yes ___ No</p>
<p><b>MN</b> - Lineside Tap</p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	<p>Customer side</p> <hr/> <p>___ PG&amp;E side</p>			
<p><b>NO</b> - Warranty or Service Agreement</p> <p>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.</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>
<p><b>OP</b> - Solar Ready Electric Panel</p> <p>Is the Generating Facility connecting to a circuit breaker on the supply side of the main breaker?</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>
<p><b>PQ</b> - Green Meter Adapter (GMA)</p> <p>Will a GMA be installed?</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>
<p><b>QR</b> - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</p> <p>Does this interconnection meet the DIH and Greenbook Requirements</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>
<p><b>RS</b> - Gas Clearance Requirements</p> <p>Certify that this interconnection meets Greenbook Gas Clearance Requirements?</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>	<p>___ Yes ___ No</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>SI</b> - Basic Single Line Diagram (SLD)</p> <p>If the interconnection is eligible to use a Basic SLD, please include the requested information.</p>	<p>Panel Voltage (Volts)</p> <hr/> <p>Main Breaker (Amps)</p> <hr/> <p>PV Breaker Size (Amps)</p> <hr/>	<p>Panel Voltage (Volts)</p> <hr/> <p>Main Breaker (Amps)</p> <hr/> <p>PV Breaker Size (Amps)</p> <hr/>	<p>Panel Voltage (Volts)</p> <hr/> <p>Main Breaker (Amps)</p> <hr/> <p>PV Breaker Size (Amps)</p> <hr/>	<p>Panel Voltage (Volts)</p> <hr/> <p>Main Breaker (Amps)</p> <hr/> <p>PV Breaker Size (Amps)</p> <hr/>
<p><b>FU</b> - Back-up Generator Operation</p> <p>Will the generator be operated as a back-up?</p> <p>If yes, please indicate the control device that will be used.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor</p> <p><input type="checkbox"/> Breaker</p>
<p><b>UV</b> - Limited Export</p> <p>Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><del>V</del>W – Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Customer-owned Telemetry - Gateway</p> <p><input type="checkbox"/> Customer-owned Telemetry - Aggregator</p> <p><input type="checkbox"/> Mini RTU</p> <p><input type="checkbox"/> Customer-side net load metering</p> <p><input type="checkbox"/> Replace PG&amp;E meter with a Mark V meter and terminal block</p> <p><input type="checkbox"/> Add terminal block to existing PG&amp;E Mark V meter</p> <p><input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter</p> <p><input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.</p>			

**Part II Solar Statistics Data Fields**

Per Appendix A of CPUC D. 14-11-001, the following data fields must all be completed, in their entirety, in order to initiate PG&E's interconnection review of the proposed Generating Facility. *Only complete Part II if the solar generating facility is serving as part of a Net Energy Metering (NEM2) arrangement.*

**A. Customer Sector (Check one)**

- |                                           |                                      |                                     |
|-------------------------------------------|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> Residential      | <input type="checkbox"/> Educational | <input type="checkbox"/> Industrial |
| <input type="checkbox"/> Commercial       | <input type="checkbox"/> Military    | <input type="checkbox"/> Non-Profit |
| <input type="checkbox"/> Other Government |                                      |                                     |



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

**B. Are Performance Monitoring and Reporting Services (PMRS) being utilized?**

Yes  No

If yes, please indicate who is receiving the data? (check all that apply)

Customer

3<sup>rd</sup> Party (list name) \_\_\_\_\_

**C. Are there electric vehicles charging on site at the above generating facility address?**

Yes  No

If yes, please indicate how many electric vehicles \_\_\_\_\_

**D. System Ownership and Financing**

**i. System Owner** (check one):

PG&E Customer Owned

If PG&E Customer Owned, please answer the following:

Indicate the System Cost paid by Customer: \$ \_\_\_\_\_

Property Assessed Clean Energy (PACE) Financed?

Yes

No

If Yes, PACE financed by which entity? \_\_\_\_\_

If you have non-PACE financing or a lease, please fill in the information below

\_\_\_\_\_  
Financial Institution/Lessor Name

\_\_\_\_\_  
Financial Institution/Lessor Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip

Third Party Owned

If Third Party Owned, please answer the following:

Claimed Federal Investment Tax Credit (ITC) Cost Basis: \$ \_\_\_\_\_

Name of Developer at the time of sale:  
\_\_\_\_\_

Contract Type:  PPA  Lease  Pre-Paid Lease  Other \_\_\_\_\_

**ii. Rebate Information:**

Did you participate in a California rebate program?  Yes  No

Please indicate the rebate program that you participated in: \_\_\_\_\_

Rebate Amount: \$ \_\_\_\_\_

If you are participating in the Single-family Affordable Solar Home (SASH) program, please provide SASH project number: \_\_\_\_\_



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT D

## SOLAR (PV) TECHNOLOGY

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### E. Additional Generating Facility Information (Solar PV Only)

i. Mounting Method:     Rooftop     Ground     Mixed

ii. Tracking Type:     Fixed     Single-Axis     Dual-Axis     Mixed

If fixed, please indicate: Tilt: \_\_\_\_\_ degrees    Azimuth: \_\_\_\_\_ degrees

F. Installer's/Vendor's California State Contractor License Number: \_\_\_\_\_

### G. CPUC Consumer Protection Requirements Pursuant to Decision 21-06-026

#### a. Home Improvement Salesperson (HIS) Registration Number

Was a Home Improvement Salesperson (HIS) involved in the development of your project?

