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

Pacific Gas & Electric Company
ELC (Corp ID 39)
Status of Advice Letter 6363E
As of November 30, 2021

Subject: Modifications to Electric Rule 21 Pursuant to Decision 20-09-035 Ordering Paragraphs 5 and 8

Division Assigned: Energy

Date Filed: 10-15-2021

Date to Calendar: 10-20-2021

Authorizing Documents: D2009035

Disposition:	**Accepted**
Effective Date:	**03-17-2022**

Resolution Required: No

Resolution Number: None

Commission Meeting Date: None

CPUC Contact Information:

edtariffunit@cpuc.ca.gov

AL Certificate Contact Information:

Kimberly Loo
415-973-4587
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Disposition of Filing (Accepted, Rejected, Withdrawn, etc.)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

Pacific Gas and Electric Company

Sidney Bob Dietz II
Director
Regulatory Relations

Pacific Gas and Electric Company
77 Beale St., Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177

Fax: 415-973-3582

October 15, 2021

Advice 6363-E
(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: **Modifications to Electric Rule 21 Pursuant to Decision 20-09-035 Ordering Paragraphs 5 and 8.**

Purpose

Pursuant to California Public Utilities Commission (CPUC, Commission) Decision (D.) 20-03-035 (the Working Group 2 & 3 Decision in Rulemaking 17-07-007) Ordering Paragraphs (OP) 5 and 8, Pacific Gas and Electric Company (PG&E) submits this Tier 2 advice letter to make these additional modifications to its Electric Rule 21 - *Generating Facility Interconnections*. OP 5 and OP 8 were originally addressed in the following advice letters:

1) Advice 5915-E – *Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 120 Days from Issuance) for Ordering Paragraphs 5, 6, 8 and 11* - January 28, 2021

2) Advice 5915-E-A – *Supplemental: Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 120 Days from Issuance) for Ordering Paragraphs 5, 6, 8 and 11* - September 3, 2021 (which replaced AL 5915-E in its entirety).

This advice letter is submitted under the guidance of Energy Division and replaces OP 5 and OP 8 from AL 5915-E-A in its entirety.

Background

Rulemaking 17-07-007

On July 13, 2017, The Commission adopted Order Instituting Rulemaking (R.) 17-07-007 to consider refinements to Electric Tariff Rule 21 of Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern

California Edison Company (SCE) (jointly, Utilities) regarding the interconnection of distributed energy resources.[1]

ACR Scoping Memo

On October 2, 2017, the Commission issued Scoping Memo of Assigned Commissioner and Administrative Law Judge (Scoping Memo) set forth the scope and schedule of the proceeding. It established the working group process, whereby resolution of the technical issues of the proceeding would be proposed by Working Groups One through Six. In addition, four issues were assigned to the Smart Inverter Working Group, including issues 5 and 8.[2]

Working Group 2

On February 14, 2018, a Ruling directed that Working Group Two would begin on March 15, 2018 and required that it subsequently file its recommendations report on September 15, 2018. The Ruling also reassigned Issue 6 to Working Group Two.

On August 15, 2018, the Administrative Law Judge issued a Ruling allowing additional time for Working Group Two to resolve issues, including sub-issues encountered, and delaying the filing of the recommendations report to October 31, 2018.

On October 31, 2018, the Working Group 2 final report was issued.[3]

On November 7, 2018, the Administrative Law Judge facilitated a workshop to discuss the recommendations provided in the Working Group 2 Final Report.

On December 7, 2018, in response to the November 7, 2018, workshop on the Working Group Two Report, and parties were directed to respond to questions on the report.

On February 1, 2019, responses to the questions, along with comments on the Working Group Report, were filed by the various parties.

On February 22, 2019, replies were filed by the various parties.

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[1] The Rule 21 tariff describes the interconnection, operating, and metering requirements for certain generating and storage facilities seeking to connect to the electric distribution system. Rule 21 provides customers access to the electric grid to install generating or storage facilities while protecting the safety and reliability of the distribution and transmission systems at the local and system levels. (See R.17-07-007 at p2.)

[2] The Smart Inverter Working Group (SIWG) grew out of a collaboration between the Commission and the California Energy Commission in early 2013. The collaboration identified the development of advanced inverter functionality as an important strategy to mitigate the impact of high penetrations of distributed energy resources. [as explained in footnote 2 in D. 20-09-035]

[3] Working Group Two Final Report filed jointly by the Utilities.

Amended Scoping Memo and Working Group 3

On November 16, 2018, a Scoping Memo and Ruling (Amended Scoping Memo) delayed the start of Working Group Three until December 1, 2018 and required Working Group Three to file its recommendations report on June 14, 2019. The Amended Scoping Memo also decreased the number of working groups and redistributed issues across two working groups and the Interconnection Discussion Forum[4] such that Working Group Three was assigned issues 12, 15, 16, 20, 22, 23, 24, 27, 28, and New Issues A and B.

On June 13, 2019, the Working Group Three Final Report[5] was issued followed by a workshop.

A November 27, 2019 Ruling directed parties to respond to questions on the Working Group Three Report.

On January 13, 2020, the various parties filed responses to the questions contained in the November 27, 2019, ruling, along with comments to the Working Group Three Report.

On January 27, 2020, various parties filed replies to the responses and Working Group Three Report comments.

Working Group 2 & 3 Decision 20-09-035

On August 20, 2020, a proposed decision was issued on Working Groups Two and Three. On September 9, 2020 comments were received. On September 22, 2020, replies were received.

On September 24, 2020, the Commission voted out D.20-09-035.[6] D.20-09-035 addressed the recommendations of Working Groups Two and Three and the Vehicle-to-Grid Alternating Current Interconnection Subgroup (V2G AC Subgroup).

Decision 21-01-027

On January 21, 2021, the CPUC issued D. 21-01-027[7] Correcting Errors in Decision 20-09-035. It corrected various ordering paragraph numbering in D. 20-09-035, but OPs 5 and 8 were not affected.

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4 In Resolution Administrative Law Judge-347, the Commission established the Interconnection Discussion Forum (formerly known as the Rule 21 Working Group) as a venue to encourage discussion and collaboration between the Utilities and developers. [as explained in footnote 3 in D. 20-09-035]

5 Working Group Three Final Report filed by SDG&E

6 Decision 20-09-035 - *Decision Adopting Recommendations from Working Groups Two, Three, and Subgroup* - Date of Issuance 9/30/2020

7 Decision. 21-01-027 - *Order Correcting Errors in Decision 20-09-035* – issued January 21, 2021.

AL 5915-E

On January 28, 2021, PG&E submitted the original advice letter AL 5915-E[8] 120 days after the issuance of D.20-09-035, as ordered by that decision. That advice letter was subsequently protested. It addressed OPs 5, 6, 8, and 11.

