February 7, 2019

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: California Independent System Operator Corporation
Docket No. ER19-___-000

Tariff Amendment to Specify Minimum Requirements for Interconnection Requests

Request for Waiver of 60-day Notice Requirement

Dear Secretary Bose:

The California Independent System Operator Corporation ("CAISO") submits this tariff amendment to specify the requirements for a generator interconnection request to be complete and valid.[1] The changes proposed in this tariff amendment were part of the CAISO's most recent Interconnection Process Enhancements ("IPE") stakeholder initiative.

The proposed revisions are necessary to address a notable decrease in the quality of interconnection requests submitted during the CAISO's annual interconnection request window (April 1 to April 15). In recent years a growing number of initial interconnection requests submitted in the annual queue cluster window have omitted essential information. Interconnection customers essentially "get their foot in the door" by submitting a deficient request during the window, and then use the CAISO's validation/cure period (April 15 to May 31) to complete their requests. CAISO and transmission owner engineers thus have less time to identify data and modeling errors within interconnection requests because they are preoccupied notifying interconnection customers of missing information, then reviewing updated submissions. This is especially problematic as the complexity of interconnection requests grows each year,[2]

[1] The CAISO submits this filing pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d. Capitalized terms not otherwise defined herein have the meanings set forth in the CAISO tariff, and references to specific sections, articles, and appendices are references to sections, articles, and appendices in the current CAISO tariff and revised or proposed in this filing, unless otherwise indicated.

[2] For example, energy storage resources—whose discharging and charging functions must be studied—and "hybrid" resources—generators consisting of both energy storage and solar photovoltaic—

and can decrease the quality of the CAISO's phase I interconnection studies.[3]

Importantly, the CAISO is *not* proposing to change the data requirements of its *pro forma* interconnection request. The CAISO's revisions simply clarify (1) which required documents must be submitted during the interconnection request window (April 1 to 15) for the interconnection request to be considered "complete," and (2) which deficiencies can be cured during the validation window (April 15 to June 30) so that the data within the interconnection request are free of errors and ready to be studied. Enumerating these specific requirements ensures that new interconnection customers have taken the minimum steps necessary to begin the interconnection study process. All parties will thus have additional time to refine their interconnection requests during the validation window. This will greatly enhance the quality of data going into the phase I interconnection studies, which evaluate each new generator's impact on the grid and provide interconnection customers with their estimated costs of interconnection.[4]

To ensure that interconnection customers receive prompt feedback on their submissions, the CAISO proposes to notify interconnection customers whether their requests are complete within five business days of submission. Once complete, the CAISO will notify interconnection customers within ten business days whether their interconnection request is "valid," meaning it is free of data or modeling errors and ready to be studied. Each time an interconnection customer resubmits information to cure any error, the CAISO will respond within five business days. If the CAISO cannot meet its response deadlines for documentation submitted before May 31, the interconnection customer will receive a day-for-day extension on its own deadlines (April 15 and June 30).

The CAISO respectfully requests that the Commission waive the 60-day notice requirement by seven days so these revisions are effective April 1, 2019, when the 2019 interconnection request window opens.[5]

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are increasingly common. In 2016 the CAISO generator interconnection queue had 36 interconnection requests for energy storage, comprising 3,093 MW. At the end of 2018 the CAISO queue had 116 interconnection requests for energy storage comprising 23,139 MW.

[3] The CAISO received 127 interconnection requests during the cluster window in 2016, 91 in 2017, and 124 in 2018. These figures do *not* include fast track and independent study requests or requests to interconnect to the distribution system but participate in the CAISO markets (all of which are also studied by the CAISO). All public data regarding the CAISO's generator interconnection queue are available on the CAISO website at https://rimspub.caiso.com/rims5/logon.do.

[4] *See* "Phase I Interconnection Study," Appendix A to the CAISO tariff.

[5] Specifically, the CAISO respectfully requests waiver of the Commission's 60-day notice requirement set forth in Section 35.3 of the Commission's regulations, 18 C.F.R. § 35.3, pursuant to Section 35.11 of the Commission's regulations, 18 C.F.R. § 35.11.

I. Background

The CAISO tariff requires new interconnection customers to submit the following to initiate a generator interconnection request:

1. An interconnection study deposit;
2. Evidence of site exclusivity or a site exclusivity deposit; and
3. "A completed application in the form of Appendix 1."[6]

New interconnection customers submit these documents and deposits during the CAISO's annual interconnection request window from April 1 to April 15.[7] Once submitted, the tariff requires the CAISO and applicable transmission owner to notify the interconnection customer within ten business days "whether the Interconnection Request is deemed complete, valid, and ready to be studied."[8] The tariff states that an interconnection request is valid once the interconnection customer has provided the three sets of documents and deposits listed above.[9] If its application package is deficient, the CAISO notifies the interconnection customer of all deficiencies. Every time the interconnection customer attempts to cure a deficiency, the CAISO must respond within five business days to notify the interconnection customer whether its interconnection request is complete or still deficient. The interconnection customer must cure all deficiencies by May 31, or the interconnection request will be rejected and excluded from that year's cluster study. Once the CAISO has deemed an interconnection request complete, the interconnection customer can schedule its initial scoping meeting to discuss project details and potential issues.