Yes     No

California Public Utilities Commission (CPUC) Decision 21-02-026 requires "*the Home Improvement Salesperson (HIS) registration number of solar providers who are required to have a HIS registration number, while enabling solar providers who are not required to have a HIS registration number to indicate they are exempt and to instead provide the applicable contractor's license.*"

If you checked "Yes" above:

Please provide the Home Improvement Salesperson (HIS) registration number below.

Home Improvement Salesperson (HIS) registration number:

\_\_\_\_\_



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE 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 <b>“type” and quantity</b> 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.	Type: _____  Qty.: _____	Type: _____  Qty.: _____	Type: _____  Qty.: _____	Type: _____  Qty.: _____
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 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



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><u>E – Anti-Islanding Detection Method</u></p> <p><u>Please select an Anti-Islanding Detection Method</u></p> <p><u>Group 1 – Frequency Shift with continuous positive frequency feedback</u></p> <p><u>Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback</u></p> <p><u>Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz</u></p> <p><u>Group 2C – Frequency shift with unidirectional frequency feedback</u></p> <p><u>Group 3 – Monitors change of impedance</u></p> <p><u>Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)</u></p> <p><u>Group 5 – Passive methods like rate of change of frequency, vector shift</u></p> <p><u>Group 6 – Produces negative sequence current and monitor voltage</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>
<p><u>EE – Volt-Var Smart Inverter Setting</u></p> <p><i>If proposing non-default inverter settings, please provide:</i></p> <p>Power Factor Value</p> <p>Inverter Power Factor</p> <p>Volt-Var Voltage Values</p> <p>Volt-Var Reactive Values</p> <p>Volt-Watt Real Power Values</p>	<p>V1 _____</p> <p>Q1 _____</p> <p>V1 _____</p> <p>Q1 _____</p> <p>P1 _____</p>	<p>V2 _____</p> <p>Q2 _____</p> <p>V2 _____</p> <p>Q2 _____</p> <p>P2 _____</p>	<p>V3 _____</p> <p>Q3 _____</p> <p>V3 _____</p> <p>Q3 _____</p> <p>P3 _____</p>	<p>V4 _____</p> <p>Q4 _____</p> <p>V4 _____</p> <p>Q4 _____</p> <p>P4 _____</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	<u>Existing Generator type 1</u>	<u>Existing Generator type 2</u>	<u>New Generator type 1</u>	<u>New Generator type 2</u>
<p><b>FG</b> - Generator Design</p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	<p>___ Synch</p> <p>___ Induct.</p> <p>___ Inverter</p>			
<p><b>GH</b> - Gross Nameplate Rating (kVA)</p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>HI</b> - Operating Voltage</p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>IJ</b> - Power Factor Rating</p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
Generator Information	<u>Existing Generator type 1</u>	<u>Existing Generator type 2</u>	<u>New Generator type 1</u>	<u>New Generator type 2</u>
<p><b>JK</b> - PF Adjustment Range</p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p><b>KL</b> - Wiring Configuration</p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

Generator Information	Existing Generator Type 1	Existing Generator Type 2	New Generator Type 1	New Generator Type 2
<p><b>LM</b> - (MP) 3-Phase Winding Configuration</p> <p>(Choose One)</p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	<input type="checkbox"/> 3 Wire Delta  <input type="checkbox"/> 3 Wire Wye  <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta  <input type="checkbox"/> 3 Wire Wye  <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta  <input type="checkbox"/> 3 Wire Wye  <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta  <input type="checkbox"/> 3 Wire Wye  <input type="checkbox"/> 4 Wire Wye
<p><b>MN</b> - (MP) Neutral Grounding System Used</p> <p>(Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<input type="checkbox"/> Ungrounded  <input type="checkbox"/> Solidly Grounded  <input type="checkbox"/> Ground Resistor  <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded  <input type="checkbox"/> Solidly Grounded  <input type="checkbox"/> Ground Resistor  <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded  <input type="checkbox"/> Solidly Grounded  <input type="checkbox"/> Ground Resistor  <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded  <input type="checkbox"/> Solidly Grounded  <input type="checkbox"/> Ground Resistor  <input type="checkbox"/> Ohms
<p><b>ON</b> - Induction Generators Only:</p> <p style="padding-left: 40px;">Locked Rotor Current: _____ (Amps)</p> <p style="padding-left: 40px;"><b>Stator Resistance:</b> _____ (%)</p> <p style="padding-left: 40px;">Stator Leakage Reactance: _____ (%)</p> <p style="padding-left: 40px;">Rotor Resistance: _____ (%)</p> <p style="padding-left: 40px;">Rotor Leakage Reactance: _____ (%)</p> <p>If the Generator is of an induction design, please provide the "locked rotor current" value supplied by the manufacturer.</p> <p>If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current.</p> <p>If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>	<p>_____ (Amps)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p> <p>_____ (%)</p>
<p><b>OP</b> - Short Circuit Current Produced by Generator:</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>	<p>_____ (Amps)</p>
<p><b>PQ</b> - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<p>_____ Manufacturer</p> <p>_____ Model #</p> <p>_____ Rating (amps)</p>	<p>_____ Manufacturer</p> <p>_____ Model #</p> <p>_____ Rating (amps)</p>	<p>_____ Manufacturer</p> <p>_____ Model #</p> <p>_____ Rating (amps)</p>	<p>_____ Manufacturer</p> <p>_____ Model #</p> <p>_____ Rating (amps)</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