ALs 6014-E and 6014-E-A

On November 30, 2020, AL 6014-E- *Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 60 Days from Issuance)*. It was protested. It addressed OPs 1, 2, 3, 4, 12 17, 18, 24, 30, 32, 33, 37, 38, 40, and 45 (as corrected).

Subsequently, on June 25, 2021, AL 6014-E-A *Supplemental: Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 60 Days from Issuance)* - was submitted. It addressed OPs 1, 3, 4, 17, 18, 23, 24, 30, 32, 33, 37, 38, 40, and 45 (as corrected). OPs 2, 12, and 23 were addressed in an AL 5915-E-A.

The version of Rule 21 attached includes pending changes from AL 6014-E-A.

AL 6287-E

AL 6287-E[9] was submitted on August 6, 2021, based on Energy Division's initial guidance, and AL 6287-E addressed the remaining issues in the above two advice letters, AL 5915-E and AL 6014-E-A. It addressed OPs 2, 5, 6, 8, 11, 12, and 23.[10] However, subsequent additional feedback from Energy Division requested PG&E to withdraw AL 6287-E and instead submit it as a supplemental advice letter to AL 5915-E.

AL 5915-E-A & Protest

On September 3, 2021, Supplemental AL 5915-E-A[11] was submitted replacing AL 6287-E.

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[8] AL 5915-E - *Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 120 Days from Issuance) for Ordering Paragraphs 5, 6, 8 and 11* – submitted January 28, 2021.

[9] AL 6287-E - *Modifications to Electric Rule 21 Pursuant to Decision 20-09-035 Addressing Remaining Ordering Paragraph Issues in Working Group 2 and 3* – submitted August 6, 2021; withdrawal request submitted by PG&E August 25, 2021; with disposition letter issued approving the withdrawal, dated August 30, 2021.

[10] Some of the OPs included in AL 6287-E replaced by 5915-A, were from AL 6014-E-A. *Supplemental: Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3* (due 60 Days from Issuance of D.20-09-035). This was based on Energy Division Guidance.

[11] Advice 5915-E-A – *Supplemental: Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 120 Days from Issuance) for Ordering Paragraphs 5, 6, 8 and 11.*

On September 10, 2021, Al 5915-E-A was protested by the Interstate Renewable Energy Council, Inc. (IREC).[12]

On September 17, 2021, PG&E submitted joint reply comments[13] to the IREC protest.

Subsequently on October 10, 2021, PG&E received guidance from Energy Division on the next steps for the above advice letter. Pursuant to their October 10 email:

"...*For OP 5: Screen F and Adding Screen F1*

1. *IREC notes SDG&E omits the word "circuit." And **SDG&E** agrees to add the word "circuit" in a supplemental advice letter.*
   Screen F: Is the Short Circuit Current Contribution Ratio within acceptable limits?
2. *IREC indicates that in the Screen F "significance" note, PG&E uses "Distribution System's" while SCE and SDG&E use "Distribution Provider's Distribution System." The language should be identical across the three utilities. **PG&E agrees to use language consistent with that of SCE and SDG&E in a supplemental advice letter**.*
3. *In Screen F1, the Utilities use different language in their footnotes. IREC recommends that the footnote to Screen F1 read:*

   "*The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid."*

   The Utilities agree to adopt IREC's proposed language as a footnote in a supplemental advice letter.

For OP 8: – Modify Screen L to Include Transmission Overvoltage and Anti-islanding Tests (PG&E only)

PG&E proposed the modify Screen L as follow in AL 5915-E-A and IREC did not comment in its protest.

l. Screen L: Transmission Dependency, and ~~Transmission~~ Stability, ~~Ground Fault~~ Overvoltage, and / ~~Anti-~~Islanding Tests

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[12] *IREC's Protest to San Diego Gas & Electric's Advice Letter 3677-E-A, Pacific Gas & Electric's Advice Letter 5915-E-A, and Southern California Edison's Advice Letter 4561-E – Proposed Modifications to the Electric Rule 21 Interconnection Application Process Pursuant to Decision 20-09-035.*

[13] *Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company's (SDG&E) Joint Reply to the Protest from Interstate Renewable Energy Council, Inc. to PG&E Advice 5915-E-A, SCE Advice 4561-E, and SDG&E Advice 3677-E-A*.

Is the Interconnection Request for an area where:

(i) there are known, or posted, transient/dynamic stability limitations, or

(ii) the proposed Generating Facility has interdependencies, known to Distribution Provider, with earlier-queued Transmission System interconnection requests, or

(iii) islanding conditions are possible based on PG&E's currently adopted and published screening policies with respect to antiislanding screening, or

(iv) transmission ground fault overvoltage is possible based on PG&E's currently adopted and published screening policies with respect to overvoltage screening.

Where (i) or (ii) or (iii) or (iv) above are met, the impacts of this Interconnection Request to the Transmission System may require further ~~Detailed~~ Study.

• If Yes (fail), Supplemental Review is required.

• If No (pass), continue to Screen M.

Significance: Special consideration must be given to those areas identified as having current or future (due to currently-queued interconnection requests) grid stability concerns.

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.*

** Issue 18 is "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 avoid unnecessary mitigations? If yes, what should those changes entail?"*

Therefore, each IOU please file a supplemental AL to

*1**) remove OPs 5 and 8[14] from the original ALs** (SDG&E AL 3677-E-A, SCE AL 4561-E, and PG&E AL 5915-E-A) and*

2) implement all language that the IOUs are in agreements with IREC into the Electric Rule 21 tariff.

*Also, each IOU please **submit a new AL only for OPs 5 & 8[14]** with the above agreed language. This AL should have a 10-day protest period.*
[**bold** added – red text in original]

This advice letter resubmits this advice letter specifically for OPs 5 and 8, which require:

5. *Proposal 8f1 is adopted. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall include a new Screen in the Interconnection Rule 21 process, to be named Screen F1, which will determine whether a generating system's short circuit contribution exceeds 1.2 per unit*.

