

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Item # 14 (Rev. 1)

Agenda ID #20660

ENERGY DIVISION

RESOLUTION E-5172

June 23, 2022

R E S O L U T I O N

Resolution E-5172. Approval, with Modifications, of utilities' Advice Letters seeking proposed modifications to Electric Rule 21 Tariff in Compliance with Decision 20-09-035, Ordering Paragraphs 2, 6, 11, 12, and 23.

PROPOSED OUTCOME:

- Approves, with modifications, Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric's [\(IOUs\)](#) proposed revisions to the Electric Rule 21 Tariff incorporating Integration Capacity Analysis (ICA), applying a 10 percent buffer to Screen M, updating Screen N to account for thermal overload and ICA scenarios, and establishing a standard timeline for design and construction of interconnection-related distribution upgrades.

SAFETY CONSIDERATIONS:

- The safety issues that were brought up and addressed in the Resolution include: 1) a ten percent buffer to Integration Capacity Analysis (ICA) Operational Flexibility (OF) during review of the Rule 21 Interconnection Application Process, 2) raising the threshold to allow interconnection projects to bypass review screens, 3) including the word "safety" in the definition of ICA, [and](#) 4) ~~PG&E's concern about compromising Utilities requested an additional 10% safety because of ICA complexity is not warranted, and~~ 5) ~~10%-~~buffer ~~applies to~~[for](#) Screen N ~~is~~[that was](#) not specified in D.20-09-035.

ESTIMATED COST:

- This Resolution may reduce ratepayer costs associated with interconnecting distributed energy resources under the Electric Rule 21 Tariff by streamlining the interconnection application process.

By PG&E Advice Letter 5915-E-B, filed on November 4, 2021.

By SCE Advice Letter 4561-E-A, filed on November 4, 2021.

By SDG&E Advice Letter 3677-E-B, filed on November 4, 2021.

SUMMARY

Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) request approval of modifications to Electric Rule 21 Tariff (Rule 21) that incorporate Integration Capacity Analysis (ICA),¹ apply a 10 percent buffer to Screen M, update Screen N to account for thermal overload under three different ICA scenarios, and establish a standard timeline for design and construction of interconnection-related distribution upgrades. Subject to the modifications herein, this Resolution finds the tariff revisions proposed by Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric to be compliant with Decision (D.) 20-09-035.

BACKGROUND

On July 13, 2017, the Commission initiated R. 17-07-007 to consider streamlining interconnection of distributed energy resources and improvements to Electric Tariff Rule 21.

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 6.²

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

¹ Integration Capacity Analysis is a methodology to assess the hosting capacity of an electric system based on its thermal, voltage, power quality, protection, and safety limits. Hosting Capacity is an estimate of the amount of power output that may be accommodated without adversely impacting power quality or reliability under current configurations and without requiring infrastructure upgrades.

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.

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 Two final report was issued and jointly filed by the IOUs.

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

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 Forum³ such that Working Group Three was assigned issues 12, 15, 16, 20, 22, 23, 24, 27 28, and New Issues A and B.

On December 7, 2018, in response to the November 7, 2018, workshop on the Working Group Two Report. ALJ Hymes issued a Ruling to direct parties 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 PG&E, SDG&E, SCE, IREC, CALSSA, GPI, Clean Coalition, California Energy Storage Alliance (CESA), Tesla, The Utility Reform Network (TURN), Cal Advocates, and the Small Business Utility Advocates (SBUA).

On February 22, 2019, reply comments were filed by the PG&E, SDG&E, SCE, IREC, CALSSA, GPI, CESA, Tesla, and the Clean Coalition.

On June 13, 2019, the Working Group Three Final Report was issued and filed by SDG&E. It was followed by a workshop.

³ 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.

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.

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 adopted D.20-09-035 (Decision). This Decision addressed the recommendations of Working Groups Two and Three and the Vehicle-to-Grid Alternating Current Interconnection Subgroup (V2G AC Subgroup).

Table 1 at the end of the background section summarizes the disposition of the Ordering Paragraphs discussed in this resolution.

Ordering Paragraph (OP) 55 of D.20-09-035 requires PG&E, SCE, and SDG&E each to file advice letters (ALs) encompassing several distinct sets of ordering paragraphs within 30, 60, and 120 days, respectively, of the Decision. Tier 1 Advice Letters on OPs 7, 13, 14, 46, 49, 50, and 52 were required within 30 days of the Decision; these are collectively known as the “30-day ALs.” Ordering Paragraph 55 also requires a set of Tier 2 Advice Letter on OPs 1, 2, 3, 4, 12, 17, 18, 23, 24, 30, 32, 33, 37, 38, 40, and 46, 60 days after issuance of the Decision; these are collectively known as the “60-day ALs.” In addition, OP 55 requires another set of Tier 2 Advice Letter on OPs 5, 6, 8, and 11, 120 days after issuance of the Decision; these are collectively known as the “120-day ALs.”

On October 30, 2020, PG&E filed AL 5988-E, SCE filed AL 4328-E, and SDG&E filed 3642-E to fulfill their 30-day AL obligations.

On November 30, 2020, PG&E filed AL 6014-E, SCE filed AL 4359-E, and SDG&E filed 3654-E to fulfill their 60-day AL obligations. The California Solar Storage Association (CALSSA) and the Interstate Renewable Energy Council, Inc. (IREC) protested all the above Advice Letters on December 21, 2020. The Green Power Institute only protested SCE AL 4359-E on December 21, 2020. The IOUs each filed Reply to Protests to CALSSA, IREC, and GPI on December 29, 2020.

On January 28, 2021, PG&E filed AL 5915-E, SCE filed AL 4402-E, and SDG&E filed 3677-E to fulfill their 120-day AL obligations.

On June 25, 2021, PG&E filed AL 6014-E-A to replace AL 6014-E in its entirety. On the same day, SCE filed AL 4359-E-A to replace AL 4359-E in its entirety.⁴

On August 6, 2021, SDG&E filed AL 3677-E-A to address OPs 2,⁵ 5,⁶ 6,⁷ 11,⁸ 12,⁹ and 23.¹⁰

⁴ PG&E used the term “replace” and SCE used the term “supplement”. But both ALs addressed all the OPs in the 60-day AL, except OPs 2, 12, and 23, which were filed under PG&E 5915-E-A and SCE 4561-E.

⁵ OP 2 adopted Proposal 8b. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company (Utilities) shall use the Initial Review process to determine if Integration Capacity Analysis values at the proposed Point of Interconnection need to be updated using the Integration Capacity Analysis tool on the specific electrical node into the Initial Review process or running the Integration Capacity Analysis on all the electrical nodes in the circuit. Utilities shall not perform additional Integration Capacity analyses as part of the interconnection process of projects with less than 30 kilovolt amperes nameplate capacity. Utilities shall share the results of any Integration Capacity Analysis updates with the interconnecting generator and provide an explanation of changes to grid conditions or the interconnection queue. Utilities shall comply with confidentiality provisions and data reduction policies.

⁶ OP 5 adopted Proposal 8f1. 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.

⁷ OP 6 adopted modification 1 of Proposals 8f, 8g, 8h, and 8j. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall modify Interconnection Rule 21 to allow interconnection projects less than 30 kilovolt amperes to bypass Screens F, G, H, and J.

⁸ OP 11 adopted Option B of Proposal 8m. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company (Utilities) shall apply a 10 percent buffer to the Integration Capacity Analysis-Static Grid profile and to the Integration Capacity Analysis-Operational Flexibility profile during review of Screen M of the Rule 21 Interconnection Application Process. The need for the 10 percent buffer to the Integration Capacity Analysis-Operational Flexibility profile will be revisited by the Commission. Utilities shall collect data on the effectiveness of the 10 percent Integration Capacity Analysis-Operational Flexibility buffer (after consulting with the Commission’s Energy Division) and

On the same day, PG&E filed AL 6287-E to address OPs 2, 5, 6, 8,¹¹ 11, 12, and 23 and to resolve protested issues in AL 6014-E-A.

On August 6, 2021, SCE filed 4561-E to address OPs 2, 5, 6, 11, 12, and 23 and to resolve protested issues in AL 4359-E and AL 4402-E. This AL further modified the changes proposed in AL 4402-E and SCE withdrew 4402-E on August 26, 2021.

On August 25, 2021, PG&E withdrew AL 6287-E.

On September 3, 2021, PG&E filed AL 5915-E-A to address OPs 2, 12, and 23 of AL 6014-E-A and OPs 5, 6, 8, and 11 of AL 5915-E.

On October 15, 2021, PG&E filed AL 6363-E for OPs 5 and 8 of D.20-09-035.

On October 15, 2021, SDG&E filed AL 3873-E for OPs 5 of D.20-09-035.

On October 18, 2021, SCE filed AL 4615-E for OPs 5 of D.20-09-035.

On November 4, 2021, PG&E filed AL 5915-E-B, SCE filed AL 4615-E-A, and SDG&E filed AL 3677-E-B to address OPs 2, 6, 11, 12, and 23.

provide the data and a recommendation on whether to retain the buffer or adjust it, in the Advice Letter on buffers for Issue 9, as required by Ordering Paragraph 15.

⁹ OP 12 adopted Proposal 8n. Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company shall update Screen N of the Rule 21 Interconnection Application Process to account for thermal overload, while adjusting for the following three scenarios: i) when the Interconnection Request is below the updated Integration Capacity Analysis value and passes Screen F1; ii) when the Interconnection Request is above the updated Integration Capacity Analysis value or fails Screen F1; and iii) when Integration Capacity Analysis information is not available.

¹⁰ OP 23 adopted Proposal 12c. It establishes a standard timeline for design and construction of interconnection-related distribution upgrades as follows: i) 60 business days for design and 60 business days for construction, or ii) design and construction timelines as agreed with the customer. The 60-day clock commences upon payment and after the customer has done everything necessary on their end to prepare for construction.

¹¹ OP 8 adopted Option C of Proposal 8k on an interim basis until resolution of Issue 18 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 AL 6363-E and SCE AL 4615-E were approved by the Commission on November 5, 2021. SDG&E AL 3873-E was approved by the Commission on November 17, 2021.

On November 15, 2021, PG&E submitted a substitute sheet to correct a typographical error on Sheet 153 of its Electric Rule 21 Tariff.

On December 3, 2021, PG&E submitted a second substitute sheet to remove a footnote that was inadvertently shown as pending on Sheet 146 (CPUC Sheet 51791-E), on page 26 of the cover letter, and in the redlines.

On March 11, 2022, Joint Utilities submitted a letter to the Commission's Executive Director and proposed clarification of Ordering Paragraph 6 of D. 20-09-035 to read "30 kilovolt amperes" instead of "30 kilowatt volt amperes" and allows interconnection projects less than or equal to 30 kilowatt volt amperes to bypass Screens F, G, H, and J; pursuant to Rule 16.5 of the Commission's Rules of Practice and Procedure.¹² On April 5, 2022, the Commission's Executive Director approved an order to make these modifications to OP 6 of D. 20-09-035.

Therefore, this Resolution addresses only the disposition of OPs 2, 6, 11, 12, and 23 by PG&E AL 5915-E-B, SCE AL 4561-E-A, and SDG&E AL 3677-E-B, the 120-day Advice Letters of D.20-09-035.

¹² Section 16.5. (Rule 16.5) of the Rules of Practice and Procedure - Correction of Obvious Errors, reads as follow:

"Correction of obvious typographical errors or omissions in Commission decisions may be requested by letter to the Executive Director, with a copy sent at the same time to all parties to the proceeding. Note: Authority cited: Section 1701, Public Utilities Code. Reference: Section 1708, Public Utilities Code."

Table 1: Summary of Disposition of Ordering Paragraphs Discussed in this Resolution

OP	Subject	Original vehicle for disposing of OP	OP disposed outside of the original 30-, 60-, or 120-day AL	OP addressed by this Resolution
2	Updates to ICA values at the proposed Point of Interconnection	60-day ALs	No	Yes
5	Proposal 8f1 Creating Screen F1 for Short Circuit Contribution Greater than 1.2 per unit	120-day ALs	Yes	No
6	Allows interconnection projects less than 30 kilovolt amperes to bypass Screens F, G, H, and J	120-day ALs	No	Yes
8	Modify Screen L to Include Transmission Overvoltage and Anti-islanding Tests	120-day ALs	Yes	No
11	Applies a 10% buffer to Integration Capacity Analysis Static Grid (SG) profile (ICA-SG 576) ¹³ & Integration Capacity Analysis Operational Flexibility (OF) profile (ICA-OF 576) ¹⁴ at Screen M	120-day ALs	No	Yes
12	Accounts for thermal overload at three different ICA scenarios	120-day ALs	No	Yes
23	Establishes a standard timeline for design and construction	60-day ALs	No	Yes

¹³ The ICA produces 576 values corresponding to a minimum and maximum load day for every month, for 12 months. The Integration Capacity Analysis Static Grid (SG) 576 profile is the minimum Integration Capacity Analysis values at each of the 576 hours for the most limiting of these categories: thermal, voltage, power quality, and protection. The purpose of Integration Capacity Analysis (ICA) is to provide information on the distribution system's hosting capacity and informs interconnection applicants about project siting and sizing. The Distribution Resources Plan Working Group anticipate that, with the Integration Capacity Analysis, developers should be able to submit a Rule 21 Fast Track application for distributed energy

Footnote continued on next page

NOTICE

Notice of PG&E AL 5915-E, SCE AL 4561-E, and SDG&E AL 3677-E were made by publication in the Commission's Daily Calendar. PG&E, SCE, and SDG&E state that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

PROTESTS

PG&E Advice Letter 6014-E, SCE Advice Letter 4359-E, and SDG&E Advice Letter 3654-E were timely protested by The California Solar Storage Association (CALSSA) on December 21, 2020. The Green Power Institute (GPI) and the Interstate Renewable Energy Council, Inc. (IREC) filed late protests on December 21, 2020. Staff determined that it was in the public's interest to accept these late protests and accepted them. PG&E and SDG&E each responded to the protest of CALSSA and IREC on December 29, 2020. SCE responded to the protest of CALSSA, IREC, and GPI on December 29, 2020.