	<input type="checkbox"/> Yes <input type="checkbox"/> No			
--	-------------------------------------------------------------	-------------------------------------------------------------	-------------------------------------------------------------	-------------------------------------------------------------

<u>Generator Information</u>	<u>Existing Generator type 1</u>	<u>Existing Generator type 2</u>	<u>New Generator type 1</u>	<u>New Generator type 2</u>
<u>RQ</u> - 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: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.	<input type="checkbox"/> Customer side <input type="checkbox"/> PG&E side			
<u>RS</u> - 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.	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<u>SI</u> - Distribution Interconnect Handbook (DIH) and Greenbook Requirements Does this interconnection meet the DIH and Greenbook Requirements	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<u>TU</u> - Gas Clearance Requirements Certify that this interconnection meets Greenbook Gas Clearance Requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<u>UV</u> - Back-up Generator Operation Will the generator be operated as a back-up?  If yes, please indicate control device.	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT E

### WIND TURBINE TECHNOLOGY

<p><del>W</del> - Limited Export</p> <p>Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter
<u>Generator Information</u>	<u>Existing Generator type 1</u>	<u>Existing Generator type 2</u>	<u>New Generator type 1</u>	<u>New Generator type 2</u>
<p><del>W</del>X - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Customer-owned Telemetry - Gateway <input type="checkbox"/> Customer-owned Telemetry - Aggregator <input type="checkbox"/> Mini RTU  <input type="checkbox"/> Customer-side net load metering <input type="checkbox"/> Replace PG&E meter with a Mark V meter and terminal block <input type="checkbox"/> Add terminal block to existing PG&E Mark V meter <input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter <input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED 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
<p>Please indicate the number of each <b>“type” and quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>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.</p>				
<p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.  See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><u>E – Anti-Islanding Detection Method</u></p> <p><u>Please select an Anti-Islanding Detection Method</u></p> <p><u>Group 1 – Frequency Shift with continuous positive frequency feedback</u></p> <p><u>Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback</u></p> <p><u>Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz</u></p> <p><u>Group 2C – Frequency shift with unidirectional frequency feedback</u></p> <p><u>Group 3 – Monitors change of impedance</u></p> <p><u>Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)</u></p> <p><u>Group 5 – Passive methods like rate of change of frequency, vector shift</u></p> <p><u>Group 6 – Produces negative sequence current and monitor voltage</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>
<p><u>FE – Volt-Var Smart Inverter Setting</u></p> <p><i>If proposing non-default inverter settings, please provide:</i></p> <p>Power Factor Value</p> <p>Inverter Power Factor</p> <p>Volt-Var Voltage Values</p> <p>Volt-Var Reactive Values</p> <p>Volt-Watt Real Power Values</p>	<p>V1 _____</p> <p>Q1 _____</p> <p>V1 _____</p> <p>Q1 _____</p> <p>P1 _____</p>	<p>V2 _____</p> <p>Q2 _____</p> <p>V2 _____</p> <p>Q2 _____</p> <p>P2 _____</p>	<p>V3 _____</p> <p>Q3 _____</p> <p>V3 _____</p> <p>Q3 _____</p> <p>P3 _____</p>	<p>V4 _____</p> <p>Q4 _____</p> <p>V4 _____</p> <p>Q4 _____</p> <p>P4 _____</p>



INTERCONNECTION APPLICATION (Form 79-1174-02)

**ATTACHMENT F**

**MACHINE-BASED TECHNOLOGY**

<p><del>F—Gross Nameplate Rating (kVA)</del></p> <p><del>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</del></p> <p><del>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.</del></p>				
<p><del>G—Operating Voltage</del></p> <p><del>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</del></p> <p><del>Please indicate phase to phase voltages for 3-phase installations.</del></p> <p><del>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</del></p>				
<p><del>H—Power Factor Rating</del></p> <p><del>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</del></p> <p><del>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</del></p>				
<p><del>I—PF Adjustment Range</del></p> <p><del>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</del></p> <p><del>See PG&amp;E's Rule 21, Section H.2.i.</del></p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><u>G - Gross Nameplate Rating (kVA)</u></p> <p><u>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</u></p> <p><u>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.</u></p>				
<p><u>H - Operating Voltage</u></p> <p><u>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</u></p> <p><u>Please indicate phase-to-phase voltages for 3-phase installations.</u></p> <p><u>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</u></p>				
<p><u>I - Power Factor Rating</u></p> <p><u>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</u></p> <p><u>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</u></p>				
<p><u>J - PF Adjustment Range</u></p> <p><u>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</u></p> <p><u>See PG&amp;E's Rule 21, Section H.2.i.</u></p>				
<p><u>K - Wiring Configuration</u></p> <p><u>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</u></p>				
<p><u>L - (MP) 3-Phase Winding Configuration</u></p> <p><u>(Choose One)</u></p> <p><u>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</u></p>	<p><u>3 Wire Delta</u></p> <p><u>3 Wire Wye</u></p> <p><u>4 Wire Wye</u></p>	<p><u>3 Wire Delta</u></p> <p><u>3 Wire Wye</u></p> <p><u>4 Wire Wye</u></p>	<p><u>3 Wire Delta</u></p> <p><u>3 Wire Wye</u></p> <p><u>4 Wire Wye</u></p>	<p><u>3 Wire Delta</u></p> <p><u>3 Wire Wye</u></p> <p><u>4 Wire Wye</u></p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