8. *Option C of Proposal 8k[15] is adopted on an interim basis until resolution of Issue 18[16] in Working Group Four. Pacific Gas and Electric Company shall:*

modify Screen L in Interconnection Rule 21 to include the transmission overvoltage and transmission anti-islanding tests currently in Screen M.

PG&E submits this advice letter based on the guidance from Energy Division.

Tariff Revisions

1) For OP 5:

A) For the Screen F "significance" note**,** PG&E agrees to use language consistent with that of SCE and SDG&E in a supplemental advice letter. However, PG&E's "significance" language in fact already aligned, so no redlines were needed, but on the cover advice letter PG&E had a typo (a deletion) that might

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[14] In the original email this was "OP 6" but later it was clarified to be "OP 8". It was explicitly requested that OP 6 not be addressed in this advice letter.

[15] Proposal 8k – See D. 20-09-035 Section 4.2.9 p26: Proposal 8k, involving Screen L, and comprises three options. Option C, which modifies the Screen to temporarily allow application of anti-islanding tests until Issue 18 can be resolved in Working Group Four was adopted Option C as a temporary solution until Issue 18 is resolved (Also see Conclusion of Law 10 p201)

[16] Issue 19 See D. 20-09-035 p44. It asks whether the Commission should adopt changes to anti-islanding screen parameters. Issue 18 is being taken up in Working Group 4.

have given the impression we had different language. (PG&E regrets the typo.)

B) In Screen F1, PG&E agrees to use IREC recommended language (in BLUE) in the footnote to Screen F1 to read:

"*The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid.*"

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

e. Screen E: Does the Single-Phase Generator cause unacceptable imbalance? (Cont'd.)

Significance: Generating Facilities connected to a single-phase transformer with 120/240 V secondary voltage must be installed such that the aggregated gross output is as balanced as practicable between the two phases of the 240 volt service. When Distribution Provider's analysis determines a transformer change is required. Distribution Provider will furnish the customer with an explanation of why the change is needed.

f. Screens F and F1:

Screen F: Is the Short Circuit Current Contribution Ratio within acceptable limits?

- If Yes (pass), continue to Screen ~~G~~ F1.
- If No (fail), continue to Screen ~~G~~ F1 pursuant to Section G.1.

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less.

When measured at primary side (high side) of the Dedicated Distribution Transformer serving a Generating Facility, the sum of the Short Circuit Contribution Ratios of all Generating Facilities connected to Distribution Provider's Distribution System circuit that serves the Generating Facility must be less than or equal to 0.1.

Significance: If the Generating Facility passes this ~~S~~screen, it can be expected that it will have no significant impact on Distribution Provider's Distribution System's short circuit duty, fault detection sensitivity, relay coordination or fuse-saving schemes.

Screen F1: Is the per unit Short Circuit Current Contribution under allowable levels?

Is the short circuit current contribution less than or equal to 1.2 per unit or is the Generating Facility Gross Nameplate Rating multiplied by its per unit contribution less than the Protection Integrated Capacity Analysis (ICA) Value[1] multiplied by 1.2 per unit?

- If Yes to either (pass), continue to Screen G.
- If No to both (fail), continue to Screen G pursuant to Section G.1.

Significance: Generating systems with a per unit short circuit contribution of 1.2 or less can bypass this screen and directly use the ICA because ICA calculations assume that Generating Facilities have a per unit short circuit contribution of 1.2. For Generating Facilities with a per unit short circuit contribution greater than 1.2, the Distribution Provider will use the protection ICA Value at the point of interconnection in conjunction with the Generating Facility's per unit short circuit contribution to determine whether the facility passes Screen F1.

[1]The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid.

"*The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid.*"

2) For OP 8:

Based on the guidance noted from Energy Division above, PG&E modifies Screen L as shown below.

G. ENGINEERING REVIEW DETAILS (Cont'd.)
1. INITIAL REVIEW SCREENS (Cont'd.)
l. Screen L: Transmission Dependency, and ~~Transmission~~ Stability, Overvoltage, and Islanding Tests

Is the Interconnection Request for an area where: (i) there are known, or posted, transient/dynamic stability limitations, or (ii) the proposed Generating Facility has interdependencies, known to Distribution Provider, with earlier-queued Transmission System interconnection requests, or (iii) islanding conditions are possible based on PG&E's currently adopted and published screening policies with respect to antiislanding, or (iv) transmission ground fault overvoltage is possible based on PG&E's currently adopted and published screening policies with respect to overvoltage screening. Where (i) or (ii) or (iii) or (iv) above are met, the impacts of this Interconnection Request to the Transmission System may require ~~Detailed~~ further Study.

- If Yes (fail), Supplemental Review is required.

- If No (pass), continue to Screen M.

Significance: Special consideration must be given to those areas identified as having current or future (due to currently-queued interconnection requests) grid stability concerns.