These requirements have become increasingly problematic because of the number and complexity of interconnection requests the CAISO has received. In the previous IPE initiative, the CAISO addressed this issue by allowing more time for interconnection customers to make corrections.[10] This measure was effective, but also exacerbated the initial quality of interconnection requests. Instead of submitting well-prepared interconnection requests during the April 1 to 15 window, a greater number of interconnection customers submitted incomplete, deficient requests, then used the validation and cure period until May 31 to finish their interconnection requests. Many of

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6 Section 3.5.1 of Appendix DD to the CAISO tariff.

7 The CAISO receives the vast majority of interconnection requests during the April 1 to 15 window. Interconnection customers submitting Fast track and independent study requests can submit them at any time. *See* Section 3.3.2 of Appendix DD.

For all dates referenced, if the day is not a business day, the next business day will apply.

8 Section 3.5.2.1 of Appendix DD.

9 Section 3.5.2.2 of Appendix DD.

10 *California Independent System Operator Corp*., 162 FERC ¶ 61,207 (2018).

these deficiencies were blatant omissions of fundamental information required by the tariff for the CAISO and transmission owner to study the potential generator. The CAISO and its transmission owners were inundated with interconnection requests that required several iterations of review, notice, and cure before the requests could be validated.

Revising the CAISO tariff will help to mitigate this problem. Currently the tariff only requires that the interconnection customer submit a "complete" interconnection request to be considered "valid."[11] And a complete interconnection request merely consists of a study deposit, site exclusivity, and a completed application.[12] As such, the tariff does not provide any distinction between "complete" and "valid." The interconnection request application requires detailed descriptions of the proposed generating facility, including various attachments, data sets, and models. But the tariff does not state whether missing any of these sub-elements during the request window means that the interconnection customer failed to submit a completed application that should be deemed invalid. Nor does the tariff specify whether a complete, but erroneous application is fatal to an interconnection request.[13]

II. Proposed Tariff Revisions

The CAISO proposes to clarify what constitutes a "complete" interconnection request and what constitutes a "valid" interconnection request. In addition, the CAISO proposes to move the validation deadline from May 31 to June 30, and to remove the requirement that interconnection requests must be valid before interconnection customers can schedule their scoping meetings. If the CAISO cannot meet its response deadlines for documentation submitted before May 31, the interconnection customer will receive a day-for-day extension on its own deadlines (April 15 and June 30).

A. Completeness: April 1 to 15

The CAISO proposes to conduct an initial review to ensure that an interconnection request is complete by April 15.[14] This review will only verify that the

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[11] *See* Section 3.5.2.2 of Appendix DD ("An Interconnection Request will not be considered to be a valid request until the CAISO determines that the information contained in the Interconnection Request is complete and the Interconnection Customer has provided all items in satisfaction of Section 3.5.1").

[12] Sections 3.5.2.1 and 3.5.1 of Appendix DD.

[13] Erroneous in the sense that the interconnection customer has provided each required data set, file, and model, but that the data, files, and models contain erroneous, conflicting, or unusable data regarding the size, configuration, or equipment of the new generator.

[14] Section 3.3 of Appendix DD already specifies that the interconnection request window is April 1 to 15 (or the next business day if not business days). Appendix DD refers to this time as the "Cluster Application Window," which Appendix A to the CAISO tariff defines as "The time period for submitting Interconnection Requests as set forth in Section 3.3 of *Appendix Y*" (emphasis added). The reference to

interconnection customer has submitted all required information, without examining its quality.[15] The CAISO proposes to clarify that the following will be required to complete an interconnection request by April 15:

(i) An Interconnection Study Deposit of $150,000.

(ii) A completed application in the form of Appendix 1, including:
  (a) requested Deliverability status, requested study process (either Queue Cluster or Independent Study Process), preferred Point of Interconnection, and voltage level, and
  (b) all required technical data listed in Appendix 1.

(iii) Demonstration of site exclusivity or a site exclusivity deposit.

(iv) A load flow model.

(v) A dynamic data file.

(vi) A reactive power capability document.

(vii) A site drawing.

(viii) A single-line diagram.

(ix) A flat run plot and a bump test plot from the positive sequence transient stability simulation application.