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# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><del>J – Wiring Configuration</del></p> <p><del>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</del></p>				
<p><del>K – (MP) 3 Phase Winding Configuration (Choose One)</del></p> <p><del>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</del></p>	<p><del>___ 3 Wire Delta</del></p> <p><del>___ 3 Wire Wye</del></p> <p><del>___ 4 Wire Wye</del></p>	<p><del>___ 3 Wire Delta</del></p> <p><del>___ 3 Wire Wye</del></p> <p><del>___ 4 Wire Wye</del></p>	<p><del>___ 3 Wire Delta</del></p> <p><del>___ 3 Wire Wye</del></p> <p><del>___ 4 Wire Wye</del></p>	<p><del>___ 3 Wire Delta</del></p> <p><del>___ 3 Wire Wye</del></p> <p><del>___ 4 Wire Wye</del></p>
<p><del>M<sub>L</sub> - (MP) Neutral Grounding System Used (Choose One)</del></p> <p><del>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.</del></p> <p><del>If the grounding method used at this facility is not listed, please attach additional descriptive information.</del></p>	<p><del>___ Ungrounded</del></p> <p><del>___ Solidly Grounded</del></p> <p><del>___ Ground Resistor ___ Ohms</del></p>	<p><del>___ Ungrounded</del></p> <p><del>___ Solidly Grounded</del></p> <p><del>___ Ground Resistor ___ Ohms</del></p>	<p><del>___ Ungrounded</del></p> <p><del>___ Solidly Grounded</del></p> <p><del>___ Ground Resistor ___ Ohms</del></p>	<p><del>___ Ungrounded</del></p> <p><del>___ Solidly Grounded</del></p> <p><del>___ Ground Resistor ___ Ohms</del></p>
<p><del>N<sub>M</sub> – Synchronous Generators Only: If the Generator is of a synchronous design, please provide the synchronous reactance, transient reactance, and subtransient reactance values supplied by the manufacturer. This information is necessary to determine the short circuit contribution of the Generator and as data in load flow and short circuit computer models of PG&amp;E's Electric System. If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</del></p> <p style="text-align: right;"><del>Synchronous Reactance: _____ (Xd %)</del></p> <p style="text-align: right;"><del>Transient Reactance: _____ (Xd %)</del></p> <p style="text-align: right;"><del>Subtransient Reactance: _____ (Xd %)</del></p>	<p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p>	<p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p>	<p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p>	<p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p> <p><del>_____ (Xd %)</del></p>
<p><del>O - Induction Generators Only:</del></p> <p style="text-align: right;"><del>Locked Rotor Current: _____ (Amps)</del></p> <p style="text-align: right;"><del>Stator Resistance: _____ (%)</del></p> <p style="text-align: right;"><del>Stator Leakage Reactance: _____ (%)</del></p> <p style="text-align: right;"><del>Rotor Resistance: _____ (%)</del></p> <p style="text-align: right;"><del>Rotor Leakage Reactance: _____ (%)</del></p> <p><del>If the Generator is of an induction design, please provide the "locked rotor current" value supplied by the manufacturer. _____ (%)</del></p> <p><del>If this value is not available, the stator resistance, stator leakage reactance, rotor</del></p>	<p><del>_____ (Amps)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p>	<p><del>_____ (Amps)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p>	<p><del>_____ (Amps)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p>	<p><del>_____ (Amps)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p> <p><del>_____ (%)</del></p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### **MACHINE-BASED TECHNOLOGY**

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resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current.

If the Generator's Gross Nameplate Capacity is 10 MW or greater, PG&E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.

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# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><del><b>N – Induction Generators Only:</b></del></p> <p style="padding-left: 40px;"><del>Locked Rotor Current:</del> _____ (Amps)</p> <p style="padding-left: 40px;"><del><b>Stator Resistance:</b></del> _____ (%)</p> <p style="padding-left: 40px;"><del>Stator Leakage Reactance:</del> _____ (%)</p> <p style="padding-left: 40px;"><del>Rotor Resistance:</del> _____ (%)</p> <p style="padding-left: 40px;"><del>Rotor Leakage Reactance:</del> _____ (%)</p> <p><del>If the Generator is of an induction design, please provide the “locked rotor current” value supplied by the manufacturer. —</del></p> <p><del>If this value is not available, the stator resistance, stator leakage reactance, rotor resistance, rotor leakage reactance values supplied by the manufacturer may be used to determine the locked rotor current. —</del></p> <p><del>If the Generator’s Gross Nameplate Capacity is 10 MW or greater, PG&amp;E may request additional data to better model the nature and behavior of the Generator with relation to its Electric System.</del></p>				
<p><del><b>PO</b> - Short Circuit Current Produced by Generator:</del></p> <p style="padding-left: 40px;">_____ (Amps)</p>	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
<p><del><b>QP</b> – For Generators that are Started as a “Motor” Only:</del> This information is needed only for Generators that are started by “motoring” the generator.</p> <p>See PG&amp;E’s Rule 21, Sections L.3.d. and L.7.b. for significance and additional information.</p> <p>If this question was answered in Part IV, question C of this Application, it need not be answered here.</p> <p>1. In-Rush Current: _____ (Amps)</p> <p>2. Host Customer’s Service Entrance Panel (Main Panel) Continuous Current Rating: _____ (Amps)</p>				
<p><del><b>RQ</b> – Prime Mover Type</del></p> <p>Please indicate the type and fuel used as the prime mover or source of energy for the Generator.</p> <p>1 = Natural Gas 2 = Diesel Fueled 3 = Other Fuel</p>	1 2 3	1 2 3	1 2 3	1 2 3