PG&E's Advice Letter 5915-E was timely protested by the IREC on February 17, 2021. PG&E responded to the protests of IREC for AL 5915-E on February 24, 2021.

IREC filed a late protest for 5915-E-A on September 10, 2021. Staff determined that it was in the public's interest to accept this late protest and accepted it.

SDG&E's Advice Letter 3677-E was timely protested by IREC on February 17, 2021. SDG&E responded to the protests of IREC for AL 3677-E on February 24, 2021.

IREC filed a late protest for 3677-E-A on September 10, 2021. Energy Division accepted IREC's late protest.

resource interconnection up to the identified Integration Capacity Analysis value at the proposed point of interconnection and bypass those Screens representing criteria the Integration Capacity Analysis has already evaluated.

¹⁴ The Integration Capacity Analysis Operational Flexibility (OF) 576 profile is the same as the static grid profile but includes safety as one of the categories. Where the safety Integration Capacity Analysis value is not the lowest of all the categories, the two profiles are the same.

SCE's Advice Letter 4561-E was timely protested by the Green Power Institute (GPI) on August 26, 2021, and a late protest by IREC on September 10, 2021. Energy Division accepted IREC's late protest. SCE responded to the protests of GPI for AL 4561-E on September 2, 2021.

PG&E, SCE, and SDG&E jointly responded to the protests of IREC on September 17, 2021, for PG&E's AL 5915-E-A, SCE's AL 4561-E, and SDG&E's AL 3677-E-A.

PG&E's AL 5915-E-B, SCE's AL 4615-E-A, and SDG&E's AL 3677-E-B were not formally protested by IREC. However, IREC indicated in an email transmittal to the Energy Division responding to these Advice Letters (Informal Response) that "the substantive disagreements raised in IREC's August 26, 2021 protest of these advice letters all remain valid and unchanged. Accordingly, IREC's August 26, 2021, protest remains a valid basis for our objections and we do not plan to file another protest."¹⁵ IREC also raised a concern in their informal response on the effective date of these supplemental Advice Letters.

Below is a detailed summary of the major protested issues raised by CALSSA, GPI and IREC and the IOU responses, listed by the OP containing the issue. The Discussion Section will further elaborate on each issue.

OP 2: Updates to Integration Capacity Analysis (ICA) values at the proposed Point of Interconnection

GPI's protest requests that SCE 1) clarify that projects below the ICA value may qualify for fast track with no distribution upgrades,¹⁶ and 2) clarify the exception to ICA value use contained on page 35 of D.20-09-035.¹⁷ IREC's protest targets both perceived inconsistencies and typographical errors in tariff language.¹⁸ SCE agrees to correct typographical errors and the utility indicates that GPI's request

¹⁵ Email transmittal from IREC to the Energy Division dated November 10, 2021.

¹⁶ GPI protest of SCE AL 4561-E, dated August 26, 2021, at 2.

¹⁷ GPI protest of SCE 4561-E, dated August 26, 2021, at 3. Page 35 of D.20-09-035 reads: "projects that are below the Integration Capacity Analysis values may still be required to go to Supplemental Review or Detailed Study even [sic] if they fail the other screens not evaluated by the Integrated Capacity Analysis."

¹⁸ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 14.

to clarify the exception to ICA value use contained on page 35 of D.20-09-035 is “out of scope” in their Reply to Protest of AL 4561-E.¹⁹

OP 6: Allows interconnection projects less than 30 kilovolt amperes to bypass Screens F, G, H, and J

IREC indicates that D.20-09-035 acknowledges that “all participants agree that raising the threshold to 30 kVA to bypass these Screens is an improvement for streamlining the Fast Track process for small projects and would not raise any safety or reliability concerns.”²⁰ That is, D.20-09-035 does not highlight the subtle difference between “30 kVA or less” and “less than 30 kVA” indicates that Commission likely did not appreciate the significance of this change or intend to change the tariffs in this way.²¹ IREC also suggested a perceived inconsistency in tariff language of a note below Section G.1.g for Screen F and F1.²² On April 5, 2022, the Commission’s Executive Director approved an order to make these modifications to OP 6 of D. 20-09-035.

OP 11: Applies a 10% buffer to Integration Capacity Analysis Static Grid (SG) profile (ICA-SG 576)²³ & Integration Capacity Analysis Operational Flexibility (OF) profile (ICA-OF 576)²⁴ at Screen M

GPI notes that the proposed Screen M language omits the qualifying

¹⁹ SCE Reply to Protest of AL 4561-E, dated September 2, 2021, at 1.

²⁰ D.20-09-035 at 23.

²¹ IREC protest to SDG&E AL 3677-E, PG&E AL 5915-E, and SCE AL 4402-E, dated February 17, 2021, at 4.

²² IREC protest to SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E dated September 10, 2021, at 15.

²³ The ICA produces 576 values, a minimum and maximum load day for every month, for 12 months. The Integration Capacity Analysis Static Grid (SG) 576 profile is the minimum Integration Capacity Analysis values at each of the 576 hours for the most limiting of these categories: thermal, voltage, power quality, and protection.

²⁴ The Integration Capacity Analysis Operational Flexibility (OF) 576 profile is the same as the static grid profile but includes safety as one of the categories. Where the safety Integration Capacity Analysis value is not the lowest of all the categories, the two profiles are the same.

language, *“for all line sections bounded by automatic sectionalizing devices?”*²⁵ SCE, in its reply, agrees to add this language in a supplemental advice letter.²⁶ GPI also states that the definitions of Integration Capacity Analysis – Static Grid (ICA-SG) Values and Integration Capacity Analysis – Static Grid (ICA-SG) 576 Profile should be included in Section C, “Definitions” section of the tariff.²⁷

IREC’s protest states that 1) Screen M should have a consistent descriptive title across all Utilities’ Electric Tariff Rule 21,²⁸ 2) Rule 21 should use defined terms²⁹ and consistent definitions for these defined terms,³⁰ 3) Screen M’s questions and answers should be phrased consistently,³¹ 4) footnotes that appear in different parts of Screen M that fail to mention the addition of Sections Mm1 through Mm4 should be deleted,³² 5) Screen M should be modified to accommodate the pending implementation of Limited Generation Profiles in Screen M³³, and 6) Screen M should only ask for ICA-OF 576 Profiles. Utilities either disagree with IREC or proposed alternative tariff language.³⁴

²⁵ GPI protest of SCE AL 4561-E, dated August 26, 2021, at 1.

²⁶ SCE Reply to Protest of SCE AL 4561-E, dated September 2, 2021, at 2.

²⁷ GPI protest of SCE AL 4359-E dated, December 21, 2020, at 2.

²⁸ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 3.

²⁹ IREC protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 2.

³⁰ Ibid., at 4.

³¹ Ibid., at 5.

³² Ibid., at 3.

³³ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 6.

³⁴ Joint Utilities Reply to Protest of IREC, dated September 17, 2021.

OP 12: Accounts for thermal overload under three different ICA scenarios³⁵

GPI's protest claims that SCE deleted language due to a protest on AL 4359-E and failed to replace it with the required language in AL 4561-E.³⁶ GPI also claims that D.20-09-035 states with respect to Working Group Two's Issue 8n (Screen N) (p. 30 and 42): " and c) the utility will use the existing tariff language when Integration Capacity Analysis information is not available." GPI states that this existing language asks whether the aggregate generating facility capacity on the line section is less than 100 percent of the minimum load, which is approximately three times the Screen M 15% of peak load limit.³⁷ GPI further states that "SCE [should] add language making it clear that the new Screen N penetration limit is either the ICA or the previous 100% of minimum load, whichever is larger."³⁸ SCE in its reply states that they have not omitted tariff language and GPI has incorrectly interpreted OP 12.³⁹

IREC states that: 1) Utilities should modify the title of Screen N,⁴⁰ 2) the Commission did not authorize the use of a 10% buffer for Screen N and did state that projects may be able to interconnect even above the ICA-SG 576 when the screen includes other considerations,⁴¹ 3) Utilities should identify a reason why mitigations are required,⁴² 4) Utilities should modify Screen N today to accommodate the pending implementation of Limited Generation Profiles,⁴³ 5) The ICA is not a single minimum value, Screen N must apply a project's

³⁵ OP 12 requires the Utilities to update Screen N while adjusting for the following three scenarios: i) when the Interconnection Request is below the updated Integration Capacity Analysis value and passes Screen F1; ii) when the Interconnection Request is above the updated Integration Capacity Analysis value or fails Screen F1; and iii) when Integration Capacity Analysis information is not available.

³⁶ GPI protest of SCE AL 4561-E, dated August 26, 2021, at 4.

³⁷ Ibid., at 4.

³⁸ Ibid., at 4.

³⁹ SCE Reply to Protest of SCE AL 4561-E, dated September 2, 2021, at 2.

⁴⁰ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 10.

⁴¹ Ibid., at 10.

⁴² Ibid., at 11.

⁴³ Ibid., at 11.

production profile to the ICA-SG 576 Profile,⁴⁴ and 6) Screen N should include provisions regarding how to evaluate smart inverter capabilities when a project exceeds the ICA's voltage criteria.⁴⁵

Utilities oppose all the above proposals from IREC, but PG&E agrees to align its Screen N language with other Utilities.⁴⁶ The "Discussion" section below explains the bases of IREC's protests.

CALSSA claims that Utilities use the wrong ICA values for Screen N, inappropriately send projects to Detailed Study, and fail to describe how the Utilities will obtain data on a solar system's generating profile.⁴⁷

OP 23: Establishes a standard timeline for design and construction

IREC requests to remove proposed language of the Utilities that "conditions their adherence to this [design and construction] timeline on 'emergencies, delays from other agencies, and other reasons,' including a footnote [footnote 12] with a long list of 'other reasons' that are within the IOUs' ability to control via advanced planning and procurement practices."⁴⁸ Utilities disagree with IREC's proposed language but agree to delete footnote 12.⁴⁹

CALSSA states that the Utilities should include the OP 23 timelines in Rule 21 Section I.1.⁵⁰

⁴⁴ IREC's Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 6.

⁴⁵ Ibid., at 6.

⁴⁶ Joint Utilities Reply to Protest of IREC, dated September 17, 2021.

⁴⁷ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 1.

⁴⁸ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 13.

⁴⁹ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 12.

⁵⁰ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 5.

DISCUSSION

We address the parties' protested issues by their D.20-09-035 Ordering Paragraph number in the section below. We then address a note shown on the Interconnection Technical Framework Overview flowcharts and the effective date of the supplemental Advice Letters.

OP 2: Updates ICA values at the proposed Point of Interconnection

Protest by GPI

GPI urges "SCE to make it clear that the ICA value is a size limit for interconnection that indicates where projects may be interconnected with no [distribution] upgrades⁵¹ required, at that location, if the proposed project is equal to or less than the ICA value, but that otherwise the applicant may propose any size limit for its project and still qualify for Fast Track interconnection."⁵² GPI further states that "If the project size limit exceeds the ICA value it will be studied under the normal Fast Track IR/SR process and any required upgrades will be identified during that process."⁵³

GPI also requests that "SCE clarify the exception to ICA value use contained in [page 40 of] the Decision."⁵⁴ That is, GPI requests that SCE clarify under what circumstances or exceptions will projects proposing generation below the ICA values still be required to go to Supplemental Review or Detailed Study.

SCE's Reply to Protest on December 29, 2020, argues that GPI's proposed modification to SCE's OP 2 language is out of scope of OP 2. That is, SCE asserts that additional clarification is not needed to SCE's proposed language addressing OP 2 because the language SCE submitted fulfills OP 2's direction. SCE stated that GPI's language is not required by OP 2 and was not part of Working Group

⁵¹ GPI included the underline as emphasis in its protest.

⁵² GPI protest of SCE AL 4561-E, dated August 26, 2021, at 2. GPI included the underline as emphasis in its protest.

⁵³ Ibid.

⁵⁴ Ibid. at 3. Page 40 of D.20-09-035 reads: "projects that are below the Integration Capacity Analysis values may still be required to go to Supplemental Review or Detailed Study if they fail the other screens not evaluated by the Integrated Capacity Analysis."

Two issue 8b; therefore, SCE asserts GPI's proposed addition is unnecessary to comply with OP 2.⁵⁵

SCE also stated that "GPI seems to have misunderstood what ICA values are. ICA values do not set a threshold below which there would be no upgrades. In fact, there may be distribution upgrades even if requested generation is below ICA values because ICA calculations do not account for all system study parameters. As an example, ICA does not verify any of the requirements in Screens A through Screen H that may include Distribution Upgrades [sic] such as transformer upgrades (Screen D), circuit breaker upgrades (Screen G,) and protection upgrades (Screen F). Further, the ICA values are only applicable to lower voltage distribution systems (distribution circuit feeders). ICA does not verify the requirements at higher voltage levels."⁵⁶

The Commission agrees with SCE that additional clarification by SCE on OP 2 is not required. We further affirm that there may be distribution upgrades required even if requested generation is below ICA values because of other system study parameters.

Protest by IREC

IREC suggested that SCE should address minor inconsistencies between the IOUs' tariff language. SCE omits the word "of" in the second paragraph of Section F.2.a of the Electric Rule 21 Tariff. IREC asserts that SCE should include the word "of," to be consistent with the tariff language proposed by PG&E and SDG&E.⁵⁷

SCE agreed to this change in its Joint Utilities Reply to Protest and made this change in its supplemental for AL 4561-E.⁵⁸

The Commission considers this issue moot.

⁵⁵ SCE Reply to Protest of AL 4561-E, dated September 2, 2021, at 1.

⁵⁶ Ibid., at 2.

⁵⁷ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 14.

⁵⁸ Joint Utilities Reply to Protest of IREC dated September 17, 2021, at 9.

OP 6: Allows interconnection projects less than 30 kilovolt amperes to bypass Screens F, G, H, and J

Protest by IREC

IREC notes that OP 6 changes language describing the exemption from the “30 kVA or less” recommended by the Working Group Two Final Report from to “less than 30 kVA”.