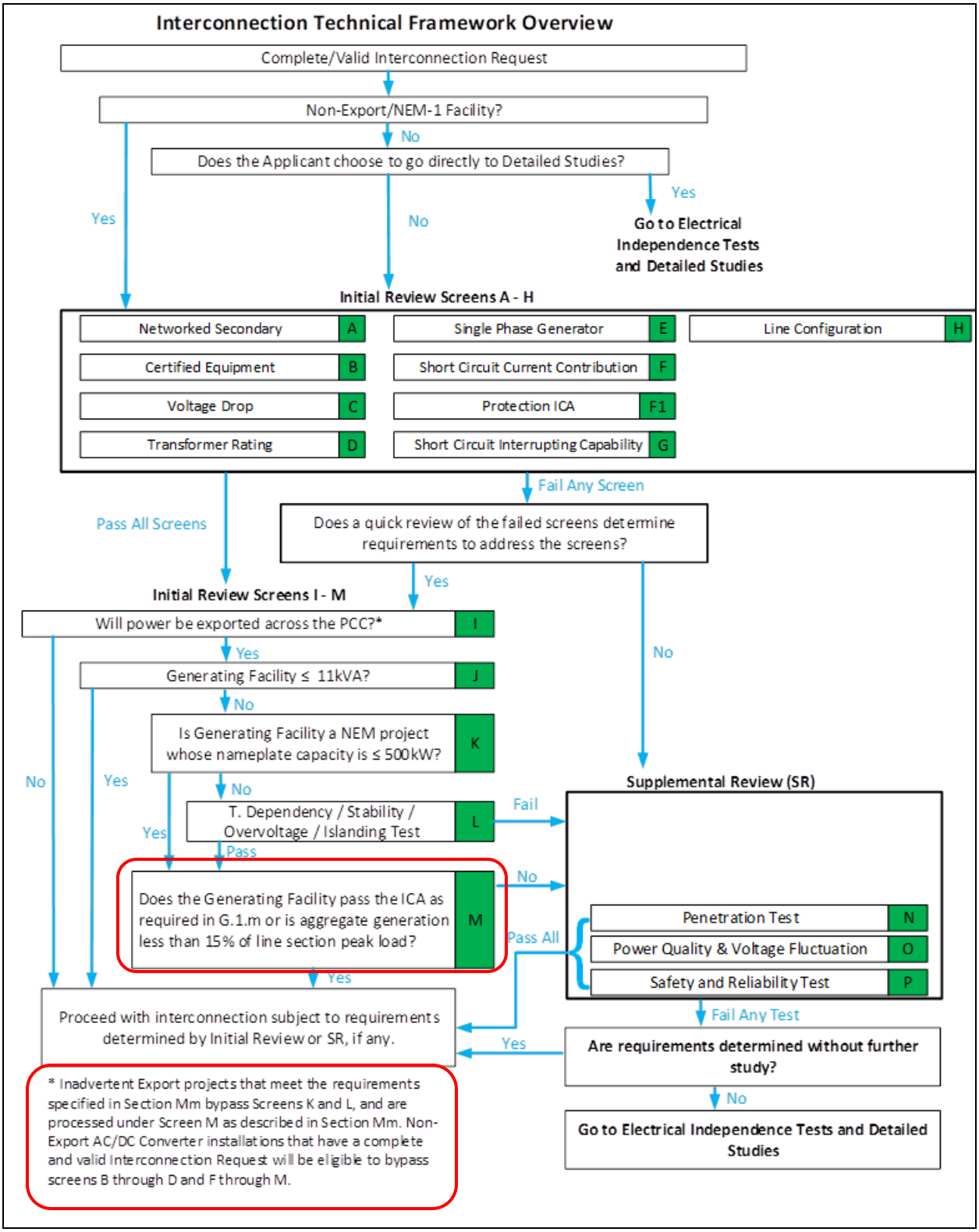
PG&E will temporarily apply anti-islanding tests until the resolution of Issue 18* in R. 17-07-007, Working Group Four Report made effective in PG&E's tariffs.

_____

* Issue 18 is "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 avoid unnecessary mitigations? If yes, what should those changes entail?"

3) Technical Framework Update

PG&E also makes changes to technical screen flowchart with updates consistent with the changes above. Specifically, PG&E modifies Screen M to be consistent with OP 8 changes above. And for clarity, it combines the two existing footnotes for (*) and referenced in screen I into a single footnote (*).


Interconnection Technical Framework Overview
Complete/Valid Interconnection Request
Non-Export/NEM-1 Facility?
No
Does the Applicant choose to go directly to Detailed Studies?
Yes
No
Yes
Go to Electrical Independence Tests and Detailed Studies
Initial Review Screens A - H
Networked Secondary A
Certified Equipment B
Voltage Drop C
Transformer Rating D
Single Phase Generator E
Short Circuit Current Contribution F
Protection ICA F1
Short Circuit Interrupting Capability G
Line Configuration H
Fail Any Screen
Pass All Screens
Does a quick review of the failed screens determine requirements to address the screens?
Yes
No
Initial Review Screens I - M
Will power be exported across the PCC?* I
Yes
Generating Facility ≤ 11kVA? J
No
Is Generating Facility a NEM project whose nameplate capacity is ≤ 500kW? K
No
Yes
No
Yes
T. Dependency / Stability / Overvoltage / Islanding Test L
Fail
Yes
Pass
Does the Generating Facility pass the ICA as required in G.1.m or is aggregate generation less than 15% of line section peak load? M
No
Yes
Supplemental Review (SR)
Penetration Test N
Power Quality & Voltage Fluctuation O
Safety and Reliability Test P
Pass All
Fail Any Test
Proceed with interconnection subject to requirements determined by Initial Review or SR, if any.
Yes
Are requirements determined without further study?
No
Go to Electrical Independence Tests and Detailed Studies
* Inadvertent Export projects that meet the requirements specified in Section Mm bypass Screens K and L, and are processed under Screen M as described in Section Mm. Non-Export AC/DC Converter installations that have a complete and valid Interconnection Request will be eligible to bypass screens B through D and F through M.

4) **Other**

PG&E also updates the table of contents to reflect the addition of Screen F1 for OP 5 above.

This submittal would not increase any current rate or charge, cause the withdrawal of service, or conflict with any rate schedule or rule.

Protests

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

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile or E-mail, no later than October 25, 2021, which is 10 days after the date of this submittal. This shortened protest period has been approved by Energy Division. Protests must be submitted to:

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

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

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

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

Effective Date

Pursuant to General Order (GO) 96-B, Rule 5.2 and D.20-09-035 OP 55 (as corrected), and based on Energy Division guidance on OPs 5 and 8 of D.20-09-035, this advice letter is submitted with a Tier 2 designation. PG&E requests that this advice submittal become effective 180 to 240 days after it is approved, to allow to time to implement the Screen M ICA changes and related screen L changes, train staff and notify applicants of the changes.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service 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: Tariffs
Attachment 2: Redline Tariff Revisions

cc: Service List R.17-07-007

California Public Utilities Commission

ADVICE LETTER SUMMARY

ENERGY UTILITY

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

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

Utility type:
☑ ELC ☐ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Kimberly Loo
Phone #: (415)973-4587
E-mail: PGETariffs@pge.com
E-mail Disposition Notice to: KELM@pge.com

EXPLANATION OF UTILITY TYPE
ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 6363-E

Tier Designation: 2

Subject of AL: Modifications to Electric Rule 21 Pursuant to Decision 20-09-035 Ordering Paragraphs 5 and 8

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

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

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

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

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

Confidential treatment requested? ☐ Yes ☑ No

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

Resolution required? ☐ Yes ☑ No

Requested effective date: No. of tariff sheets: 9

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[1]: N/A

Pending advice letters that revise the same tariff sheets: 6014-E-A, 6286-E, 5915-E-A

[1]Discuss in AL if more space is needed.