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>SR</b> - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes ____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes ____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes ____ No</p>	<p>____ Manufacturer</p> <p>____ Model #</p> <p>____ Rating (amps)</p> <p>____ Yes ____ No</p>
<p><b>SI</b> - Lineside Tap</p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	<p>____ Customer side</p> <p>____ PG&amp;E side</p>	<p>____ Customer side</p> <p>____ PG&amp;E side</p>	<p>____ Customer side</p> <p>____ PG&amp;E side</p>	<p>____ Customer side</p> <p>____ PG&amp;E side</p>
<p><b>UF</b> - Warranty or Service Agreement</p> <p>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.</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>VU</b> - Cogeneration</p> <p>Please indicate whether this Generating Facility meets the definition of cogeneration in PUC 216.6 (5% useful thermal and 42.5% efficient):</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>WV</b> - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</p> <p>Does this interconnection meet the DIH and Greenbook Requirements</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>XW</b> - Gas Clearance Requirements</p> <p>Certify that this interconnection meets Greenbook Gas Clearance Requirements?</p>	<p>____ Yes</p> <p>____ No</p>			
<p><b>YX</b> - Back-up Generator Operation</p> <p>Will the generator be operated as a back-up?</p> <p>If yes, please indicate control device.</p>	<p>____ Yes</p> <p>____ No</p> <p><input type="checkbox"/> Automatic Transfer</p>	<p>____ Yes</p> <p>____ No</p> <p><input type="checkbox"/> Automatic Transfer</p>	<p>____ Yes</p> <p>____ No</p> <p><input type="checkbox"/> Automatic</p>	<p>____ Yes</p> <p>____ No</p> <p><input type="checkbox"/> Automatic Transfer</p>



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT F

### MACHINE-BASED TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
	Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker
<p><b>YZ</b> - Limited Export</p> <p>Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<p>___ Yes ___ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>___ Yes ___ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>___ Yes ___ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>___ Yes ___ No</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>
<p><b>AAZ</b> - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p>___ Yes ___ No</p> <p>___ Customer-owned Telemetry - Gateway</p> <p>___ Customer-owned Telemetry - Aggregator</p> <p>___ Mini RTU</p> <p>___ Customer-side net load metering</p> <p>___ Replace PG&amp;E meter with a Mark V meter and terminal block</p> <p>___ Add terminal block to existing PG&amp;E Mark V meter</p> <p>___ Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter</p> <p>___ Install customer-owned meter in existing dual socket meter cabinet.</p>			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL 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
<p>Please indicate the number of each <b>“type” and quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><u>E – Anti-Islanding Detection Method</u></p> <p><u>Please select an Anti-Islanding Detection Method</u></p> <p><u>Group 1 – Frequency Shift with continuous positive frequency feedback</u></p> <p><u>Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback</u></p> <p><u>Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz</u></p> <p><u>Group 2C – Frequency shift with unidirectional frequency feedback</u></p> <p><u>Group 3 – Monitors change of impedance</u></p> <p><u>Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)</u></p> <p><u>Group 5 – Passive methods like rate of change of frequency, vector shift</u></p> <p><u>Group 6 – Produces negative sequence current and monitor voltage</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>
<p><u>EE – Volt-Var Smart Inverter Setting</u></p> <p><i>If proposing non-default inverter settings, please provide:</i></p> <p>Power Factor Value</p> <p>Inverter Power Factor</p> <p>Volt-Var Voltage Values</p> <p>Volt-Var Reactive Values</p> <p>Volt-Watt Real Power Values</p>	<p>V1 _____</p> <p>Q1 _____</p> <p>V1 _____</p> <p>Q1 _____</p> <p>P1 _____</p>	<p>V2 _____</p> <p>Q2 _____</p> <p>V2 _____</p> <p>Q2 _____</p> <p>P2 _____</p>	<p>V3 _____</p> <p>Q3 _____</p> <p>V3 _____</p> <p>Q3 _____</p> <p>P3 _____</p>	<p>V4 _____</p> <p>Q4 _____</p> <p>V4 _____</p> <p>Q4 _____</p> <p>P4 _____</p>
<p><u>GF - Generator Design</u></p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	<p>___ Synch</p> <p>___ Induct.</p> <p>___ Inverter</p>			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>HG</b> - Gross Nameplate Rating (kVA)</p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>HI</b> - Operating Voltage</p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>JJ</b> - Power Factor Rating</p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>KJ</b> - PF Adjustment Range</p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				
<p><b>LK</b> - Wiring Configuration</p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				
<p><b>LM</b> - (MP) 3-Phase Winding Configuration (Choose One)</p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	___ 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