IREC asserts that the change between the Working Group Two consensus proposal and the language used in OP 6 was inadvertent.⁵⁹ IREC correctly indicates that the Decision confirms that the current tariffs allow facilities with a Gross Rating of 11 kVA or less to bypass Screens F, G, H, and J.⁶⁰ IREC states that the Decision acknowledges that “all participants agree that raising the threshold to 30 kVA to bypass these Screens is an improvement for streamlining the Fast Track process for small projects and would not raise any safety or reliability concerns.”⁶¹ The Decision does not, however, discuss the difference between “30 kVA or less” and “less than 30 kVA[;]” indicating that the Commission likely did not appreciate the significance of this change or intend to change the tariffs in this way.⁶²

The Commission agrees with IREC that when D.20-09-035 states that “All participants agree that raising the threshold to 30 kVA to bypass these Screens improves streamlining and would not raise any safety or reliability concerns” the intention was to raise the threshold **to and including** 30 kVA. On April 5, 2022, the Commission’s Executive Director approved an order to make these modifications to OP 6 of D. 20-09-035.

IREC also urges that “SDG&E’s notes [for Screens F and F1] say ‘Gross Rating less than 30 kVA or less’ and SDG&E should use the language proposed by PG&E and SCE: ‘a Gross Rating of 30 kVA or less.’ ”⁶³ SDG&E agreed to adopt

⁵⁹ IREC protest to SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 4.

⁶⁰ Staff has verified these Screens in Utilities’ Electric Rule 21 Tariffs.

⁶¹ IREC protest to SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 4.

⁶² Ibid.

⁶³ IREC protest to SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 15.

this language in a supplemental advice letter, which it did in its supplemental for AL 3677-E-B.⁶⁴ The Commission considers this issue moot.

OP 11: Applies a 10% buffer to ICA-SG 576 & ICA-OF 576 at Screen M

Screen M (OP 11) and Screen N (OP 12) evaluate interconnection requests under three scenarios. That is, evaluations are based on 1) gross nameplate rating of the generator, 2) typical PV generation profile, or 3) when ICA values are not available. For scenario 1, the evaluation is based on a comparison between the lowest monthly value in the ICA-SG 576 Profile and the gross nameplate rating of the generator. For scenario 2, the evaluation is based on a comparison between the typical PV generation profile developed by the Utilities and ICA- SG 576 profile values. For scenario 3, Screen M compares aggregate generating facility capacity to the line section's peak load, and Screen N compares the aggregate generating facility capacity to the minimum load of the line sections.

Protest by GPI

GPI notes that the proposed Screen M language omits the qualifying language, *"for all line sections bounded by automatic sectionalizing devices?"*⁶⁵ SCE replied with a commitment to add this language in a supplemental advice letter.⁶⁶ SCE subsequently added this qualifying language in its supplemental Advice Letter 4561-E-A. Therefore, the Commission considers this issue moot.

GPI requested that SCE add the definitions of Integration Capacity Analysis – Static Grid (ICA-SG) Values and Integration Capacity Analysis – Static Grid (ICA-SG) 576 Profile into Section 2, Definition Section of the SCE's Electric Rule 21 Tariff.⁶⁷ SCE did not discuss this issue in its Reply⁶⁸, however, these definitions were included in SCE's supplemental filing for AL 4561-E-A. Therefore, the Commission considers this issue moot.

⁶⁴ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 10.

⁶⁵ GPI protest of SCE AL 4561-E, dated August 26, 2021, at 1.

⁶⁶ SCE Reply to Protest of SCE AL 4561-E, dated September 2, 2021, at 2.

⁶⁷ GPI protest of SCE AL 4359-E, dated December 21, 2020, at 2.

⁶⁸ SCE Reply to Protest of SCE AL 4359-E, dated December 29, 2020, at 5.

Protest by IREC

Below are descriptions of six issues related to OP 11 that were brought up by IREC in its protest to SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4615-E. The Commission's disposition of each issue follows the description.

1. Using the Same Title for Screen M for Each Utility

IREC's protest states that Screen M should have a consistent descriptive title across all Utilities' Electric Tariff Rule 21. IREC recommends using the following, a modified title for Screen M, in Rule 21's Table of Contents, the flowchart, and the screen language.⁶⁹

Does the Generating Facility pass the ICA-OF or is aggregate generation less than 15% of line section peak load?

IOUs Reply to Protest and agree to use consistent language but propose to use the following (which includes an additional phrase):⁷⁰

*Does the Generating Facility pass the ICA as required in G.1.m⁷¹ or is aggregate generation less than 15% of line section peak load **for all line sections bounded by automatic sectionalizing devices?***

The Definitions Section of Electric Rule 21 defines a line section as "That portion of Distribution Provider's Distribution or Transmission System connected to a Customer bounded by automatic sectionalizing devices or the end of the distribution line."⁷² Therefore, the added phrase at the end of the question does not affect the meaning of the question but adds clarity and consistency through restating the definition of a line section. Hence, the Commission finds that the consistent language proposed by the Utilities complies with Ordering Paragraph 11 of D.20-09-035. The Utilities also have included this language in their

⁶⁹ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 10.

⁷⁰ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 2.

⁷¹ Section G.1.m of Electric Rule 21 tariff states Screen M initial review screen requirements. It is also included in Appendix A of this Resolution.

⁷² Definitions can be found in Section C of Utilities' Electric Rule 21 Tariffs.

supplemental filings; therefore, the Commission finds that this protested issue is moot.

2. Using Defined Terms and consistent definitions for these defined terms in the Electric Rule 21 Tariff

IREC's protest states that Rule 21 should use defined terms where appropriate. IREC stated that the IOUs' tariff language uses the undefined term "ICA information" where it is appropriate to use the defined term "ICA Values." In addition, IREC states that the IOUs' tariff language uses the undefined term "output Profile" and "real power production" where the defined term "Generation Profile" is suitable. Utilities agree to make these change in their Joint Utilities Reply to Protest.

The Commission agrees with IREC that Electric Rule 21 should use defined terms where appropriate. Utilities have made these changes in their supplemental Advice Letters for Screen M, however, there are also other examples where the term "real power production" is used within the Electric Rule 21. ~~Utilities should define this term under Section C (Definitions) of the Electric Rule 21 Tariff.~~ In order to maintain consistency with the IEEE 1547-2018 standard, Utilities shall use the term "active power output" instead of "real power production" and shall include this change to Electric Rule 21 Tariff language in a Tier 1 compliance Advice Letter filing within 30 days of the adoption of this Resolution.

IREC also recommends that the Commission require the use of the exact same definition for Integration Capacity Analysis (ICA) Values, Integration Capacity Analysis – Static Grid (ICA-SG) Values, and Integration Capacity Analysis – Static Grid (ICA-SG) 576 Profile in each tariff. IREC recommends adopting a modified version of PG&E's proposed definition of ICA Values that deletes the term "safety" and adds a comma after the word "limits." IREC recommends adopting SDG&E's definition of the term ICA-SG Values. IREC recommends adopting SCE's definition of the term ICA-SG 576 Profile.⁷³ In Section F.2.a, and throughout the Rule 21, IREC indicates that the Electric Rule 21 tariff should capitalize the word "values" when it appears as a part of the defined terms "ICA Values" and "ICA-SG Values."⁷⁴

⁷³ IREC protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 2-3.

⁷⁴ Ibid. at 3.

SCE states in its Reply that it agrees with IREC's proposed addition of "at a given Point of Interconnection" to the definition of ICA. However, SCE also states that the word "safety" should not be removed from the definition of ICA and that safety was the basis of the operational flexibility value as discussed extensively within the ICA Working Group and the Distribution Resources Plan Track One Decision (Decision 17-09-026).⁷⁵

Utilities included the above proposed changes in definitions by IREC in their supplemental Advice Letters PG&E 5915-E-B, SCE 4561-E-A, and SDG&E 3677-E-B; except the definition for ICA Values. The supplemental Advice Letters still include the word "safety" in the definition of ICA Value.

The Commission agrees with the Utilities that it is reasonable to include "safety" in the definition of ICA Values since safety was the basis of the operational flexibility value.

Although Utilities have included the above proposed changes in definitions by IREC in their supplemental Advice Letters, each Utility shall ~~define~~ Utilities shall use the term "active power output" instead of "real power production" ~~under Section C (Definitions) of the Electric Rule 21 Tariff~~ and shall include this change in a Tier 1 compliance Advice Letter filing within 30 days of the adoption of this Resolution.

3. Consistent Phrasing of Questions and Answers

IREC stated that Screen M's questions and answers should be phrased consistently. IREC proposes to modify the new ICA questions such that any negative answer means that the project fails the screen or, alternatively, modify the existing questions, as long as the questions are phrased consistently so that a negative answer produces the same result for all the questions in Screen M.

The Commission agrees with IREC that the questions and answers of Screen M should be modified to have a consistent convention of "yes" means pass Screen M. Currently, all the questions with a "yes" response mean failing Screen M except the 15% test which means passing Screen M. In order to maintain consistency of language in Screen M, Utilities each shall include the tariff language in Appendix A of this Resolution in a Tier 1 Advice Letter within 30 days of the adoption of this Resolution.

⁷⁵ SCE's Reply to Protest of AL 4359-E, dated December 29, 2020, at 3.

4. Deletion of Footnotes in Screen M

IREC recommends deleting the footnote that appears in different parts of Screen M for each Utility because it fails to mention that each Utility's addition of Sections Mm1 through Mm4 sets new rules and because it allows the use of more types of systems beyond inadvertent export.

The Utilities replied with an agreement to keep only the last footnote⁷⁶:

**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.*

The Utilities have deleted all footnotes in Screen M in their supplemental filings. Therefore, the Commission considers this issue moot.

5. Modifying Screen M to accommodate the pending implementation of Limited Generation Profiles in Screen M

IREC recommends modifying Screen M to accommodate the pending implementation of Limited Generation Profiles, so there is no need to revisit Screen M again after the Commission implements Limited Generation Profiles.⁷⁷ Utilities do not agree to the change "because the application of Limited Generation has not yet been approved and thus updated (sic) to the tariff would be determined based on future Commission ruling."⁷⁸

The Commission agrees with the Utilities that the term Limited Generation Profiles should not be used in the tariff until its implementation. Hence, we decline IREC's request to modify Screen M as the ALs concerning Limited Generation Profile are still under review and awaiting disposition.⁷⁹

⁷⁶ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 3.

⁷⁷ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 11.

⁷⁸ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 8.

⁷⁹ PG&E Advice Letter AL 6058-E, SCE Advice Letter 4404-E, and SDG&E Advice Letter 3678-E filed on January 28, 2021; and PG&E Advice Letter 6141-E; SCE Advice Letter 4455-E; SDG&E Advice Letter 3721-E filed on March 30, 2021.

6. Address ICA-SG 576 Profiles Separately in Screen M and the flowchart's box for Screen M.

IREC points out the Utilities propose language for Screen M that asks if the Generating Facility's Generation Profile is less than or equal to 90% of the ICA-SG 576 Profile **and** the ICA-OF 576 Profile. However, IREC maintains that only a question concerning the ICA-OF is needed because the ICA-OF encompasses the ICA-SG criteria.⁸⁰ Hence, IREC proposed to use only the ICA-OF 576 Profile in Screen M to simplify the tariff language.

Utilities indicate that IREC's proposed language does not follow the requirements of OP 11, which require that the Utilities "apply a 10 percent buffer to the Integration Capacity Analysis-Static Grid profile and to the Integration Capacity Analysis-Operational Flexibility profile during review of Screen M of the Rule 21 Interconnection Application Process."⁸¹ The Utilities further note the structure should be kept for future modifications to ICA-OF.⁸² The Utilities also state that "the proposed language [of IREC] will not be consistent with the working group report and will lead to confusion as to the source of the change. Having the language as it is now (i) does not affect how a project is evaluated, (ii) was the language agreed on in the working group report, and (iii) will allow the Utilities to make additional modifications to ICA-OF as may be determined in the future."⁸³

The flowchart's box for Screen M as proposed by the Utilities reads as follows:⁸⁴

<i>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 for all line sections bounded by automatic sectionalizing devices?</i>	M
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⁸⁰ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 6.

⁸¹ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 4-5.

⁸² Ibid.

⁸³ Ibid.

⁸⁴ SDG&E AL 3677-E-B, dated November 4, 2021, at 3; PG&E AL 5915-E-B, dated November 4, 2021, at 26; and SCE AL 4561-E-A, dated November 4, 2021, at 6.

IREC recommends:⁸⁵

<i>Does the Generating Facility pass the ICA-OF or is aggregate generation less than 15% of line section peak load?</i>	M
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The Utilities do not support using only ICA-OF as indicated above. Instead, the Utilities propose using the language as indicated in Section G.1.m.⁸⁶

The Commission agrees with the Utilities' proposal to include both ICA-SG 576 and ICA-OF 576 Profiles in Screen M and retain the proposed language for the flowchart's box for Screen M as it is in compliance with OP 11. OP 11 states that the Utilities "shall apply a 10 percent buffer to the Integration Capacity Analysis-Static Grid profile and to the Integration Capacity Analysis-Operational Flexibility profile during review of Screen M of the Rule 21 Interconnection Application Process." Therefore, IREC's protest is rejected.

OP 12: Updates Screen N to account for Thermal Overload while adjusting for Three Different ICA Scenarios

Protest by GPI

Below are descriptions of two issues related to OP 12 (Screen N) that were brought up by GPI in its protest to SCE AL 4359-E and SCE AL 4615-E. The Commission's disposition of each issue follows the description.

1. SCE failed to replace the deleted tariff language in AL 4561-E with proposed language addressing circumstances when ICA information is not available

GPI argued in its protest to SCE AL 4359-E that SCE's proposed language for Screen N "should be corrected to maintain the original 100% minimum load pre-ICA tariff language in circumstances when ICA isn't available."⁸⁷ GPI stated in its protest to SCE AL 4561-E that GPI protested incorrect language in the

⁸⁵ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 8.

⁸⁶ Section G.1.m of Electric Rule 21 tariff states Screen M initial review screen requirements. The purpose of Screen M is to maintain generation and load balance in case of load changes on a circuit. It is also included in Appendix A of this Resolution.