(x) A plot showing the requested MW at the point of interconnection from the positive sequence load flow application.[16]

To be sure, the CAISO tariff *already* expressly requires the foregoing information in the *pro forma* interconnection request.[17] Nevertheless, many interconnection customers do not provide this basic, fundamental information in their initial request; they provide it

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Appendix Y is anachronistic, having been supplanted by the generator interconnection procedures in Appendix DD in 2012. Accordingly, the CAISO proposes to update this stale cross-reference such that Cluster Application Window is defined as "The time period for submitting Interconnection Requests as set forth in Section 3.3 of Appendix DD." Proposed "Cluster Application Window," Appendix A to the CAISO tariff.

[15] Meaning that the CAISO will examine whether the interconnection customer has provided each required data set, file, model, etc., but will not examine whether the data, files, and models contain erroneous, conflicting, or unusable data regarding the size, configuration, or equipment of the new generator until the validation stage.

[16] Proposed Section 3.5.1 of Appendix DD.

[17] *See* Appendix 1 to Appendix DD to the CAISO tariff.

during the current validation/correction period after the CAISO has notified them of their deficiencies. The CAISO's purpose in enumerating these specific requirements in the generator interconnection processes is to ensure that interconnection customers have taken the minimum steps necessary to begin the interconnection study process. In other words, interconnection customers should not be using the correction period to *create* their initial models, diagrams, and data files. Those steps should be taken in the 350 days that precede the interconnection request window. Interconnection customers that cannot provide this fundamental information by the close of the interconnection request window should be excluded from that year's interconnection study. The CAISO notes that it developed this list in consultation with generation developers, their consultants, and the transmission owners to ensure that it represented a true minimum that would not present a barrier to entry.

To mitigate the risk of omissions due to administrative error, and to incentivize interconnection customers to provide interconnection requests earlier, the CAISO proposes to memorialize the requirement that it review each interconnection request within five business days of submission.[18] An interconnection customer that provides its interconnection request more than five business days before the close of the request window will receive an initial review and notification regarding whether its request is complete. If the submission is not complete, the interconnection customer will have until April 15 to cure its omission by providing the missing information. On the other hand, interconnection customers that submit their interconnection requests during the last five business days of the window may only discover after the window has closed their request was incomplete and will be excluded from that year's cluster study.[19]

This completeness review is just and reasonable because it will provide transparency regarding essential interconnection request requirements, and help ensure a level playing field among interconnection requests. Under the current structure, CAISO and transmission owner engineers must spend most of their time during the request and correction windows working on the interconnection requests from the interconnection customers that omitted fundamental information to model a new generator. This work is not fruitful and merely consists of notifying the interconnection customer of the documents it did not submit, then waiting to review them in the next submission. Incomplete requests also prevent the engineers from beginning actual study work because each item listed above is essential to modeling the generator and determining its cost to interconnect. The CAISO's proposal will help

[18] Proposed Section 3.5.1 of Appendix DD.

[19] The CAISO intends to review interconnection requests and provide notification in less than five business days in most cases, so some interconnection requests submitted during the final days of the request window may still receive an initial review. In other words, the CAISO will not *wait* five business days to provide its initial results. Five days is simply the deadline for the CAISO. To the extent the CAISO goes beyond that deadline, the interconnection customer's deadlines will be extended as well, as explained below.

ensure that interconnection requests are all complete, and engineers can begin reviewing the data (rather than whether the data exist). To the extent these revisions diverge from the *pro forma* provisions in Order No. 2003,[20] the CAISO believes that they represent a needed improvement of the CAISO's current tariff. The issues described herein are the result of current tariff ambiguities, which the CAISO's revisions will clarify.

B. Validation: April 15 to June 30

Under the CAISO's proposal, after the CAISO deems an interconnection request complete, the CAISO and transmission owner engineers will perform a second, in-depth review to ensure that all data provided in the interconnection request are "valid."[21] On the latter of April 15 or when the CAISO notifies the interconnection customer that its request is complete, the CAISO and transmission owner will have ten business days to determine whether the interconnection request contains deficiencies that would preclude its inclusion in the CAISO's phase I interconnection studies.[22] Deficiencies would include, for example, modeling errors, inaccurate data, and unusable files.[23]

If an interconnection request has deficiencies, the CAISO will notify the interconnection customer and explain how to cure them.[24] When the interconnection customer provides the corrected information, the CAISO will re-review it within five business days and notify the interconnection customer whether its interconnection request is valid or still contains deficiencies. If the Interconnection Request continues to provide deficient information, the CAISO will include in its notification the reasons for such failure. This process may repeat until June 30, which gives interconnection customers an additional month for validation compared to today's process.[25] If an interconnection request is not deemed valid by then, the interconnection request will be deemed invalid and will not be included in that year's interconnection study.