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>NM</b> - (MP) Neutral Grounding System Used (Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms
<p><b>ON</b> - Short Circuit Current Produced by Generator:</p>	<input type="text"/> (Amps)	<input type="text"/> (Amps)	<input type="text"/> (Amps)	<input type="text"/> (Amps)
<p><b>PO</b> – Prime Mover Type</p> <p>Please indicate the type and fuel used as the prime mover or source of energy for the Generator.</p> <p>1 = Natural Gas            2 = Diesel Fueled            3 = Other Fuel</p>	<input type="text"/> 1 <input type="text"/> 2 <input type="text"/> 3	<input type="text"/> 1 <input type="text"/> 2 <input type="text"/> 3	<input type="text"/> 1 <input type="text"/> 2 <input type="text"/> 3	<input type="text"/> 1 <input type="text"/> 2 <input type="text"/> 3
<p><b>QP</b> - AC Disconnect</p> <p>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</p> <p>See PG&amp;E's Rule 21, Section H.1.d</p> <p>Located within 10 feet of the PG&amp;E meter?</p>	<input type="text"/> Manufacturer <input type="text"/> Model # <input type="text"/> Rating (amps)	<input type="text"/> Manufacturer <input type="text"/> Model # <input type="text"/> Rating (amps)	<input type="text"/> Manufacturer <input type="text"/> Model # <input type="text"/> Rating (amps)	<input type="text"/> Manufacturer <input type="text"/> Model # <input type="text"/> Rating (amps)
<p><b>RQ</b> - Lineside Tap</p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	<input type="text"/> Customer side <input type="checkbox"/> PG&E side			
<p><b>SR</b> – Warranty or Service Agreement</p> <p>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.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><b>IS</b> - Cogeneration</p> <p>Please indicate whether this Generating Facility meets the definition of cogeneration in PUC 216.6 (5% useful thermal and 42.5% efficient):</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<p><b>UT</b> - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</p> <p>Does this interconnection meet the DIH and Greenbook Requirements</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<p><b>VU</b> - Gas Clearance Requirements</p> <p>Certify that this interconnection meets Greenbook Gas Clearance Requirements?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<p><b>WV</b> - Back-up Generator Operation</p> <p>Will the generator be operated as a back-up?</p> <p>If yes, please indicate control device.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Automatic Transfer Switch <input type="checkbox"/> Contactor <input type="checkbox"/> Breaker
<p><b>XW</b> - Limited Export</p> <p>Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter	<input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Power Control System (PCS – Option 9)  <input type="checkbox"/> Relay  <input type="checkbox"/> Derated Inverter



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT G

### FUEL CELL TECHNOLOGY

Generator Information	Existing Generator type 1	Existing Generator type 2	New Generator type 1	New Generator type 2
<p><del>Y</del>X - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p> <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Customer-owned Telemetry - Gateway</p> <p><input type="checkbox"/> Customer-owned Telemetry - Aggregator</p> <p><input type="checkbox"/> Mini RTU</p> <p><input type="checkbox"/> Customer-side net load metering</p> <p><input type="checkbox"/> Replace PG&amp;E meter with a Mark V meter and terminal block</p> <p><input type="checkbox"/> Add terminal block to existing PG&amp;E Mark V meter</p> <p><input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter</p> <p><input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.</p>			



# 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
<p>Please indicate the number of each <b>“type” and quantity</b> of Generator being installed.</p> <p>Be sure all Generators classified as one “type” are identical in all respects.</p> <p>If only one type of Generator is to be used, only one column needs to be completed.</p>				
<p>A - Generator/Inverter Manufacturer</p> <p>Enter the brand name of the Generator.</p>				
<p>B - Generator/Inverter Model</p> <p>Enter the model name or number assigned by the manufacturer of the Generator.</p>				
<p>C - Generator/Inverter Software Version</p> <p>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.</p>				
<p>D - Is the Generator/Inverter certified?</p> <p>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&amp;E, has been verified by the customer as having safety certification from a nationally recognized testing laboratory.</p> <p>See PG&amp;E’s Rule 21, Section L for additional information regarding Generator certification.</p>	<input type="checkbox"/> Yes  <input type="checkbox"/> 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
<p><u>E – Anti-Islanding Detection Method</u></p> <p><u>Please select an Anti-Islanding Detection Method</u></p> <p><u>Group 1 – Frequency Shift with continuous positive frequency feedback</u></p> <p><u>Group 2A – Frequency Shift with discontinuous or stepped positive frequency feedback</u></p> <p><u>Group 2B – Frequency Shift similar to Group 2A except with a dead zone around 60Hz</u></p> <p><u>Group 2C – Frequency shift with unidirectional frequency feedback</u></p> <p><u>Group 3 – Monitors change of impedance</u></p> <p><u>Group 4 – Monitors shift at a harmonic frequency (multiple of the fundamental)</u></p> <p><u>Group 5 – Passive methods like rate of change of frequency, vector shift</u></p> <p><u>Group 6 – Produces negative sequence current and monitor voltage</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>	<p><u>Group 1</u></p> <p><u>Group 2A</u></p> <p><u>Group 2B</u></p> <p><u>Group 2C</u></p> <p><u>Group 3</u></p> <p><u>Group 4</u></p> <p><u>Group 5</u></p> <p><u>Group 6</u></p>
<p><u>EE – Volt-Var Smart Inverter Setting</u></p> <p><i>If proposing non-default inverter settings, please provide:</i></p> <p>Power Factor Value</p> <p>Inverter Power Factor</p> <p>Volt-Var Voltage Values</p> <p>Volt-Var Reactive Values</p> <p>Volt-Watt Real Power Values</p>	<p>V1 _____</p> <p>Q1 _____</p> <p>V1 _____</p> <p>Q1 _____</p> <p>P1 _____</p>	<p>V2 _____</p> <p>Q2 _____</p> <p>V2 _____</p> <p>Q2 _____</p> <p>P2 _____</p>	<p>V3 _____</p> <p>Q3 _____</p> <p>V3 _____</p> <p>Q3 _____</p> <p>P3 _____</p>	<p>V4 _____</p> <p>Q4 _____</p> <p>V4 _____</p> <p>Q4 _____</p> <p>P4 _____</p>
<p><u>F – Generator Design</u></p> <p><u>Please indicate the design of each Generator.</u></p> <p><u>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.</u></p>	<p><u>_____ Synch</u></p> <p><u>_____ Induct.</u></p> <p><u>_____ Inverter</u></p>			