⁸⁷ GPI's protest dated December 21, 2021, at 3. SCE's Reply to Protests dated December 29, 2020, indicated that "SCE did maintain the existing Screen N language when ICA values are not available. SCE refers GPI to its proposed tariff sheets 119 and 120."

previous advice letter, AL 4359-E.⁸⁸ GPI indicates that SCE appears to have deleted that language, but failed to replace it with the appropriate language. GPI further indicates that D.20-09-035 states with respect to Working Group Two's Issue 8n (Screen N) (p. 30 and 42): "and c) the utility will use the existing tariff language when Integration Capacity Analysis information is not available."⁸⁹

SCE's Reply to Protests dated September 2, 2021, indicated that SCE's proposed change used existing tariff language when ICA information is not available and refers GPI to the proposed Sheet 125 of the tariff, included with Advice 4651-E as Attachment A.⁹⁰

Energy Division staff has reviewed the proposed tariff sheet 125 included with Advice Letter 4651-E as Attachment A. Staff concludes that SCE has used the existing tariff language when ICA information is not available. Therefore, the Commission finds that SCE has cured the issue raised by the protest and the issue is moot.

2. GPI requests additional tariff language to indicate that the penetration limit is either the ICA or the previous 100% of minimum load, whichever is larger.

GPI requests that SCE add language making it clear that the new Screen N penetration limit is "either the ICA or the previous 100% of minimum load, whichever is larger."⁹¹ GPI further states that "the working group and the Commission did not intend for the ICA data to reduce the size of possible interconnections under Fast Track, which could in some cases occur under SCE's suggested language."⁹²

SCE, in its reply to GPI, states that GPI is incorrect that OP 12 requires that the evaluation under Screen N be based on "**either the ICA or the previous 100% of minimum load, whichever is larger.**"⁹³ SCE states that this concept is not within OP 12 and was never discussed as part of Issue 8n within the Working Group

⁸⁸ GPI protest of SCE AL 4359-E, dated December 21, 2020, at 2.

⁸⁹ GPI protest of SCE AL 4561-E, dated August 26, 2021, at 4.

⁹⁰ SCE Reply to Protest of SCE AL 4561-E, dated September 2, 2021, at 2.

⁹¹ GPI's protest of SCE AL 4561-E, dated August 26, 2021, at 4.

⁹² Ibid.

⁹³ SCE Reply to Protest of SCE AL 4561-E, dated September 2, 2021, at 2. SCE included the boldface emphasis.

Two report.⁹⁴ SCE indicates that OP 12 requires that ICA values be utilized as part of the technical review process in Screen N if ICA values are available.⁹⁵ SCE further states that if ICA values are not available, then the existing language (100% of minimum load) shall be used.⁹⁶

The Commission agrees with SCE that the concept of “either the ICA or the previous 100% of minimum load, whichever is larger” is not within OP 12. Therefore, there is no need to modify Screen N on this issue and this issue is moot.

Protest by CALSSA

Below are descriptions of three issues related to OP 12 (Screen N) that were brought up by CALSSA in its protest to PG&E AL 6014-E, SCE AL 4359-E and SDG&E AL 3654-E.⁹⁷ The Commission's disposition of each issue follows the nature of each protest.

1. The ICA is not a single minimum value, Screen N must apply a project's production profile to the ICA-- Profile.

CALSSA states that “the IOUs are using the wrong ICA values for Screen N. IOUs incorrectly interpret the Decision by using the ICA Value rather than the ICA Profile in Screen N. If the ALs are approved, it will reverse the Commission's decision to use hourly ICA values. It will be common for a project to go to Supplemental Review by exceeding ICA-OF but not ICA-SG. It is expected that in Supplemental Review the operational flexibility constraint will often be removed after more detailed consideration of the project and the circuit segment. According to the ALs, the project would then be evaluated by the ICA Value rather than the ICA Profile, in violation of the Decision. The Commission should order the utilities to change the language in Screen N to: ‘Is the Interconnection Request real power production greater than 90 percent of the Integration Capacity Analysis-SG value in any hour (i.e., the ICA Profile).’ ”⁹⁸

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ CALSSA protest of SDG&E AL 3654-E, SCE AL 4359-E, and PG&E AL 6014-E, dated December 21, 2020, at 1-4.

⁹⁸ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 1-2.

Since IREC also indicates the same above concern in its protest, PG&E's response to IREC also applies to CALSSA. PG&E indicates that it "does not support IREC proposal that ICA-SG 576 to be checked in all hours for Screen N. The proposal adds unnecessary steps, compromises safety, and PG&E believes should be rejected."⁹⁹ PG&E further clarified that "CALSSA's [sic] proposal would require the comparison of different ICA values, versus the single minimum value comparison. This additional complexity invites error hence the concern about compromising safety. PG&E's proposed use of the minimum value by basing the comparison on 90% of the minimum value, also builds in a reasonable margin of error."¹⁰⁰ The Commission agrees with PG&E that gross nameplate rating should be compared to the lowest value in the ICA-SG 576 profile for interconnection requests based on gross nameplate rating. We note, however, that comparison of PV generation and ICA profiles is required and occurs without compromise to safety as a concern raised in PG&E's response to protest.

SCE indicates that it "agrees with CALSSA that language needs to be added to Screen N to account for typical PV output profiles. CALSSA's proposed revision is acceptable with the following changes: (1) it should be revised to specify that it applies only to fixed PV solar systems using a typical PV output profile as follows (added language in bold): "**For fixed PV solar systems**, is the Interconnection Request real power production **based on typical PV output profile** greater than 90 percent of the Integration Capacity Analysis-SG value in any hour?"; and (2) it must be revised to fit into the current Screen N structure (Screen N currently provides that a "yes" answer is a pass and CALSSA's question would require a "no" answer for a pass)."¹⁰¹

SDG&E indicates that it "agrees with CALSA [sic] that Screen N language should be modified to account for the Proposal 8m modified Option B language. Proposal 8m Option B is specific to the evaluation of typical photovoltaic resources profiles (such as fixed photovoltaic systems) when assessing ICA values."¹⁰² SDG&E also proposes to modify language for Screen N to assess PV resources, assuming a typical PV profile:

⁹⁹ PG&E Reply to Protest of CALSSA, dated December 29, 2020, at 9.

¹⁰⁰ PG&E data response to Energy Division, dated March 4, 2022.

¹⁰¹ SCE Reply to Protest of CALSSA, dated December 29, 2020, at 1. SCE included bold-faced emphases in its Reply to Protest.

¹⁰² SDG&E Reply to Protest of CALSSA, dated December 29, 2020, at 2.

*“Is the Interconnection Request Gross Nameplate Rating below 90% of the minimum annual ICA-SG value in the ICA-SG 576 profile? **Special consideration should be made for fixed photovoltaic profiles as applicable.**”¹⁰³*

The Commission agrees with SCE and SDG&E that Screen N should account for typical photovoltaic resource profiles (such as fixed photovoltaic systems) when assessing ICA values as stated in the Working Group Two Final Report.¹⁰⁴ However, a fixed PV output profile does not necessarily denote a fixed PV solar system.

IREC also has a similar concern on this issue. IREC claims that “the language proposed by the IOUs for Screen N fails to recognize that the ICA is not simply a single minimum value and that projects will be proposed with two types of profiles in the future: a typical PV output profile using PV-Watts as well as a limited export operating profile using a power control system. In either case, Screen N should not evaluate whether a project needs to go on to the electrical independent [sic] tests based upon a single minimum value without taking into account the profile of the system and how that corresponds to the 576 hourly ICA profile.”¹⁰⁵ The Commission determines that limited generation profile is not a Screen N issue [at this time](#) and evaluation of interconnection requests should be based on typical PV output profile.

2. Proposed Revisions to the Detailed Study Language

CALSSA indicates that “According to the ALs, a project that exceeds ICA-SG would be sent from Screen N to Detailed Study without respect to the outcome of Screens O and P. This may be appropriate if a project exceeds the ICA thermal constraint, but not if it exceeds the other ICA constraints.”¹⁰⁶ CALSSA further indicates that it expects that “Volt-Var will address voltage constraints nearly

¹⁰³ SDG&E Reply to Protest of CALSSA, dated December 29, 2020, at 2. SDG&E included the red font emphasis in its Reply to Protest.

¹⁰⁴ Page 67 of the Working Group Two Final Report states that: “For all proposals under Issue 8, it is assumed that the generator has a fixed PV generation profile. Issue 9 considers these scenarios with a Limited Generation Profile.”

¹⁰⁵ IREC’s Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 6.

¹⁰⁶ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 1.

100% of the time.”¹⁰⁷ CALSSA states that “If a project exceeds the ICA “safety” constraint for operational flexibility, it will be reviewed in Screen P.”¹⁰⁸ CALSSA also states that “it may be that if a project exceeds ICA for thermal impacts, nothing in Screen O or P will mitigate that impact and it would be acceptable to send it straight to Detailed Study. If it exceeds ICA for other constraints it should go to Detailed Study only if Screens O or P determine that is necessary.”¹⁰⁹

CALSSA recommends that the Commission directs the utilities to delete the following language from the ALs:

“If “no” to either or both of the above (fail), a quick review of the failure may determine the requirements to address the failure; ~~otherwise Electrical Independence Tests and Detailed Studies are required.~~ Continue to Screen O.

(~~Note: If Electrical Independence tests and Detailed Studies are required, Applicants will continue to the Electrical Independence Tests and Detailed Studies after review of the remaining Supplemental Review Screens if Applicant elects to proceed.~~)”

PG&E indicates in its Reply to Protest that it strongly opposes deleting existing language for Screen N. PG&E states that “the current Rule 21 Screen N language should be preserved. It provides a path for projects to be studied under Fast Track screen O and P in low DG penetration scenarios when there is no back-feed to the transmission system, as well as a path for projects to proceed to Detail [sic] Study under very high penetration scenarios where generation is back-feeding onto the transmission system.”¹¹⁰

SCE urges in its Reply to Protest that “CALSSA’s proposed deletion of language in Screen N regarding a project proceeding to Detailed Study is unnecessary. SCE claims its proposed language already indicates that a project will be required to proceed to Electrical Independence Tests and Detailed Studies only “after review of the remaining Supplemental Review Screens if Applicant elects to proceed.””¹¹¹

¹⁰⁷ Ibid., at 2.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ PG&E Reply to Protest of CALSSA, dated December 29, 2020, at 3.

¹¹¹ SCE Reply to Protest of CALSSA, dated December 29, 2020, at 2.

SDG&E argues in its Reply to Protest that “Omission of SDG&E’s proposed Screen N language would mislead applicants to proceed through additional Screens despite a known violation. CALSSA’s proposal to only send projects through Electrical Independence Tests and Detailed Studies as contingent on the completion of multiple Screens is ungrounded in the decision language.”¹¹²

The Commission agrees with SDG&E that omitting Screen N language as proposed by CALSSA may mislead applicants to believe they will proceed through additional Screens despite a known violation. Furthermore, as indicated in Appendix B of this Resolution, “*the Distribution Provider must identify a reason and inform the customer why a specific technical constraint is not captured by the ICA and why the project must proceed to Electrical Independence Tests and Detailed Studies. Utilities also must address any concerns in the context of the Screen that triggers the mitigation or detailed study.*” Therefore, an applicant will have the opportunity to provide feedback on the need of a detailed study. Furthermore, the Commission modifies the existing language in Appendix B, which shall apply. Screen N has been revised in Appendix B to supplement existing tariff language in Section G.2.a related to volt/var function. This language revision ensures that a project which fails Screen N will go on to Screen O only after a full range of the Smart Inverter functions, including the volt/var function, have been applied.

3. Estimating Solar Production

CALSSA indicates that “the Decision adopts the proposal to use “real power production based on PV Watts¹¹³ or equivalent” for solar system output values,

¹¹² SDG&E Reply to Protest of CALSSA, dated December 29, 2020, at 2-3.

¹¹³ PVWatts® is a map-based free online software for United States and international PV sites analysis. It describes annual energy output of PV systems connected to the grid and PV energy output hourly values. A user identifies a grid cell location to run the PVWatts® software. This software then calculates the PV output performance using hourly data for a nearby Typical Meteorological Year (TMY) site that is climatologically similar. Then the output is adjusted based on the differences between the TMY site and the grid cell identified by the user with respect to the solar source and daily maximum temperature. PVWatts® determines the solar radiation incident of the PV array and the PV cell temperature for each hour of the day using TMY weather data.

PVWatts® is the trademark name, but protestants and Utilities use the term “PV Watts”. However, the Commission will use the trademark PVWatts®.

Photovoltaic-software.com (2022). Retrieved from <https://photovoltaic-software.com/pv-softwares-calculators/online-free-photovoltaic-software/pvwatts-nrel>

yet the ALs do not describe how they will obtain that data. PV Watts is available to use and could be implemented immediately.”¹¹⁴ CALSSA states that it supports acquiring the National Renewable Energy Laboratory (NREL) to create a “blue sky” version of PVWatts® that would assume perfect weather in all hours of the year to determine a solar system’s maximum output in all hours of the year.¹¹⁵

PG&E indicates in its Reply to Protest that it is “committed to provide accurate ICA values for photovoltaic generation. However, discussion of using typical solar output profiles versus using total clear-sky profiles, need to be discussed further.”¹¹⁶

SCE indicates in its Reply to Protest that it “does not support use of or intend to use the PV Watts tool at this time to generate the typical PV output profile needed to evaluate solar systems. SCE views PV Watts as a customer-focused tool that can provide a customer the level of energy (KW hours) that a system can produce. The tool was not primarily designed to generate a profile that could be used to safely integrate PV systems into the grid.”¹¹⁷ SCE further states that it “intends to use SCE typical solar output profiles, which should closely align with the clear day output profiles that would be produced by any potential future update to the PV Watts tool.”¹¹⁸

SDG&E indicates in its Reply to Protest that it “has been committed to provide accurate ICA values for photovoltaic generation using typical solar output profiles, reflecting SDG&E service territory that aligns with clear-day output conditions. There is no reason to believe that updated PV Watts data would provide substantial changes to ICA values for potential solar interconnection applicants.”¹¹⁹

SCE indicates in a data response that the Utilities utilize both actual metered data from existing PV installations and other research-driven sources to generate

¹¹⁴ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 3.

¹¹⁵ Ibid.

¹¹⁶ PG&E Reply to Protest of CALSSA, dated December 29, 2020, at 3.

¹¹⁷ SCE Reply to Protest of CALSSA, dated December 29, 2020, at 2.

¹¹⁸ Ibid.