Clear Form

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

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

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

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

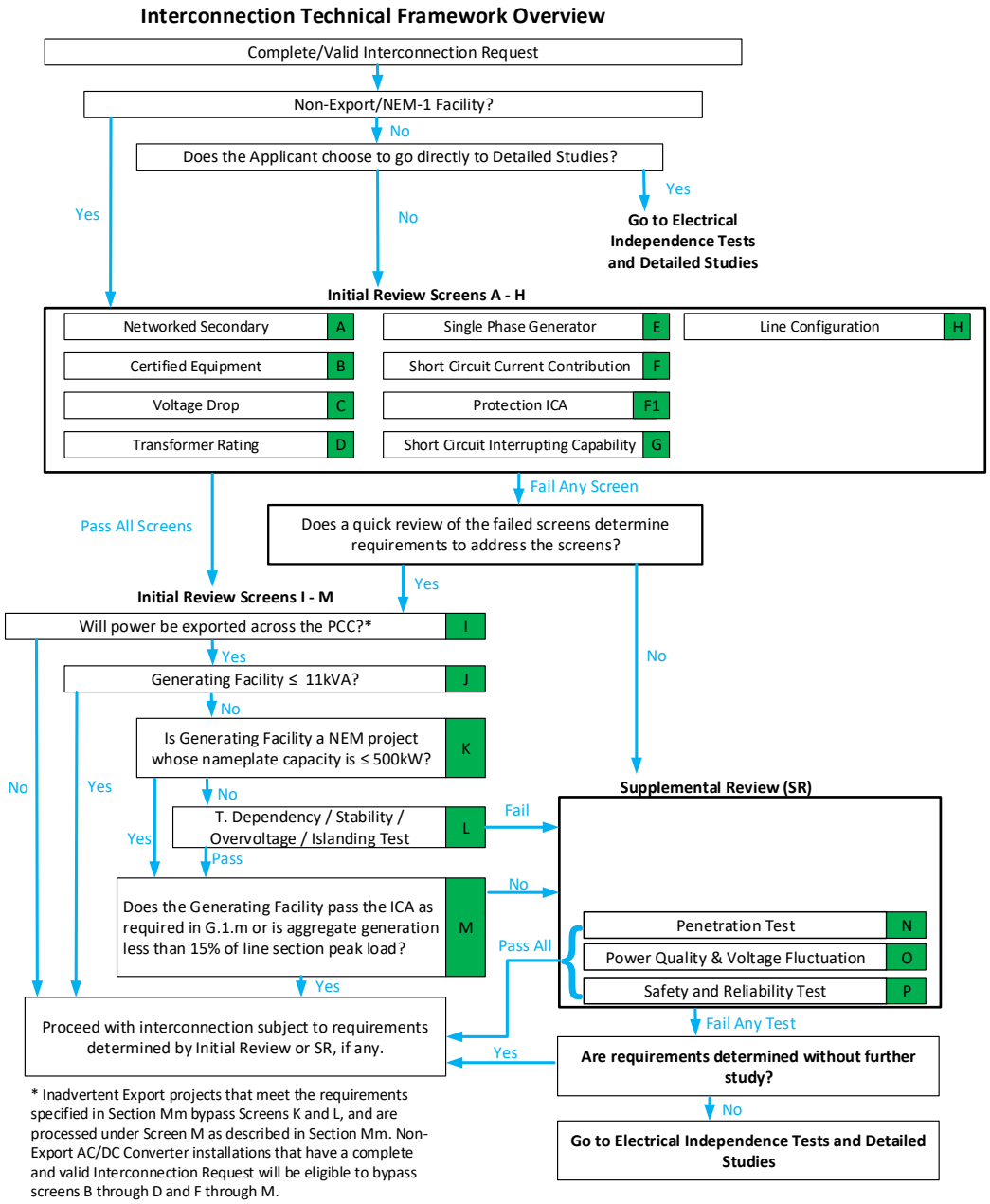
Clear Form

Cal P.U.C. Sheet No.	Title of Sheet	Cancelling Cal P.U.C. Sheet No.
51650-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 6	50812-E
51651-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 145	50415-E
51652-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 151	50421-E
51653-E*	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 152	50422-E
51654-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 153	50423-E
51655-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 159	50826-E
51656-E	ELECTRIC RULE NO. 21 GENERATING FACILITY INTERCONNECTIONS Sheet 160	50827-E
51657-E	ELECTRIC TABLE OF CONTENTS Sheet 1	51615-E
51658-E*	ELECTRIC TABLE OF CONTENTS Sheet 20	51480-E

TABLE OF CONTENTS (Cont'd.)

(Continued)

G. ENGINEERING REVIEW DETAILS (T)



(T)

* If the Generating Facility meets the conditions in Screen I below (Section G.1.i), skip Screens K, L, and M. (P)

(P)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

e. Screen E: Does the Single-Phase Generator cause unacceptable imbalance? (Cont'd.)

Significance: Generating Facilities connected to a single-phase transformer with 120/240 V secondary voltage must be installed such that the aggregated gross output is as balanced as practicable between the two phases of the 240 volt service. When Distribution Provider's analysis determines a transformer change is required. Distribution Provider will furnish the customer with an explanation of why the change is needed.

f. Screens F and F1: (T)

Screen F: Is the Short Circuit Current Contribution Ratio within acceptable limits? (N) (N)

- If Yes (pass), continue to Screen F1. (T)
- If No (fail), continue to Screen F1 pursuant to Section G.1. (T)

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less.

When measured at primary side (high side) of the Dedicated Distribution Transformer serving a Generating Facility, the sum of the Short Circuit Contribution Ratios of all Generating Facilities connected to Distribution Provider's Distribution System circuit that serves the Generating Facility must be less than or equal to 0.1.

Significance: If the Generating Facility passes this screen, it can be expected that it will have no significant impact on Distribution Provider's Distribution System's short circuit duty, fault detection sensitivity, relay coordination or fuse-saving schemes. (T)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

f. Screens F and F1 (Cont'd): (N)

Screen F1: Is the per unit Short Circuit Current Contribution under allowable levels?

Is the short circuit current contribution less than or equal to 1.2 per unit or is the Generating Facility Gross Nameplate Rating multiplied by its per unit contribution less than the Protection Integrated Capacity Analysis (ICA) Value[1] multiplied by 1.2 per unit?

- If Yes to either (pass), continue to Screen G.
- If No to both (fail), continue to Screen G pursuant to Section G.1.