# INTERCONNECTION APPLICATION (Form 79-1174-02) ATTACHMENT H

## ENERGY STORAGE TECHNOLOGY

<p><del>G—Gross Nameplate Rating (kVA)</del></p> <p><del>This is the capacity value normally supplied by the manufacturer and stamped on the Generator’s nameplate.</del></p> <p><del>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.</del></p>				
<p><del>H—Energy Storage Electrical Source Function (in addition, please complete section: “Additional Information Required for Energy Storage”)</del></p>	<p><del>Max kWh Capacity: —</del></p> <hr style="width: 50%; margin: 0 auto;"/> <p><del>Rated kW Discharge:</del></p> <hr style="width: 50%; margin: 0 auto;"/>	<p><del>Max kWh Capacity: —</del></p> <hr style="width: 50%; margin: 0 auto;"/> <p><del>Rated kW Discharge:</del></p> <hr style="width: 50%; margin: 0 auto;"/>	<p><del>Max kWh Capacity: —</del></p> <hr style="width: 50%; margin: 0 auto;"/> <p><del>Rated kW Discharge:</del></p> <hr style="width: 50%; margin: 0 auto;"/>	<p><del>Max kWh Capacity: —</del></p> <hr style="width: 50%; margin: 0 auto;"/> <p><del>Rated kW Discharge:</del></p> <hr style="width: 50%; margin: 0 auto;"/>
<p><del>I—Operating Voltage</del></p> <p><del>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</del></p> <p><del>Please indicate phase-to-phase voltages for 3-phase installations.</del></p> <p><del>See PG&amp;E’s Rule 21, Section H.2.b. and Table H.1., for additional information.</del></p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT H

### ENERGY STORAGE TECHNOLOGY

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# 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
<p><b>G - Generator Design</b></p> <p>Please indicate the design of each Generator.</p> <p>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.</p>	<u>Synch</u>  <u>Induct.</u>  <u>Inverter</u>	<u>Synch</u>  <u>Induct.</u>  <u>Inverter</u>	<u>Synch</u>  <u>Induct.</u>  <u>Inverter</u>	<u>Synch</u>  <u>Induct.</u>  <u>Inverter</u>
<p><b>H - Gross Nameplate Rating (kVA)</b></p> <p>This is the capacity value normally supplied by the manufacturer and stamped on the Generator's nameplate.</p> <p>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.</p>				
<p><b>I - Energy Storage Electrical Source Function</b> (in addition, please complete section: "Additional Information Required for Energy Storage")</p>	<u>Max kWh Capacity:</u>  <u>Rated kW Discharge:</u>  _____			
<p><b>J - Operating Voltage</b></p> <p>This value should be the voltage rating designated by the manufacturer and used in this Generating Facility.</p> <p>Please indicate phase-to-phase voltages for 3-phase installations.</p> <p>See PG&amp;E's Rule 21, Section H.2.b. and Table H.1., for additional information.</p>				
<p><b>KJ - Power Factor Rating</b></p> <p>This value should be the nominal power factor rating designated by the manufacturer for the Generator.</p> <p>See PG&amp;E's Rule 21, Section H.2.i. for additional information.</p>				
<p><b>LK - PF Adjustment Range</b></p> <p>Where the power factor of the Generator is adjustable, please indicate the maximum and minimum operating values.</p> <p>See PG&amp;E's Rule 21, Section H.2.i.</p>				



# INTERCONNECTION APPLICATION (Form 79-1174-02)

## ATTACHMENT H

### ENERGY STORAGE TECHNOLOGY

<u>Generator Information</u>	<u>Existing Generator type 1</u>	<u>Existing Generator type 2</u>	<u>New Generator type 1</u>	<u>New Generator type 2</u>
<p><u>LM</u> - Wiring Configuration</p> <p>Please indicate whether the Generator is a single-phase or three-phase device. See PG&amp;E's Rule 21, Section H.3.</p>				
<p><u>MN</u> - (MP) 3-Phase Winding Configuration (Choose One)</p> <p>For three-phase generating units, please indicate the configuration of the Generator's windings or inverter systems.</p>	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye	<input type="checkbox"/> 3 Wire Delta <input type="checkbox"/> 3 Wire Wye <input type="checkbox"/> 4 Wire Wye
<p><u>NO</u> - (MP) Neutral Grounding System Used (Choose One)</p> <p>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.</p> <p>If the grounding method used at this facility is not listed, please attach additional descriptive information.</p>	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms	<input type="checkbox"/> Ungrounded <input type="checkbox"/> Solidly Grounded <input type="checkbox"/> Ground Resistor <input type="checkbox"/> Ohms
<p><u>OP</u> - Short Circuit Current Produced by Generator:</p>	_____ (Amps)	_____ (Amps)	_____ (Amps)	_____ (Amps)
<p><u>PQ</u> – Prime Mover Type</p> <p>Please indicate the type and fuel used as the prime mover or source of energy for the Generator.</p> <p>1 = Natural Gas            2 = Diesel Fueled            3 = Other Fuel</p>	1   2   3	1   2   3	1   2   3	1   2   3
<p><u>R - AC Disconnect</u></p> <p><u>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</u></p> <p><u>See PG&amp;E's Rule 21, Section H.1.d</u></p> <p><u>Located within 10 feet of the PG&amp;E meter?</u></p>	<p style="text-align: center;"><u>Manufacturer</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Model #</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Rating (amps)</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"> <input type="checkbox"/> Yes  <input type="checkbox"/> No         </p>	<p style="text-align: center;"><u>Manufacturer</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Model #</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Rating (amps)</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"> <input type="checkbox"/> Yes  <input type="checkbox"/> No         </p>	<p style="text-align: center;"><u>Manufacturer</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Model #</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Rating (amps)</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"> <input type="checkbox"/> Yes  <input type="checkbox"/> No         </p>	<p style="text-align: center;"><u>Manufacturer</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Model #</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"><u>Rating (amps)</u></p> <p style="text-align: center;">_____</p> <p style="text-align: center;"> <input type="checkbox"/> Yes  <input type="checkbox"/> No         </p>