¹¹⁹ SDG&E Reply to Protest of CALSSA, dated December 29, 2020, at 2-3.

typical PV output profiles that are specific to their service territories.¹²⁰ SCE further indicates that “the utilization of ICA was based on concept of ‘**typical**’¹²¹ PV Output Profile’. The fact that trackers are seldom used and because these systems have much unknown complexity for output modeling purposes, they are them [sic] seem as ‘Not-Typical’ and would them [sic] be evaluated using ‘Nameplate parameters.’ ”¹²²

Energy Division staff has requested the Utilities to provide a one page document summarizing the computational approaches used to generate their individual PV output profiles and discussing why they consider their internal solutions to produce the PV output profiles as “equivalent” to the profiles generated by the PVWatts® methodology. On March 17, 2022, the Utilities submitted the one page document.¹²³

Energy Division staff has examined Utilities’ methodologies based on their meeting presentations and the one page document to determine whether the PV profile curves generated from internal Utility models are “equivalent” to the ones generated from PVWatts®. SCE’s profile comparison is closely aligned with the PVWatts®. PG&E and SDG&E actually use the PVWatts® to calculate the PV output profiles. Therefore, the Commission finds it reasonable that the Utilities apply their existing methodology to determine typical solar output profiles.

Protest by IREC

Below are descriptions of six issues related to OP 12 that were brought up by IREC in its protests to: 1) SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020; 2)) SDG&E AL 3677-E, PG&E AL 5915-E, and SCE AL 4402-E, dated February 17, 2021; and 3) SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4615-E on September 10, 2021. IREC also proposed

¹²⁰ SCE’s email response to Energy Division, dated February 24, 2022, and an online meeting with Energy Division staff on March 9, 2022.

¹²¹ The bold and underlined emphases are included in the email response.

¹²² SCE’s email data response to Energy Division, dated March 3, 2022.

¹²³ Please refer to Appendix C for one page document.

Screen N language in its protest.¹²⁴ The Commission's disposition of each issue follows the description.

1. Utilities to modify the descriptive title of Screen N in Rule 21's Table of Contents, the flowchart, and the screen language.

The Utilities currently title subsection *a* of Screen N as: "*a. Screen N: Penetration Test.*"¹²⁵ IREC urges that the title of subsection *a* of Screen N should reflect that it is no longer simply a penetration test. IREC further states that "Because the ICA-SG does not simply measure the Penetration Level, the title of subsection *a* should not include the term "Penetration Level."¹²⁶

IREC also states that "The IOUs' edits add the title "Penetration Level Using Generating ICA Profile" to subsection *a* of Screen N. IREC further states that the term "Generating ICA Profile" is not a defined term and should not be used. IREC therefore recommends using "Does the Generating Facility pass the ICA-SG?" for the title of subsection *a* of Screen N."¹²⁷

Similarly, IREC recommends using the following title for Screen N in Rule 21's Table of Contents, the flowchart, and the screen language:¹²⁸ *Does the Generating Facility pass the ICA-SG or is aggregate generation less than 100% of minimum load?*

The Utilities disagree, asserting that the title of screen N should not be changed. Utilities state that "their proposed title is appropriate as it is because it is still a 'penetration test.'"¹²⁹ Utilities indicates that the only difference is that "penetration is now based on ICA values or minimum load. Thus, it is not necessary to change the titles."¹³⁰

¹²⁴ IREC's Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 7-8; and IREC protest of SDG&E AL 3677-E, PG&E AL 5915-E, and SCE AL 4561-E, at 11-13

¹²⁵ Section G.2.a of the Electric Rule 21 tariff of PG&E, SCE, and SDG&E.

¹²⁶ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 10.

¹²⁷ Ibid.

¹²⁸ Ibid.

¹²⁹ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 6.

¹³⁰ Ibid., at 8.

The Commission agrees with the Utilities that Screen N is still a “penetration test”. Therefore, the title of screen N need not be changed, and IREC’s protest is rejected. However, Utilities should define the term "Generating ICA Profile" under Section C (Definitions) of the Electric Rule 21 Tariff. Utilities each shall incorporate the above change in a Tier 1 Advice Letter within 30 days of the adoption of this Resolution.

2. Authorization of a 10% buffer for Screen N and projects to interconnect even above the ICA-SG 576

IREC indicates that modifications to Screen N must comply with the Commission’s D. 20-09-035 and ensure projects are not unnecessarily sent to detailed study.¹³¹ IREC also indicates that the Commission did not authorize the use of a 10% buffer for Screen N¹³² and “a buffer is not needed for Screen N. Rather, evaluation of whether the project can interconnect up to 100% of the ICA is a perfect use of Supplemental Review and akin to the function it has always served.”¹³³ IREC further states that “applying a 10% buffer in Screen N would actually, in some ways, make Screen N more conservative than the current screen since that screen allows projects to pass if they have generation below 100% of the coincident minimum load.”¹³⁴ IREC points out that “the Commission expressly indicates that it did envision those projects may be able to interconnect *even above the* ICA-SG when it required that the screen include consideration of thermal overload, steady state voltage deviation, and protection reduction-of-reach.”¹³⁵

Utilities urge that “the Screen N buffer is necessary.”¹³⁶ Utilities argue that “an evaluation as to what occurs between 90% generation to ICA (Screen M) to 100% of generation to ICA (Screen N) must be completed; otherwise, possible

¹³¹ IREC’s Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 4.

¹³² IREC’s Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 5; and IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 10.

¹³³ Ibid.

¹³⁴ Ibid.

¹³⁵ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 10-11.

¹³⁶ Joint Utilities Reply to Protest of IREC dated September 17, 2021, at 7.

safety/reliability issues may not be captured between 90% and 100% of ICA values. The concept of using ICA for Rule 21 was based on allowing up to 90% of ICA value to pass the Initial Review screen (Screen M) and, when the penetration exceeded 90% of ICA value, then the project would fail Initial Review and would then be evaluated under Supplemental Review. Therefore, the evaluation under Supplemental Review must commence at 90% of ICA value, the point at which projects fail Initial Review.”¹³⁷ The Utilities also “agree to propose consistent language, but do not agree with the language IREC proposes.”¹³⁸

The Commission finds that D.20-09-035 did not explicitly state that the 10% buffer applies to Screen N and IREC’s comments are consistent with D.20-09-035. Therefore, Screen N of the Electric Rule 21 language related to supplemental reviews shall evaluate the penetration level using 100% of the lowest value in the ICA-SG-576 profile. Utilities should commence the supplemental review of ICA values less than 100% and identify reasons why ICA did not capture the limitation if upgrades are triggered at ICA values less than 100% in the supplemental review screens. Utilities shall incorporate the uniform language specified in Appendix B into Tariff Rule 21 within 30 days of the adoption of this Resolution.

3. Utilities should identify a reason why mitigations are required

IREC’s proposes the following language in Section G.2.a to require the Utilities to provide customers with a reason why a project requires mitigation or detailed study.¹³⁹

b) Did the Interconnection Request pass Screen F1?

- If yes to both of the above (pass), continue to Screen O.*
- If “no” to either or both of the above (fail), the Distribution Provider must perform a quick review of the failure to identify if there is a reason to require mitigations or further study.*

¹³⁷ Ibid.

¹³⁸ Ibid.

¹³⁹ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 11-12.

*o If the Distribution Provider requires mitigations or Electrical Independence Tests and Detailed Studies, the Distribution Provider must provide the Customer the reason why.*¹⁴⁰

Utilities state that this is already in their practices and they “already provide this information to the customer on any study (Fast Track, Supplemental Review, Detailed Study). When a mitigation is triggered, the study reports identify the reasons as to why mitigation was required. Specifically, the Utilities:

- Tell the customer why detailed studies are required; and
- Address any concerns in the context of Screen O or any other screen.”¹⁴¹

Therefore, the Utilities assert that “adding language is not necessary because this is already existing utility practice for all interconnection requests. Further, there are no requirements in the Decision to include this language, which is common utility practice.”¹⁴²

The Commission finds that the Utilities’ practice of providing reasons to customers in writing on why a project requires mitigation and detailed study streamlines the interconnection process, increases transparency, and allows the applicants to provide feedback on alternate mitigations. As such, the Commission finds it reasonable to formalize this practice within the Electric Rule 21 tariff by incorporating the language in Appendix B.

Utilities shall each file a Tier 1 Advice Letter to modify Electric Rule 21 Tariff within 30 days of the adoption of this Resolution to incorporate the above change.

4. Utilities should modify Screen N with Limited Generation Profiles

IREC proposes to add the following language into Section G.2.a of Screen N:

*For Interconnection Requests based on Limited Generation Profile:
Is the Generating Facility’s Limited Generation Profile less than or equal to 100% of the ICA-SG 576 Profile in any hour?*

¹⁴⁰ IREC reiterated the same position in an email comment provided to the Energy Division, dated January 20, 2022.

¹⁴¹ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 7.

¹⁴² Ibid.

IREC recommends “modifying Screen N today to accommodate the pending implementation of Limited Generation Profiles; there is no need to revisit Screen N again in a matter of weeks after the Commission fully implements “Limited Generation Profiles.” Moreover, failing to make this change now would cost ratepayers, who pay the salaries of the Commission and utility staff working on these issues, significantly more than making today modifications we know for certain will be needed in the future. Such waste of Commission, utility, and stakeholder resources should be avoided.”¹⁴³

Utilities claim that “Screen N should not be modified for Limited Generation Profiles until the related Advice Letters are approved.”¹⁴⁴ The Commission agrees with the Utilities’ assessment. Screen N should not be modified for Limited Generation Profiles until the disposition of the related Advice Letters.¹⁴⁵

Lastly, the Commission has reviewed the language for Screen N proposed by IREC and the Utilities. In order to maintain consistency in the language of Screen N, Utilities each shall include the tariff language in Appendix B of this Resolution in a Tier 1 compliance Advice Letter filing within 30 days of the adoption of this Resolution. Tariff language of Electric Rule 21 Screen N in Appendix B is based on SCE and SDG&E tariffs as a model and modified as discussed in the above sections.

5. The ICA is not a single minimum value, Screen N must apply a project’s production profile to the ICA-SG 576 Profile.

As we discussed above under Issue 1 of CALSSA's protest, IREC claims that “the language proposed by the IOUs for Screen N fails to recognize that the ICA is not simply a single minimum value and that projects will be proposed with two types of profiles in the future: a typical PV output profile using PV-Watts as well as a limited export operating profile using a power control system. In either case, Screen N should not evaluate whether a project needs to go on to the electrical independent [sic] tests based upon a single minimum value without

¹⁴³ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 11.

¹⁴⁴ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 8.

¹⁴⁵ SDG&E AL 3678-E, PG&E AL 6058-E, and SCE AL 4404-E.

taking into account the profile of the system and how that corresponds to the 576 hourly ICA profile.”¹⁴⁶

PG&E notes that “the limited generation profile is related to issue 9 (OP 15) and is not a screen N issue.”¹⁴⁷ PG&E further notes that “failure of screen N does not mean projects automatically go on to the independent test. Instead, it continues onto screens O and P.”¹⁴⁸

SCE indicates that it “supports revisions to Screen N to account for Interconnection Requests based on typical PV output profile. In that context, Screen N would evaluate the one hour that caused Screen M to fail, as outlined in Proposal 8m. SCE states it believes that CALSSA’s proposed language (subject to SCE’s modifications as set forth in Part I.A) addresses IREC’s concerns.”¹⁴⁹

SDG&E indicates that it will “make adjustments to account for “typical output” solar output to align with Screen M (proposal 11) utilization of “typical output” interconnection applications. As PV has a predictable generation output, it is the most feasible profile to implement within ICA compared to other generation types with varying output.”¹⁵⁰

The Commission agrees with PG&E that Screen N should not include limited generation profile ~~is not a Screen N issue~~at this time and the evaluation of interconnection requests should be based on typical PV output profile at this time. In fact, IREC’s proposed language and the language in Utilities’ supplemental filings are very similar. Both versions are based on “typical PV Generation Profile” and compare the Generating Facility’s Generation Profile based on PVWatts® or equivalent to the ICA-SG 576 profile in any hour. Therefore, Utilities shall incorporate the uniform language specified in Appendix B into Tariff Rule 21. Utilities shall each file a Tier 1 compliance Advice Letter filing within 30 days of the adoption of this Resolution to modify Electric Rule 21 Tariff to incorporate the above changes.

6. Screen N should include provisions regarding how to evaluate smart inverter

¹⁴⁶ IREC’s Protest to SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 6.

¹⁴⁷ PG&E Reply to Protests to CALSSA and IREC, dated December 29, 2020, at 9.

¹⁴⁸ Ibid.

¹⁴⁹ SCE Reply to Protests of CALSSA and IREC, dated December 29, 2020, at 5.

¹⁵⁰ SDG&E Reply to Protests of CALSSA and IREC, dated December 29, 2020, at 5.

capabilities when a project exceeds the ICA's voltage criteria.

IREC claims that "Proposal 8n also requires the IOUs to use Screen N to determine mitigation requirements in certain circumstances, but the IOUs did not include these mitigation requirements in their proposed revisions to Screen N."¹⁵¹

PG&E urges in its Reply to Protest that "the utilization of Smart Inverter volt/var function was included as part of the PG&E's Advice Letter 5988-E through update to Screen O. If voltage is a prevailing constraint, it should be resolved within Screen O, as it relates to Power Quality and Voltage Tests, rather than Screen N, which pertains to DER penetration."¹⁵²

SCE states in its Reply to Protest that it "agrees with IREC's language generally but believes that it would be more appropriate to include this language in Screen O (Power Quality and Voltage Tests). This language could be incorporated in Screen O as part of a supplemental Advice Letter anticipated to be filed updating Advice Letter 4328-E."¹⁵³

SDG&E states in its Reply to Protest that "utilization of Smart Inverter volt/var function was included as part of the SDG&E's Advice Letter 3642-E through update to Screen O. If voltage is a prevailing constraint, it should be resolved within Screen O, as it relates to Power Quality and Voltage Tests, rather than Screen N, which pertains to DER penetration."¹⁵⁴

The Commission agrees with the Utilities that Smart Inverter volt/var function should be addressed primarily within Screen O. As we mentioned above under Issue 2 of CALSSA's protest, Screen N has been revised in Appendix B to supplement existing tariff language in Section G.2.a related to volt/var function. This language revision ensures that a project which fails Screen N will go on to Screen O only after a full range of the Smart Inverter functions, including the volt/var function, have been applied.