Significance: Generating systems with a per unit short circuit contribution of 1.2 or less can bypass this screen and directly use the ICA because ICA calculations assume that Generating Facilities have a per unit short circuit contribution of 1.2. For Generating Facilities with a per unit short circuit contribution greater than 1.2, the Distribution Provider will use the Protection ICA Value at the point of interconnection in conjunction with the Generating Facility's per unit short circuit contribution to determine whether the facility passes Screen F1. (N)

g. Screen G: Is the Short Circuit Interrupting Capability Exceeded?

Does the proposed Generating Facility, in aggregate with other Generating Facilities on the distribution circuit, cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Interconnection Request equipment on the system to exceed 87.5 % of the short circuit interrupting capability; or is the Interconnection proposed for a circuit that already exceeds 87.5 % of the short circuit interrupting capability?

- If Yes (fail) continue to Screen H pursuant to Section G.1.
- If No (pass), continue to Screen H

(L)
(L)
(N)
(N)

[1]The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid.

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

g. Screen G: Is the Short Circuit Interrupting Capability Exceeded? (Cont'd) (L)

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less.

Significance: If the Generating Facility passes this screen, it can be expected that it will not cause any of Distribution Provider's equipment to be overstressed. (L)

h. Screen H: Is the line configuration compatible with the Interconnection type?

- If Yes (pass), continue to Screen I.
- If No (fail), continue to Screen I pursuant to Section G.1.

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less

Line Configuration Screen: Identify primary distribution line configuration that will serve the Generating Facility. Based on the type of Interconnection to be used for the Generating Facility, determine from Table G.1 if the proposed Generating Facility passes the Screen.

Table G-1
Type of Interconnection

Primary Distribution Line Type Configuration	Type of Interconnection to be made to Primary Distribution Line	Result/Criteria
Three-phase, three-wire	Any type	Pass Screen
Three-phase, four-wire	Single-phase, line-to-neutral	Pass Screen
Three-phase, four-wire (For any line that has such a section OR mixed three-wire & four-wire)	All others	To pass, aggregate Generating Facility nameplate rating must be less than or equal to 10% of Line Section peak load

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

l. Screen L: Transmission Dependency, and Stability, Overvoltage, and Islanding Tests (T) (T)

Is the Interconnection Request for an area where: (i) there are known, or posted, transient/dynamic stability limitations, or (ii) the proposed Generating Facility has interdependencies, known to Distribution Provider, with earlier-queued Transmission System interconnection requests, or (iii) islanding conditions are possible based on PG&E's currently adopted and published screening policies with respect to antiislanding, or (iv) transmission ground fault overvoltage is possible based on PG&E's currently adopted and published screening policies with respect to overvoltage screening. Where (i) or (ii) or (iii) or (iv) above are met, the impacts of this Interconnection Request to the Transmission System may require further Study. (T) (N) | | | (N) (T)

- If Yes (fail), Supplemental Review is required.
- If No (pass), continue to Screen M.

Significance: Special consideration must be given to those areas identified as having current or future (due to currently-queued interconnection requests) grid stability concerns.

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. (N) | (N)

* Issue 18 is "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 avoid unnecessary mitigations? If yes, what should those changes entail?" (N) | (N)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

m. Screen M: Is the aggregate Generating Facility capacity on the Line Section less than 15% of Line Section peak load for all line sections bounded by automatic sectionalizing devices? [ii] (L)

- If Yes (pass), Initial Review is complete.
- If No (fail), Supplemental Review is required.

Significance:

1. Low penetration of Generating Facility capacity will have a minimal impact on the operation and load restoration efforts of Distribution Provider's Distribution System. (L)

2. The operating requirements for a high penetration of Generating Facility capacity may be different since the impact on Distribution Provider's Distribution System will no longer be minimal, therefore requiring additional study or controls.

The purpose of this Screen is solely to identify if the Generating Facility needs additional study and is not intended as justification for limiting the penetration of generation on a line section.

2. SUPPLEMENTAL REVIEW SCREENS

The Supplemental Review consists of Screens N through P. If any of the Screens are not passed, a quick review of the failed Screen(s) will determine the requirements to address the failure(s) or that Detailed Studies are required. In certain instances, Distribution Provider may be able to identify the necessary solution and determine that Detailed Studies are unnecessary. Some examples of solutions that may be available to mitigate the impact of a failed Screen are:

1. Replacing a fixed capacitor bank with a switched capacitor bank.

2. Adjustment of line regulation settings.

3. Simple reconfiguration of the distribution circuit. (L)

[ii] Inadvertent Export systems that meet the requirements specified in Section Mm are processed under Screen M as described in Section Mm. (L)

(Continued)

ELECTRIC TABLE OF CONTENTS Sheet 1

TABLE OF CONTENTS

(Continued)

ELECTRIC TABLE OF CONTENTS Sheet 20

(Continued)

Advice 6363-E
October 15, 2021

Attachment 2

Redline Tariff Revisions

For convenience of the reader, PG&E has included redline revisions in Attachment 2. Where Electric Rule 21 has been revised, the affected sheets are included in Attachment 1.

In this advice letter and accordance to CPUC General Order 96B, Section 9.5.3, PG&E has implemented the use of the "(P)" symbol to signify material subject to change under a pending advice letter. The redlines in Attachment 2 are color coded to the specific advice letter. The color coding is as follows:

Redline Text Color	Advice Letter	Subject	Comments
	6014-E-A	Supplemental: Advice Letter Modifying Electric Rule 21 Pursuant to Decision 20-09-035 for Working Group 2 and 3 (due 60 Days from Issuance)	Pending Approval
	6363-E	Modifications to Electric Rule 21 Pursuant to Decision 20-09-035 Ordering Paragraphs 5 and 8.	In this advice letter, revisions are made according to OP 5 and OP 8 of D.20-09-035.