# 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
<p><del>Q</del> <del>AC Disconnect</del></p> <p><del>For systems requiring an AC Disconnect only, please include the requested information about the AC Disconnect.</del></p> <p><del>See PG&amp;E's Rule 21, Section H.1.d</del></p> <p><del>Located within 10 feet of the PG&amp;E meter?</del></p>	<p><del>Manufacturer</del></p> <p><del>Model #</del></p> <p><del>Rating (amps)</del></p> <p><del>Yes</del> <del>No</del></p>			
<p><del>SR</del> - Energy Storage (ES) System</p> <p>(For important sizing information related to DC-Coupled configurations, see sizing note below).</p>	<p><del>Manufacturer</del></p> <p><del>Model #</del></p> <p><del>Quantity of Units</del></p>			
<p><del>SI</del> - Lineside Tap</p> <p>Where is the point of interconnection in relation to the main breaker?</p> <p>PG&amp;E has special requirements for a lineside tap.</p> <p>Contact PG&amp;E at: <a href="mailto:Rule21Gen@PGE.com">Rule21Gen@PGE.com</a> for more information.</p>	<p><del>Customer side</del></p> <p><del>PG&amp;E side</del></p>			
<p><del>TU</del> - Warranty or Service Agreement</p> <p>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.</p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>
<p><del>UV</del> - Distribution Interconnect Handbook (DIH) and Greenbook Requirements</p> <p>Does this interconnection meet the DIH and Greenbook Requirements</p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>
<p><del>VW</del> - Gas Clearance Requirements</p> <p>Certify that this interconnection meets Greenbook Gas Clearance Requirements?</p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>	<p><del>Yes</del></p> <p><del>No</del></p>



# 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
<p><del>WX</del> - Basic Single Line Diagram (SLD) If the interconnection is eligible to use a Basic SLD, please include the requested information.</p> <p>Can this system be used as a back-up generator?</p> <p>If so, please include the requested information for the back-up controller or other device.</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>Yes _____ No _____</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>Yes _____ No _____</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>Yes _____ No _____</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>	<p>Panel Voltage (Volts) _____</p> <p>Main Breaker (Amps) _____</p> <p>Storage Breaker Size (Amps) _____</p> <p>Yes _____ No _____</p> <p>Manufacturer _____</p> <p>Make _____</p> <p>Model No. _____</p>
<p><del>XY</del> - Back-up Generator Operation Will the generator be operated as a back-up?</p> <p>If yes, please indicate control device.</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Automatic Transfer Switch</p> <p><input type="checkbox"/> Contactor <input type="checkbox"/> Breaker</p>
<p><del>YZ</del> - Limited Export Will the generator export be limited?</p> <p>If yes, please indicate how export will be limited.</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>	<p>Yes _____ No _____</p> <p><input type="checkbox"/> Power Control System (PCS – Option 9)</p> <p><input type="checkbox"/> Relay</p> <p><input type="checkbox"/> Derated Inverter</p>



# 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
<p><del>ZAA</del> - Telemetry</p> <p>Will the Generating Facility Gross Nameplate Rating exceed 1 MW?</p> <p>If yes, please select a Telemetry Option.</p>  <p>If one of the Customer-owned Telemetry options is selected, please identify the preferred Site Metering Arrangement.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Customer-owned Telemetry - Gateway <input type="checkbox"/> Customer-owned Telemetry - Aggregator <input type="checkbox"/> Mini RTU  <input type="checkbox"/> Customer-side net load metering <input type="checkbox"/> Replace PG&E meter with a Mark V meter and terminal block <input type="checkbox"/> Add terminal block to existing PG&E Mark V meter <input type="checkbox"/> Replace meter socket with dual-socket meter cabinet for installation of customer-owned meter <input type="checkbox"/> Install customer-owned meter in existing dual socket meter cabinet.			



# 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 specifications 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

Alta Power Group, LLC  
Anderson & Poole

Atlas ReFuel  
BART

Barkovich & Yap, Inc.  
Braun Blasing Smith Wynne, P.C.  
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  
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  
Engineers and Scientists of California

GenOn Energy, Inc.  
Goodin, MacBride, Squeri, Schlotz &  
Ritchie  
Green Power Institute  
Hanna & Morton  
ICF  
International Power Technology

Intertie

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  
McClintock IP  
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.

Resource Innovations

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  
Stoel Rives LLP

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