¹⁵¹ IREC protest of PG&E AL 6014-E, SCE AL 4359-E, and SDG&E AL 3654-E, dated December 21, 2020, at 6.

¹⁵² PG&E Reply to Protests to CALSSA and IREC, dated December 29, 2020, at 10.

¹⁵³ SCE Reply to Protests to CALSSA and IREC, dated December 29, 2020, at 5.

¹⁵⁴ SDG&E Reply to Protests of CALSSA and IREC, dated December 29, 2020, at 8-9.

OP 23: Establishes a standard timeline for design and constructionProtest by CALSSA

CALSSA argues that the IOUs should include the OP 23 timelines in Rule 21 Section I.1, similar to Proposals 5 and 8 from OP 17.¹⁵⁵

PG&E states that it “believes [that] the OP does not explicitly require that R21 tariff be revised to include this final decision language. Additionally, the final decision is not clear in terms of what specific distribution upgrades will be held to a “60/60 standard.” Therefore, it is difficult to include the timeline language in the tariff. Instead, PG&E will adhere to the final decision within our business practices and also report on the timelines as part of OP 22, but we do not believe the tariff should be revised to include the language.”¹⁵⁶

SCE writes that “the Decision did not require SCE to incorporate within the tariff many of the best practices discussed within Working Group Two. By filing Advice 4359-E SCE has committed to the business practices associated with the recommendations adopted in the Decision, which customers can reference in the event of a dispute or concern.”¹⁵⁷

SDG&E does not oppose to CALSSA’s recommended changes and proposes the following change to Rule 21, Section F.2.e.¹⁵⁸

The standard timeline for design and construction of minor interconnection-related distribution upgrades is as follows: i) 60 business days for design and 60 business days for construction, or ii) design and construction timelines as agreed to between Applicant and Distribution Provider. The 60-day clock commences upon payment and after Applicant has done everything necessary on its end to prepare for construction.

¹⁵⁵ CALSSA protest of SDG&E AL 3654-E, PG&E AL 6014-E, and SCE AL 4359-E, dated December 21, 2020, at 5.

¹⁵⁶ PG&E Reply to Protests of CALSSA and IREC to PG&E AL 6014-E, dated December 29, 2020, at 5.

¹⁵⁷ SCE Reply to Protests of CALSSA, IREC, and GPI to SCE AL 4359-E, dated December 29, 2020, at 3.

¹⁵⁸ SDG&E Reply to Protests of CALSSA and IREC to SDG&E AL 3654-E, dated December 29, 2020, at 4.

The Commission notes, however, that SDG&E's proposed language has diverged from the language of the Working Group Three Report and OP 23 of D.20-09-035 by limiting the timelines to "minor" interconnection-related distribution upgrades.

The Commission will address CALSSA's timeline concern at the end of IREC's similar protest below by requiring the Utilities to use reasonable efforts to comply with the timelines specified in OP 23.

Protest by IREC

IREC asserts the language proposed by the "IOUs is not in compliance with the order [D.20-09-035]." ¹⁵⁹ IREC requests that the Commission require "the IOUs to remove the clause ¹⁶⁰ and footnote [footnote 12] ¹⁶¹" that provide exceptions to the OP 23 requirements. IREC indicates that "D.20-09-035 does not allow the IOUs to condition their adherence to the 60-day timeline on any reasons. Like with all other timelines in Rule 21, if emergencies occur, the utility is expected to use Reasonable Efforts ¹⁶² to comply with the rule; there is no reason for Rule 21 to discuss emergencies or other reasons when establishing this particular timeline." ¹⁶³

Utilities state in their Reply that the "utilities do not agree with IREC's proposed language changes as there is still a need to identify conditions in which standard timelines cannot be met. The utilities proposed language represents an appropriate balance between the requirement to maintain standard timelines and

¹⁵⁹ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 14

¹⁶⁰ The clause: "*Subject to emergencies, delays from other agencies, and other reasons,*"

¹⁶¹ Footnote #12 reads: "Other reasons" include: long lead times for procurement of materials; licensing, rights acquisition, and/or permitting; higher-voltage distribution (generally greater than 50 kilovolts); modifications to equipment (to remove and/or replace) inside substations; civil work performed by Distribution Provider (that is typically performed by Applicant); line extension or reconductoring greater than 500 feet in length.

¹⁶² Rule 21 Section C defines Reasonable Efforts as follows: "With respect to an action required to be attempted or taken by a Party under this Rule, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests."

¹⁶³ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 13-14.

the reality that under certain scenarios extensions to standard timelines may be necessary. The utilities, however, agree to delete footnote 12.”¹⁶⁴

The Commission agrees with IREC that Utilities need to use reasonable efforts to comply with the timelines and to work with the applicants to reach a reasonable timeline when an emergency occurs. Utilities should implement the Electric Rule 21 tariff language in their Advice Letter filing for OP 23 as specified in Appendix D. The Commission has also eliminated any proposed tariff language that limits the application of standard timelines to “minor” upgrades. Utilities each shall incorporate the above changes in a Tier 1 compliance Advice Letter filing within 30 days of the adoption of this Resolution.

The Interconnection Technical Framework Overview flowcharts’ note on non-export converters should be identical

IREC indicates that “the IOUs propose three different notes to discuss non-export converters in the [Interconnection Technical Framework Overview] flowchart. IREC prefers a modified version of SDG&E’s language that uses defined terms, and capitalizes the defined terms. IREC proposes using a slightly modified version of SDG&E’s note in the flowchart, as follows:

*** 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.”¹⁶⁵*

Utilities indicate in their Reply that they “agree to adopt IREC’s proposed language changes in a supplemental advice letter.”¹⁶⁶

Staff has reviewed PG&E’s AL 5915-E-B, SCE’s AL 4561-E-A, and SDG&E AL 3677-E-B. Within these documents, PG&E’s Interconnection Technical Framework Overview flowchart’s notes on non-export converters are different than SCE and SDG&E. PG&E corrected this note on the flowchart in its second substitute sheet as a supplement to Advice Letter 5915-E-B.

In order to maintain consistency in the language and format of the Interconnection Technical Framework Overview flowchart, Utilities shall include

¹⁶⁴ Joint Utilities Reply to Protest of IREC dated September 17, 2021, at 9.

¹⁶⁵ IREC protest of SDG&E AL 3677-E-A, PG&E AL 5915-E-A, and SCE AL 4561-E, dated September 10, 2021, at 15.

¹⁶⁶ Joint Utilities Reply to Protest of IREC, dated September 17, 2021, at 10.

the tariff language in Appendix E of this Resolution in a Tier 1 compliance Advice Letter filing within 30 days. Appendix E contains slight modification of the flowchart included in the Utilities' supplemental Advice Letters and the minor edit on the flowchart serves to increase readability.

Effective Date of the Supplemental Advice Letters

PG&E requests that AL 5915-E-B "become effective 180 to 240 days after it is approved, to allow time to implement Screen M ICA changes, and related Screen L changes, train staff and notify applicants of the changes."¹⁶⁷

SDG&E requests that AL 3677-E-B "become effective 120 days after it is approved, to allow time to implement the ICA changes, train staff, and notify applicants of the changes."¹⁶⁸

SCE requests that AL 4561-E-A "become effective upon approval and the tariff provisions will be implemented 120 days after approved, to allow time to implement the ICA changes, train staff, and notify applicants of the changes."¹⁶⁹

IREC indicated in their informal response to the supplemental Advice Letters that "the requested effective date in the supplements, 120 days after approval, represents an unnecessary and unreasonable delay. We are now over 13 months from the issuance of the Commission's decision; the IOUs have had plenty of time to prepare to implement these changes. The Commission should make the changes effective a very short time after approval."¹⁷⁰

The Commission agrees with IREC that the effective dates of these supplemental Advice Letters should be shorter than 120 days as requested by SCE and SDG&E. We believe that the supplemental Advice Letters PG&E AL 5915-E-B, SCE AL 4561-E-A, SDG&E AL 3677-E-B becoming effective 45 days after approval will provide the Utilities adequate time to make changes to the Electric Rule 21 Tariff screens and ICA, train staff; and notify applicants of these changes.

¹⁶⁷ PG&E's AL 5915-E-B, dated November 4, 2021, at 31.

¹⁶⁸ SDG&E's AL 3677-E-B, dated November 4, 2021, at 8.

¹⁶⁹ SCE's AL 4561-E-A, dated November 4, 2021, at 11.

¹⁷⁰ Email transmittal from IREC to the Energy Division, dated November 10, 2021.

COMMENTS

Public Utilities Code section 311(g)(1) provides that this Resolution must be served on all parties and subject to at least 30 days public review. Any comments are due within 20 days of the date of its mailing and publication on the Commission's website and in accordance with any instructions accompanying the notice. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day review and 20-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments, and will be placed on the Commission's agenda no earlier than 30 days from today.

[PG&E, SCE, and IREC timely filed comments to this Draft Resolution on June 7, 2022. The section below describes the issues raised in the comments.](#)

[1. Typographical Error in Appendix A of the Draft Resolution](#)

[PG&E and SCE both commented on the following section of the Appendix A.¹⁷¹ SCE provided the following inline edit:¹⁷²](#)

[“If the response is “no” to either a\) or b\), the iInterconnection Request fails Screen NM and must be evaluated under the Supplemental Review to determine mitigation requirements.”](#)

[The Commission acknowledges the typographical error and agrees with the proposed edit. Appendix A has been updated accordingly.](#)

[2. Typographical Error in Ordering Paragraph 6 of the Draft Resolution](#)

[PG&E and SCE both commented that OP 6 refers to Appendix C rather than Appendix D.¹⁷³ The Commission acknowledges the typographical error and agrees with the proposed edit. OP 6 has been updated accordingly.](#)

¹⁷¹ PG&E's comment to Resolution E-5172, dated June 7, 2022, at 1.

¹⁷² SCE's comment to Resolution E-5172, dated June 7, 2022, at 2.

¹⁷³ PG&E's comment to Resolution E-5172, dated June 7, 2022, at 1 and SCE's comment to Resolution E-5172, dated June 7, 2022, at 2.

3. Language included in OP 6 is not reflected in Appendix D of the Draft Resolution

SCE recommends that the language found in OP 6 also be included in the tariff language contained in Appendix D as follows (addition noted in red below):¹⁷⁴

“The standard timeline for design and construction of interconnection-related Distribution Upgrades is as follows: i) 60 business days for design and 60 business days for construction, or ii) design and construction timelines as agreed to between Applicant and Distribution Provider. Distribution Provider shall use Reasonable Efforts to comply with these timelines and shall work with Applicant to reach a reasonable timeline when an emergency occurs.

The 60-day clock commences upon payment and after Applicant has done everything necessary on its end to prepare for construction.”

The Commission agrees to include the proposed language in OP 6.

4. Utilities may not apply a 10% Buffer to Screen N

IREC states that “The Commission should retain the Draft Resolution’s conclusion that utilities may not apply a buffer to Screen N because that is what was required by the Commission’s order and there is no need to apply a buffer during the Supplemental Review process, as the utility will have the opportunity to identify safety or reliability concerns in Screens O and P.”¹⁷⁵ The discussion section language¹⁷⁶ providing clarity on this issue is unchanged, therefore the Commission is retaining this conclusion.

5. Modification of language in OP 4 of Resolution E-5172 to promote consistent tariff language

IREC indicates that OP 4 of this Draft Resolution should be modified to require the utilities’ next advice letters to use the exact language given in the Draft Resolution’s appendices in order to avoid further delay and the need to protest

¹⁷⁴ SCE’s comment to Resolution E-5172, dated June 7, 2022, at 2.

¹⁷⁵ IREC’s comment to Resolution E-5172, dated June 7, 2022, at 2.

1. ¹⁷⁶ Resolution E-5172, dated May 18, 2022, at 38-39

the next round of advice letters.¹⁷⁷ IREC suggests the following language for OP 4.¹⁷⁸

“4. ~~Electric Rule 21 Tariff~~ Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric shall modify Electric Rule 21 Screen M and N tariff language using the exact language in accordance with Appendices A and B with no omissions, additions, or modifications of any kind.”

The Commission agrees with the OP 4 language proposed by IREC.

6. Appendix B omits Screen N language adopted in the Draft Resolution about providing customers the reason why mitigations are required.

IREC proposes to modify Screen N language in Appendix B to provide specific language requiring the IOUs to disclose the reason why IOUs need mitigations or Electrical Independence Tests and Detailed Studies.¹⁷⁹ IREC proposes the following modifications:¹⁸⁰

“~~If the failure(s) cannot be addressed in Supplemental Review, the Distribution Provider will conduct a review to identify the reasons why further studies are required. If the Distribution Provider requires mitigations or Electrical Independence Tests and Detailed Studies, the Distribution Provider must provide the Customer the reason why.~~”

The Commission agrees to modify Screen N language in Appendix B as proposed by IREC.

7. The Commission should not prejudge whether Limited Generation Profiles should be used in Screen N.

IREC indicates that “the Draft Resolution inconsistently discusses the use of Limited Generation Profiles in the Rule 21 screening process.”¹⁸¹ IREC states that the Draft Resolution postpones making a decision on the use of Limited

¹⁷⁷ IREC’s comment to Resolution E-5172, dated June 7, 2022, at 3.

¹⁷⁸ Ibid.

¹⁷⁹ Ibid.

¹⁸⁰ IREC’s comment to Resolution E-5172, dated June 7, 2022, at 4.

¹⁸¹ Ibid.