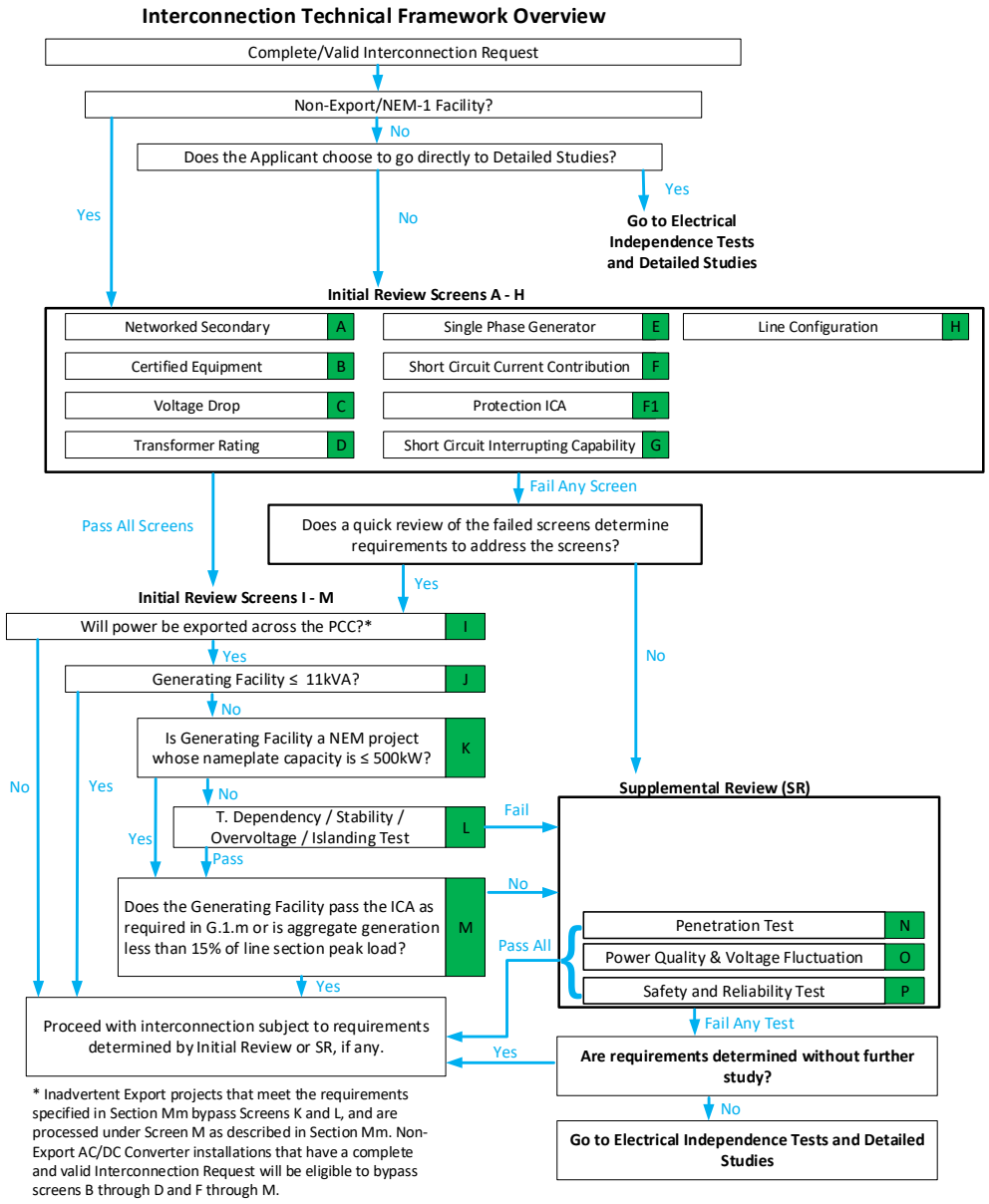
TABLE OF CONTENTS (Cont'd.)

(Continued)

G. ENGINEERING REVIEW DETAILS

(T)

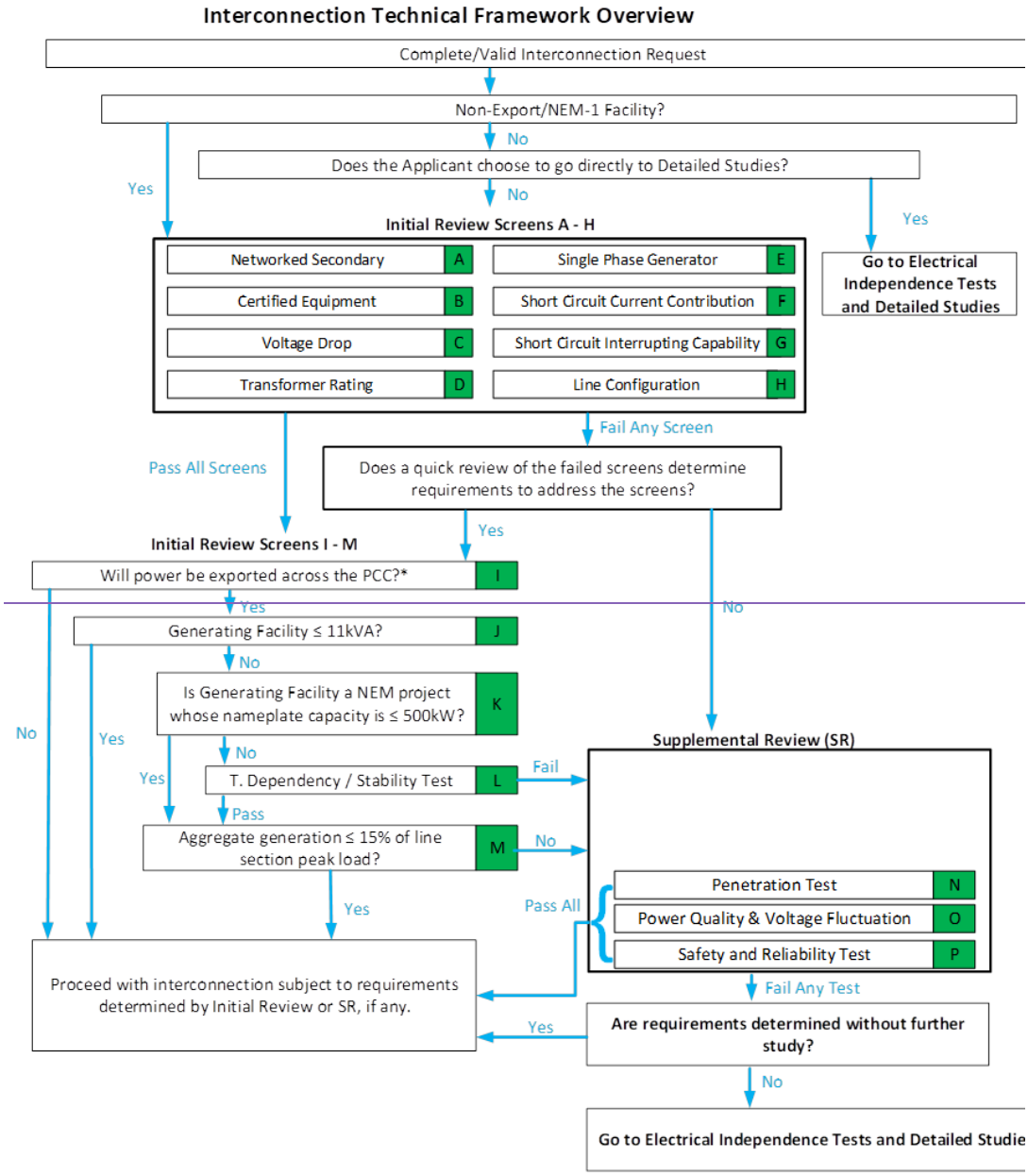
ADD FLOWCHART BELOW:



(T)

(Continued)

DELETE FLOWCHART BELOW:



* ~~Non-Export AC/DC Converter installations that have a complete and valid Interconnection Request will be eligible to bypass screens B through D and F through M.~~ If the Generating Facility meets the conditions in Screen I below (Section G.1.i), skip Screens K, L, and M. (P) (P)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

e. Screen E: Does the Single-Phase Generator cause unacceptable imbalance? (Cont'd.)

Significance: Generating Facilities connected to a single-phase transformer with 120/240 V secondary voltage must be installed such that the aggregated gross output is as balanced as practicable between the two phases of the 240 volt service. When Distribution Provider's analysis determines a transformer change is required. Distribution Provider will furnish the customer with an explanation of why the change is needed.

f. Screens F and F1: (T)

Screen F: Is the Short Circuit Current Contribution Ratio within acceptable limits? (T)

- If Yes (pass), continue to Screen F1~~G~~. (T)
- If No (fail), continue to Screen ~~G~~ F1 pursuant to Section G.1. (T)

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less.

When measured at primary side (high side) of the Dedicated Distribution Transformer serving a Generating Facility, the sum of the Short Circuit Contribution Ratios of all Generating Facilities connected to Distribution Provider's Distribution System circuit that serves the Generating Facility must be less than or equal to 0.1.

Significance: If the Generating Facility passes this s~~S~~creen, it can be expected that it will have no significant impact on Distribution Provider's Distribution System's short circuit duty, fault detection sensitivity, relay coordination or fuse-saving schemes. (T)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

f. Screens F and F1 (Cont'd): (N)

Screen F1: Is the per unit Short Circuit Current Contribution under allowable levels?

Is the short circuit current contribution less than or equal to 1.2 per unit or is the Generating Facility Gross Nameplate Rating multiplied by its per unit contribution less than the Protection Integrated Capacity Analysis (ICA) Value[1] multiplied by 1.2 per unit?

• If Yes to either (pass), continue to Screen G.
• If No to both (fail), continue to Screen G pursuant to Section G.1.

Significance: Generating systems with a per unit short circuit contribution of 1.2 or less can bypass this screen and directly use the ICA because ICA calculations assume that Generating Facilities have a per unit short circuit contribution of 1.2. For Generating Facilities with a per unit short circuit contribution greater than 1.2, the Distribution Provider will use the protection ICA Value at the point of interconnection in conjunction with the Generating Facility's per unit short circuit contribution to determine whether the facility passes Screen F1. (N)

g. Screen G: Is the Short Circuit Interrupting Capability Exceeded?

Does the proposed Generating Facility, in aggregate with other Generating Facilities on the distribution circuit, cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Interconnection Request equipment on the system to exceed 87.5 % of the short circuit interrupting capability; or is the Interconnection proposed for a circuit that already exceeds 87.5 % of the short circuit interrupting capability?

- If Yes (fail) continue to Screen H pursuant to Section G.1.
- If No (pass), continue to Screen H

[1]The protection limit is one of the components of the ICA Value that pertains to sensing faults on the grid. (N) (N)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

g. Screen G: Is the Short Circuit Interrupting Capability Exceeded? (Cont'd) (L)

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less.

Significance: If the Generating Facility passes this screen, it can be expected that it will not cause any of Distribution Provider's equipment to be overstressed. (L)

h. Screen H: Is the line configuration compatible with the Interconnection type?

- If Yes (pass), continue to Screen I.
- If No (fail), continue to Screen I pursuant to Section G.1.

Note: This Screen does not apply to Generating Facilities with a Gross Rating of 11 kVA or less

Line Configuration Screen: Identify primary distribution line configuration that will serve the Generating Facility. Based on the type of Interconnection to be used for the Generating Facility, determine from Table G.1 if the proposed Generating Facility passes the Screen.

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Three-phase, four-wire (For any line that has such a section OR mixed three-wire & four-wire)	All others	To pass, aggregate Generating Facility nameplate rating must be less than or equal to 10% of Line Section peak load

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

I. Screen L: Transmission Dependency, and ~~Transmission~~ Stability, Overvoltage, and Islanding Tests (T) (T)

Is the Interconnection Request for an area where: (i) there are known, or posted, transient/dynamic stability limitations, or (ii) the proposed Generating Facility has interdependencies, known to Distribution Provider, with earlier-queued Transmission System interconnection requests, or (iii) islanding conditions are possible based on PG&E's currently adopted and published screening policies with respect to antiislanding, or (iv) transmission ground fault overvoltage is possible based on PG&E's currently adopted and published screening policies with respect to overvoltage screening. Where (i) or (ii) or (iii) or (iv) above are met, the impacts of this Interconnection Request to the Transmission System may require ~~Detailed~~ further Study. (T) (N) (N) (T)

- If Yes (fail), Supplemental Review is required.
- If No (pass), continue to Screen M.

Significance: Special consideration must be given to those areas identified as having current or future (due to currently-queued interconnection requests) grid stability concerns.

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. (N) (N)

* Issue 18 is "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 avoid unnecessary mitigations? If yes, what should those changes entail?" (N) (N)

(Continued)

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

m. Screen M: Is the aggregate Generating Facility capacity on the Line Section less than 15% of Line Section peak load for all line sections bounded by automatic sectionalizing devices? [ii] (L)

- If Yes (pass), Initial Review is complete.
- If No (fail), Supplemental Review is required.

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3. Simple reconfiguration of the distribution circuit.

[ii] Inadvertent Export systems that meet the requirements specified in Section Mm are processed under Screen M as described in Section Mm. (L) (L)

(Continued)

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

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

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

California Hub for Energy Efficiency Financing

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

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

Chevron Pipeline and Power
City of Palo Alto

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

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

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

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

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
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

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

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

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

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