Generation Profiles at two locations during the discussions of Screen M and N, but “in two other places the Draft Resolution appears to prejudge the issue and implies that Screen N will not use Limited Generation Profiles:

The Commission agrees with PG&E that limited generation profile is *not a Screen N issue* and evaluation of interconnection requests should be based on typical PV output profile.”¹⁸²

IREC further states that “Limited Generation Profile is a Screen N issue because when the Commission implements Ordering Paragraphs 15 and 51 of D.20-09-035, it must determine how to use the Integration Capacity Analysis for screening Limited Generation Profile projects. For example, Ordering Paragraph 15 requires the use and evaluation of Limited Generation Profiles using the Integration Capacity Analysis”¹⁸³

IREC indicates that “the Commission should postpone making this decision until it is ready to rule on the Limited Generation Profile ALs by modifying the sentence on pages 28 and 38 as follows:

“The Commission agrees with PG&E that Screen N should not include limited generation profiles at this time ~~is not a Screen N issue and the~~ evaluation of interconnection requests should be based on typical PV output profile at this time.”¹⁸⁴

The Commission’s intention is to clarify that Limited Generation Profiles is not a Screen N issue at this time. Accordingly, the Commission agrees to adopt the clarifying language proposed by IREC.

8. The Draft Resolution should include definitions for any terms the Commission wishes defined in Rule 21

IREC states that the Draft Resolution requests that the utilities include in Electric Tariff Rule 21 definitions for two terms, “Generating ICA Profile” and “real power production,” but does not define these terms.¹⁸⁵ IREC recommends that

¹⁸² IREC’s comment to Resolution E-5172, dated June 7, 2022, at 5. IREC included italic-faced emphases in its comment.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

¹⁸⁵ IREC’s comment to Resolution E-5172, dated June 7, 2022, at 6.

the Commission should either use a term already defined in Rule 21 or provide a definition for these terms in the Resolution.¹⁸⁶

In order to avoid “inconsistent language for these terms or language that changes the meaning of the screen in a way not anticipated in the Draft Resolution,”¹⁸⁷ IREC recommends: “1) using the defined term ‘ICA-SG 576 Profile’ instead of ‘Generating ICA Profile,’ and 2) ordering the Smart Inverter Working Group (SWIG) to consider using, consistent with the IEEE 1547-2018 standard, the term ‘active power output’ instead of ‘real power production’.”¹⁸⁸

IREC further suggests that “the resolution should order the SIWG to consider using the term ‘active power output’ instead of the terms ‘real power production’ and ‘real power output’ in Rule 21. This is because the IEEE 1547-2018 standard uses the term ‘active power output’ when discussing this smart inverter functionality, and Rule 21 should use consistent language that aligns with national standards, including IEEE 1547-2018 whenever possible. Moreover, the SIWG is considering other modifications to Rule 21 section Hh at this time. Therefore, for administrative efficiency, the SIWG can consider making this change along with other revisions to section Hh. This also avoids further delaying the use of the ICA in Rule 21 while the correct terminology for section Hh is selected.”¹⁸⁹

IREC recommends the Commission to modify OP 3 of the Draft Resolution as follows:¹⁹⁰

“3. Electric Rule 21 Tariff shall define “real power production” and “Generating ICA Profile” under Section C (Definitions) of The Smart Inverter Working Group shall consider using the term “active power output” instead of the terms “real power production” and “real power output” in the Electric Rule 21 Tariff.”

The Commission agrees with IREC that since: 1) the term “Generating ICA Profile,” is only used once in section a) of Screen N and 2) both scenarios under

¹⁸⁶ Ibid.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid.

¹⁸⁹ IREC’s comment to Resolution E-5172, dated June 7, 2022, at 8.

¹⁹⁰ Ibid.

section a) refer to “ICA-SG 576 Profile”, “Generating ICA Profile,” should be replaced with “ICA-SG 576 Profile” in section a) of Screen N.

The Commission also agrees with IREC that the language “real power production” and “real power output” should be consistent with the national IEEE 1547-2018 standard and adopts IREC’s proposal to adopt the defined IEEE 1547 term of “active power output”. Additionally, The Commission agrees to adopt the more precise “ICA-SG 576” language in OP 3 of this Draft Resolution.

The Commission notes that a supplemental to the IOU joint ALs¹⁹¹ with the purpose of aligning IEEE 1547-2018 and Tariff Rule 21 is forthcoming. As there will be opportunity for comment on this advice letter, the Commission declines to explicitly direct the SIWG to address the alignment of this language. Furthermore, the Commission notes that the SIWG can elect to discuss this issue in the absence of explicit direction.

FINDINGS

1. Ordering Paragraph 55 of D.20-09-035 requires Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) each to file a Tier 1 Advice Letter on Ordering Paragraphs 13, 14, 46, 49, 50, and 52, 30 days after issuance of the Decision. This Ordering Paragraph requires a Tier 2 Advice Letter on Ordering Paragraphs 1, 2, 3, 4, 12, 17, 18, 23, 24, 30, 32, 33, 37, 38, 40, and 46, 60 days after issuance of the Decision. This Ordering Paragraph also requires another Tier 2 Advice Letter on Ordering Paragraphs 5, 6, 8, and 11, 120 days after issuance of the Decision.
2. On November 30, 2020, PG&E filed Advice Letter 6014-E, SCE filed Advice Letter 4359-E, and SDG&E filed Advice Letter 3654-E in compliance with the 60-day filing requirement of Ordering Paragraph 55 of D.20-09-035.
3. On January 28, 2021, PG&E filed Advice Letter 5915-E, SCE filed Advice Letter 4402-E, and SDG&E filed Advice Letter 3677-E in compliance with the 120-day filing requirement of Ordering Paragraph 55 of D.20-09-035.
4. On June 25, 2021, PG&E filed Advice Letter 6014-E-A to replace Advice Letter 6014-E in its entirety. On the same day, SCE filed Advice Letter 4359-E-A to supplement Advice Letter 4359-E in its entirety.

¹⁹¹ The Joint ALs (PG&E 6093-E, SCE 4422-E, and SDG&E 3702-E) have been delayed due to an extended drafting timeline for IEEE 1547.1-2020 test procedures. The submission of the supplemental that will address the majority of the alignment issues is anticipated to occur at the end of June 2022.

5. Between July 8, 2021 and July 22, 2021, the Energy Division hosted biweekly meetings with the Utilities including other stakeholders such as Tesla, Enphase Energy, the California Solar Storage Association (CALSSA), and the Interstate Renewable Energy Council, Inc. (IREC) to discuss and settle protested issues in Ordering Paragraphs of the 30-day, 60-day, and 120-day Advice Letters.
6. On August 6, 2021, SDG&E filed Advice Letter 3677-E-A to address Ordering Paragraphs 2, 5, 6, 11, 12, and 23. On the same day, PG&E filed Advice Letter 6287-E to address Ordering Paragraphs 2, 5, 6, 8, 11, 12, and 23 and to resolve protested issues in Advice Letter 6014-E-A.
7. On August 6, 2021, SCE filed Advice Letter 4561-E to address Ordering Paragraphs 2, 5, 6, 11, 12, and 23 and to resolve protested issues in Advice Letter 4359-E and Advice Letter 4402-E. Advice Letter 4561-E further modified the changes proposed in Advice Letter 4402-E and SCE withdrew Advice Letter 4402-E on August 26, 2021.
8. On August 25, 2021, PG&E withdrew Advice Letter 6287-E.
9. On September 3, 2021, PG&E filed Advice Letter 5915-E-A to address Ordering Paragraphs 2, 12, and 23 of Advice Letter 6014-E-A and Ordering Paragraphs 5, 6, 8, and 11 of Advice Letter 5915-E.
10. On October 15, 2021, PG&E filed Advice Letter 6363-E for Ordering Paragraphs 5 and 8 of D.20-09-035.
11. On October 15, 2021, SDG&E filed Advice Letter 3873-E for Ordering Paragraph 5 of D.20-09-035.
12. On October 18, 2021, SCE filed Advice Letter 4615-E for Ordering Paragraph 5 of D.20-09-035.
13. On November 4, 2021, PG&E filed Advice Letter 5915-E-B, SCE filed Advice Letter 4615-E-A, and SDG&E filed Advice Letter 3677-E-B to address Ordering Paragraphs 2, 6, 11, 12, and 23.
14. PG&E Advice Letter 6363-E and SCE Advice Letter 4615-E were approved by the Commission on November 5, 2021. SDG&E Advice Letter 3873-E was approved by the Commission on November 17, 2021. Therefore, this Resolution focuses only on Ordering Paragraphs 2, 6, 11, 12, and 23 of PG&E Advice Letter 5915-E-B, SCE Advice Letter 4561-E-A, and SDG&E Advice Letter 3677-E-B, the 120-day Advice Letter of D.20-09-035.
15. The California Solar Storage Association (CALSSA), the Interstate Renewable Energy Council, Inc. (IREC), and the Green Power Institute (GPI) are the protestants of the above Advice Letters.
16. Acceptance of late protests from IREC on PG&E AL 6014-E, PG&E AL 5915-E-A, SCE AL 4359-E, SCE AL 4561-E, SDG&E 3654-E, and SDG&E 3677-E-A were in the public's interest.
17. Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric request approval of modifications to Electric Rule 21 Tariff (Rule 21)

in compliance with Ordering Paragraphs 2, 6, 11, 12, and 23, that incorporate Integration Capacity Analysis (ICA), apply a 10 percent buffer to Screen M, update Screen N to account for thermal overload under three different ICA scenarios, and establishing a standard timeline for design and construction of interconnection-related distribution upgrades.

18. Ordering Paragraph 6 is intended to allow interconnection projects less than or equal to 30 kilovolt amperes to bypass Screens F, G, H, and J. Utilities have reflected this change in their supplemental filings. On April 5, 2022, the Commission's Executive Director approved an order to make these modifications to OP 6 of D. 20-09-035.
19. Rule 21 Section C defines Reasonable Efforts as follows: "With respect to an action required to be attempted or taken by a Party under this Rule, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests."
20. SDG&E's proposed language has diverged from the language of the Working Group Three Report and OP 23 of D.20-09-035 by limiting the timelines to "minor" interconnection-related distribution upgrades.
21. The Commission finds that D.20-09-035 did not explicitly state that the 10% buffer applies to Screen N.
22. The Utilities submitted a one page document summarizing the computational approaches to generate their individual PV output profiles and to discuss why they consider their internal solutions to produce the PV output profiles are "equivalent" to the profiles generated by the PVWatts® methodology.
23. The Commission finds it reasonable that the Utilities apply their existing methodology to determine typical solar output profiles.
24. PG&E requests that AL 5915-E-B become effective 180 to 240 days after it is approved, while SCE and SDG&E requests an effective date 120 days after approval.
25. Supplemental Advice Letters effective 45 days after approval of this Resolution will provide the Utilities adequate time to make changes to the Electric Rule 21 Tariff screens and ICA, train staff; and notify applicants of these changes.
26. [Pacific Gas and Electric, Southern California Edison, and the Interstate Renewable Energy Council timely submitted comments to this Resolution on June 7, 2022.](#)

THEREFORE IT IS ORDERED that:

1. The requests of the Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric to modify Electric Rule 21 Tariff as requested in Pacific Gas and Electric Advice Letters 5915-E-B, Southern California Edison Advice Letter 4561-E-A, and San Diego Gas & Electric Advice Letter 3677-E-B are approved as modified herein.
2. Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric shall each file a Tier 1 compliance Advice Letter within 30 days to modify Electric Rule 21 Tariff in accordance with Ordering Paragraphs 3 through 6 below.
3. Pacific Gas and Electric ~~Rule 21 Tariff shall define~~, Southern California Edison, and San Diego Gas & Electric shall modify Electric Rule 21: 1) to use the term "active power output" instead of the terms "real power production" and "real power output", and 2) use the term "ICA-SG 576 Profile" instead of the term "Generating ICA Profile" under Section C (Definitions) of the Electric Rule 21 Tariff.
4. ~~Electric Rule 21 Tariff~~ Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric shall modify Electric Rule 21 Screen M and N tariff language using the exact language in ~~accordance with~~ Appendices A and B with no omissions, additions, or modifications of any kind.
5. ~~Electric Rule 21 Tariff~~ Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric shall modify the Interconnection Technical Framework Overview flowchart in accordance with Appendix E.
6. ~~Electric Rule 21 Tariff~~ Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric shall modify Electric Rule 21 tariff on design and construction timelines in accordance with ~~Appendices C~~ Appendix D and use reasonable efforts to comply with the timelines specified in Ordering Paragraph 23 of Decision 20-09-035 and to work with the applicants to reach a reasonable timeline when an emergency occurs.
7. Pacific Gas and Electric Advice Letter 5915-E-B, Southern California Edison Advice Letter 4561-E-A, and San Diego Gas & Electric Advice Letter 3677-E-B shall be in effect 45 days after approval of this Resolution.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on June 23, 2022; the following Commissioners voting favorably thereon:

Rachel Peterson
Executive Director

Appendix A: Electric Rule 21 Screen M Tariff Language¹⁹²

G. ENGINEERING REVIEW DETAILS (Cont'd.)

1. INITIAL REVIEW SCREENS (Cont'd.)

- m. Screen M: When ICA Values are available at the requested Point of Interconnection, the Distribution Provider shall compare the ICA Values to the Gross Nameplate Rating or typical PV Generation Profile.

For Interconnection Requests based on Gross Nameplate Rating:

- a. Is the Generating Facility aggregate Gross Nameplate Rating *less than or equal to* ~~greater than~~ 90% of the lowest value in the ICA-SG 576 Profile? or
- b. Is the Generating Facility aggregate Gross Nameplate Rating *less than or equal to* ~~greater than~~ 90% of the lowest value in the ICA-OF 576 Profile?

If the response is "yes" to both a) and b), the Interconnection Request *passes* ~~fails~~ Screen M

If the response is "no" to either a) or b), the Interconnection Request fails Screen ~~N~~M and must be evaluated under the Supplemental Review to determine mitigation requirements.

For Interconnection Requests based on typical PV Generation Profile:

- a. Is the Generating Facility Generation Profile based on PVWatts® or equivalent *less than or equal to* ~~greater than~~ 90% of the ICA-SG 576 value in any hour?
or
- b. Is the Generating Facility Generation Profile based on PVWatts® or equivalent *less than or equal to* ~~greater than~~ 90% of the ICA-OF 576 value in any hour?

If the response is "yes" to both a) and b), the Interconnection Request *passes* ~~fails~~ Screen M.

¹⁹² Words in italics are either added or modified from existing Electric Rule 21 Tariff language.

If the response is "no" to either a) or b), the Interconnection Request fails Screen M and must be evaluated under the Supplemental Review to determine mitigation requirements.

When ICA Values ¹⁹³ are not available at the requested Point of Interconnection, Screen M should be evaluated as follows:¹⁹⁴

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?¹⁹⁵

- *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.
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.¹⁹⁶

¹⁹³ PG&E's existing Electric Rule 21 Tariff uses "ICA Information" instead of "ICA Values".

¹⁹⁴ PG&E and SCE need to relocate this sentence from below the questions and responses to this new location. SDG&E needs to add the questions and responses following this condition.

¹⁹⁵ This wording and questions in italics have been rephrased to produce consistent responses.

¹⁹⁶ SCE and SDG&E need to add this paragraph into Screen M.

Appendix B: Electric Rule 21 Screen N Tariff Language**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.

If the failure(s) cannot be addressed in Supplemental Review for Screens N through P, and generation is 100% or less of than the applicable ICA value (lowest value of the ICA-SG profile or lowest value at each hour) the Distribution Provider must identify a reason and inform the customer why a specific technical constraint is not captured by the ICA and why the project must proceed to Electrical Independence Tests and Detailed Studies. Utilities also must address any concerns in the context of the Screen that triggers the mitigation or detailed study.

a. Screen N: Penetration Test

If Integration Capacity Analysis Values are available at the requested Point of Interconnection, evaluate Screen N as follows:

a) Penetration Level Using ~~Generating~~ ICA-SG 576 Profile:

For Interconnection Requests based on Gross Nameplate Rating:
Is the Generating Facility aggregate Gross Nameplate Rating ~~equal to or below~~ less than or equal to 100% of the lowest value in the ICA-SG 576 Profile?

For Interconnection Requests based on typical PV Generation Profile: Is the Generating Facility Generation Profile, based on PVWatts® or equivalent, ~~equal to or below~~ *less than or equal to* 100% of the ICA-SG value at each hour in the ICA-SG-576 Profile in any hour?

b) Screen F1: Did the Interconnection Request pass Screen F1?

If yes to both of the above (pass), continue to Screen O.

If “no” to either or both of the above (fail), *the Distribution Provider must perform* a quick review of the failure within Supplemental Review *and may* determine the requirements to address the failure; ~~otherwise, Electrical Independence Tests or Detailed Studies are required.~~

- ~~If the failure(s) cannot be addressed in Supplemental Review, the Distribution Provider will conduct a review to identify the reasons why further studies are required.~~ If the Distribution Provider requires mitigations or Electrical Independence Tests and Detailed Studies, the Distribution Provider must provide the Customer the reason why.
- If voltage is a prevailing constraint, then the *full range of* smart inverter *functions including the volt/var* function will be used in power flow analysis for the evaluation of the proposed project. This will reveal if the proposed project causes any voltage impacts of concern. If concerns related to steady state voltage, thermal, or protection exist and the Distribution Provider can identify simple upgrades through power flow analysis (e.g., installation of voltage regulator devices or protection devices to mitigate reduction of reach), then the Distribution Provider will determine the mitigation requirements within Screen N. When larger upgrades or complex protection evaluation is required, Screen N will fail,

and the technical evaluation will be conducted under the *Electrical Independence Tests or Detailed Study* process.

- If no reason for further study is identified, or if requirements to address the failure can be identified in screen N, proceed to Screen O.
- Note: If Electrical Independence tests and Detailed Studies are required, Applicants will continue to the Electrical Independence Tests and Detailed Studies after review of the remaining Supplemental Review Screens if Applicant elects to proceed.

If Integration Capacity Analysis Values are not available, evaluate Screen N as follows:

Where 12 months of line section minimum load data is available, can be calculated, can be estimated from existing data, or determined from a power flow model, is the aggregate Generating Facility capacity on the Line Section less than 100% of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the Generating Facility?

- If yes (pass), continue to Screen O.
- If no (fail), a quick review of the failure may determine the requirements to address the failure. *If voltage is a prevailing constraint, then the full range of smart inverter functions including the volt/var function will be used in power flow analysis for the evaluation of the proposed project. This will reveal if the proposed project causes any voltage impacts of concern. If concerns related to steady state voltage, thermal, or protection exist and the Distribution Provider can identify simple upgrades through power flow analysis (e.g., installation of voltage regulator devices or protection devices to mitigate reduction of reach), then the Distribution Provider will determine the mitigation requirements within Screen N. When larger upgrades or complex protection evaluation is required, Screen N will fail, and the technical evaluation will be conducted under otherwise Electrical Independence Tests and Detailed Studies are required.* Continue

to Screen O. (Note: If Electrical Independence tests and Detailed Studies are required, Applicant will continue to the Electrical Independence Tests and Detailed Studies after review of the remaining Supplemental Review Screens, if Applicant elects to proceed.)

~~Note 1: If none of the above options are available, this screen defaults to Screen M.~~

Note 21: The type of Generating Facility technology will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen. For solar Generation Facilities with no battery storage, daytime minimum load will be used (i.e., 10 am to 4 pm for fixed panel solar Generating Facilities and 8 am to 6 pm for solar Generating Facilities utilizing tracking systems), while absolute minimum load will be used for all other Generating Facility technologies.

Note 32: When this screen is being applied to a NEM Generating Facility, the net export in kW, if known, which may flow across the Point of Common Coupling into Distribution Provider's Distribution System will be considered as part of the aggregate generation.

Note 43: Distribution Provider will not consider as part of the aggregate Generating Facility capacity for purposes of this screen Generating Facility capacity known to be already reflected in the minimum load data.

Note 54: NEM Generating Facilities with net export less than or equal to 500 kW that may flow across the Point of Common Coupling into Distribution Provider's Distribution or Transmission System will not be studied in the Transmission Cluster Study Process, but may be studied under the Independent Study Process.

Significance: Penetration of Generating Facility capacity that does not result in power flow from the circuit back toward the substation will have a minimal impact on equipment loading, operation, and protection of the Distribution System.

Appendix C: PV Profile Computation Summary

SOUTHERN CALIFORNIA EDISON, PACIFIC GAS AND ELECTRIC, SAN DIEGO GAS AND ELECTRIC

3/17/22

PV PROFILE ONE-PAGER

Question Prompt:

Please summarize your computational approaches to generate the PV output profiles on a one-pager for all three IOUs and discuss why PG&E, SCE, and SDG&E feel that your internal solutions to produce PV output profile is “equivalent” to the profiles generated by the PVWatts® methodology. We do want to emphasize that this one-pager might be an attachment to a Commission document which can be easily be part of the public record.

Purpose:

The purpose of this paper, at the request of Energy Division staff, is to describe SCE's, PG&E's, and SDG&E's current methodology for generating the PV output profiles that will be utilized within the generation interconnection process from the purview of the Rule 21 tariff.

Methodology

SCE

SCE's current methodology utilizes data from individually metered PV systems throughout its territory. This dataset comes from customers that participate in the California Solar Initiative (CSI) program that selected the Performance Based Incentive (PBI) and provide separate solar generation data to SCE. The PBI data is mapped at a regional level to one of SCE's eight regions: Desert, North Coast, San Joaquin, Metro East, Rurals, San Jacinto Valley, Metro West, or Orange.

The PBI data is normalized (i.e., $\frac{PBI \text{ Meter Reading}}{CEC \text{ AC Nameplate}}$) to create a “per unit value” for each meter reading. The result represents the system's output as a percentage of its CEC AC nameplate. The data is then cleansed to remove erroneous values (e.g., values of zero during sunny days at noon) to not skew the results of percentile calculations that occur later in the process.

After the cleansing step, SCE obtains a regionally specific 95th percentile monthly curve which is calculated by taking the 95th percentile for each hour interval to generate a 24-hour curve. The 95th percentile value is the point in the data set where 95% of the values are lower. This is repeated for all hours in all regions, and the output is 8 specific regional monthly curves (see Figure 1 as an example). PVWatts® and SCE's internal solution are equivalent in that they both use certain model inputs to generate an output profile. Where they diverge, however, is the source and quality of the inputs. SCE's solution uses actual meter data that better reflects its service territory resulting in profiles that are more adequate for determining impacts to the SCE grid.

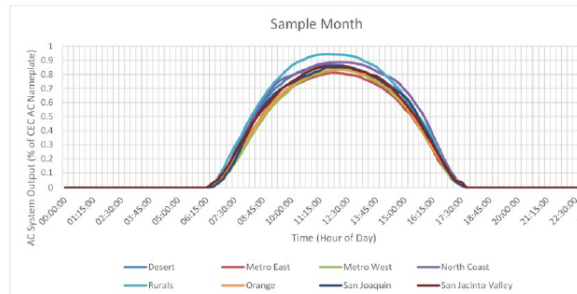


Figure 1- SCE Sample Month Regional PV Curves

PG&E

PV Shapes are calculated using data from NREL PVWatts® with the system information shown in Table 1. A system tilt of 20 is used for ICA instead of a combination of 15 and 20 because 20 produces more energy and has a higher single-hour annual peak output.

PV shapes are calculated per division for all 19 divisions using a representative city in the southern half of each division. PVWatts® outputs an 8760-hour profile. A 288-hour profile is generated from PVWatts™ by taking the maximum value for that hour each month. For example, Month_Hour 05_12 is the maximum of all noon hours in May.

SDG&E

Like PG&E, SDG&E uses the NREL PVWatts® tool and methodology. The only difference being SDG&E uses a single shape applied across SDG&E territory which takes the maximum irradiance value from SDG&E's weather stations.

Table 1. System Information Input for NREL PVWatts®

DC System Size	1 (Normalized)
Module Type	Standard
Array Type	Fixed (Open Rack)
System Losses	14%
Tilt	20
Azimuth	180
DC to AC Ratio	1.0
PV Inverter Efficiency	96%
Ground Cover Ratio	0.4

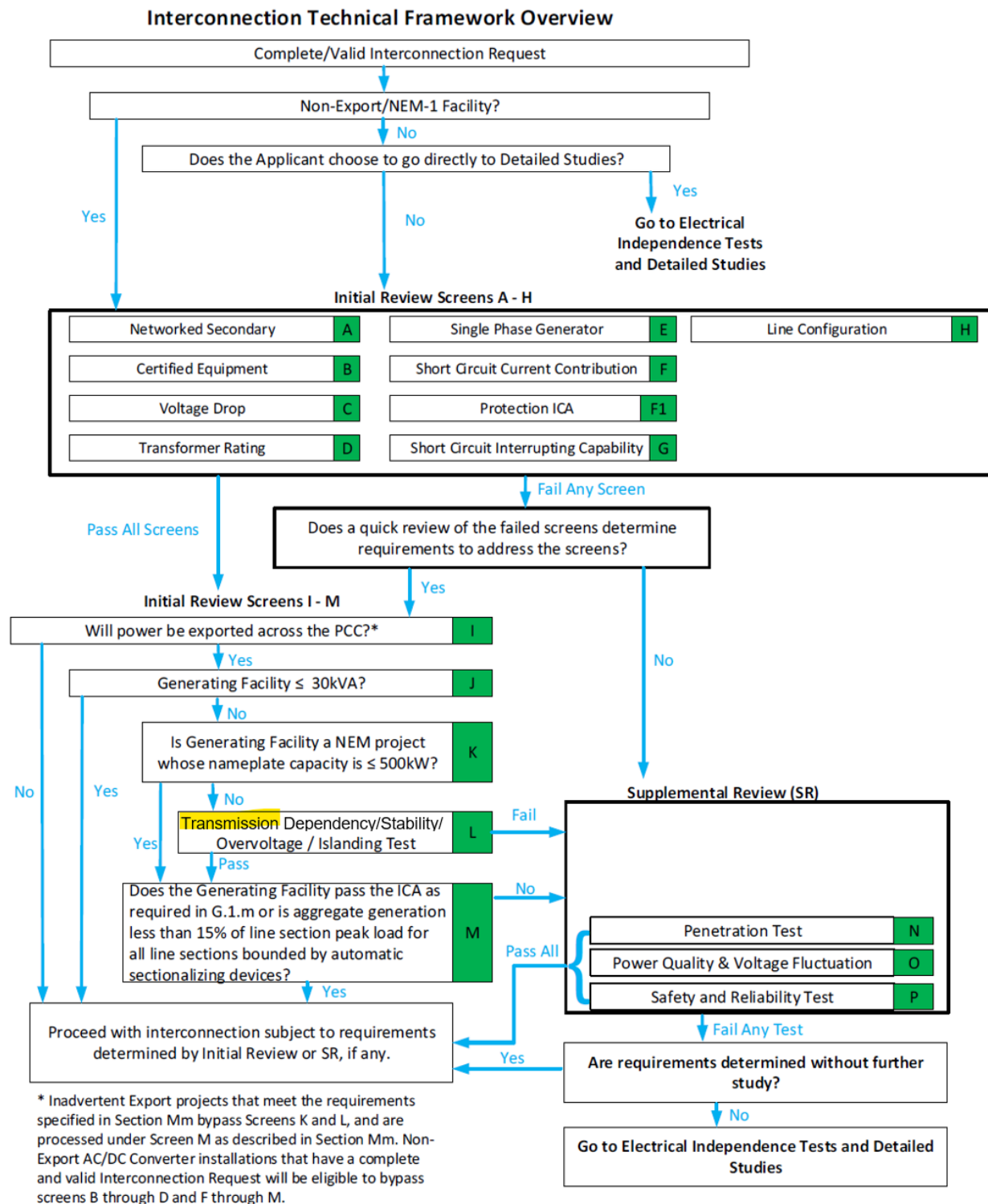
Appendix D: Design and Construction Timeline for OP 23

Design and Construction Timeline

The standard timeline for design and construction of interconnection-related Distribution Upgrades is as follows: i) 60 business days for design and 60 business days for construction, or ii) design and construction timelines as agreed to between Applicant and Distribution Provider. [Distribution Provider shall use Reasonable Efforts to comply with these timelines and shall work with Applicant to reach a reasonable timeline when an emergency occurs.](#)

The 60-day clock commences upon payment and after Applicant has done everything necessary on its end to prepare for construction.

Appendix E: Interconnection Technical Framework Overview flow chart¹⁹⁷



¹⁹⁷ The change in the flow chart is highlighted in yellow.