This proposed validation process is just and reasonable because it will provide the interconnection customer, the transmission owner, and the CAISO a specific, longer

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[20] *Standardization of Generator Interconnection Agreements and Procedures*, 104 FERC ¶ 61,103 (2003) ("Order No. 2003").

[21] Proposed Section 3.5.2 of Appendix DD.

[22] Proposed Section 3.5.2.1 of Appendix DD.

[23] Proposed Section 3.5.2 of Appendix DD.

[24] Proposed Section 3.5.2.2 of Appendix DD. Previously this section referred to meeting the requirements of Section 3.5.1, which merely listed the three basic requirements for an interconnection request. Because Section 3.5.1 will now address initial interconnection request completion, the CAISO proposes to remove those references in Section 3.5.2.2 and simply explain the process of identifying and curing deficiencies for validation.

[25] Or the next business day if June 30 is not a business day. As explained below, if the CAISO cannot meet its own timelines prior to May 31, the interconnection customer will receive a day-for-day extension on its timelines.

period of time to address modeling and data errors, which will improve the quality of interconnection requests as they enter the phase I interconnection study. Interconnection customers will have two and a half months total to cure any deficiencies and provide correct data. Consistent with current practice, the CAISO and transmission owner must review attempts to cure deficiencies within five business days, providing interconnection customers with numerous opportunities to ensure that their interconnection requests do not contain critical errors. Combined with the completeness review described above, the validation review will greatly enhance the quality of interconnection requests without imposing any additional burdens on interconnection customers.

C. Scoping Meeting

The CAISO proposes to remove the restriction that scoping meetings cannot be scheduled until the interconnection request is "complete, valid, and ready for study," as the tariff currently requires.[26] Scoping meetings provide an early opportunity to discuss the reasonableness of an interconnection customer's proposed commercial operation date and point of interconnection, including any potential challenges.[27] Scoping meetings provide interconnection customers significant information before significant costs have been incurred and while interconnection customers still have opportunities to modify their projects. Although these meetings generally will not occur until an interconnection request is valid, there is no reason the parties cannot *schedule* the meetings ahead of time, especially where the CAISO and transmission owner believe that validation is imminent or that an in-person meeting would facilitate resolving all outstanding issues. Having the flexibility to schedule scoping meetings as interconnection customers finalize their requests will benefit all parties.

D. Deadline Extensions for Interconnection Customers

Order No. 2003 states that transmission providers will use a "Reasonable Efforts" standard in meeting interconnection study process deadlines.[28] Consistent with Order No. 2003, the CAISO tariff defines "Reasonable Efforts" as "With respect to an action required to be attempted or taken by a party under the GIDAP, 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."[29]

Generally the CAISO meets all interconnection process deadlines and avoids the need for any extension or reliance upon the reasonable efforts standard. In fact, the

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26 Proposed Section 6.1.2 of Appendix DD.

27 Section 6.1.2 of Appendix DD.

28 *See* Order No. 2003 at P 67 *et seq.*

29 "Reasonable Efforts," Appendix A to the CAISO tariff.

CAISO typically reviews interconnection requests far more quickly than the tariff deadlines. However, as the number and complexity of interconnection requests increase, the CAISO wants to ensure that interconnection customers are not harmed if the CAISO cannot meet the review deadlines.[30] The CAISO thus proposes to include a provision granting a day-for-day extension on the interconnection customer's completeness and validation deadlines where the CAISO notifies interconnection customers beyond what the tariff contemplates.[31] Such extensions will be limited to interconnection customer submissions before May 31.[32] If an interconnection customer still submits documents after May 31 to finalize its interconnection request, it will receive no additional extension on the June 30 deadline where the CAISO cannot meet its five-business-day response deadline using reasonable efforts.

Stakeholders and the CAISO believed this was a reasonable cutoff for further extensions. By this point interconnection customers will already have had a year to prepare their interconnection requests, April 1 to 15 to submit a completed interconnection request, and April 15 to May 31 to correct any deficiencies. Moreover, after May 31 the CAISO and transmission owner engineers begin to hold scoping meetings with interconnection customers to discuss project details and potential issues. The May 31 limit would only be limited to *further* extensions beyond the June 30 deadline. Where the CAISO and transmission owner fail to meet a response deadline for documents the interconnection customer submits before May 31, the interconnection customer will receive a day-for-day extension on the June 30 deadline.[33]

For example, to the extent the CAISO and transmission owner cannot meet the five-business-day response timeline for interconnection requests submitted or corrected over five business days before April 15, the interconnection customer will receive a day-for-day extension on its April 15 completion deadline and the May 31 validation deadline.[34] Interconnection Customers that submit or correct their interconnection requests within five business days of April 15 may not receive a notification by April 15, will receive no extension, and must have submitted a complete interconnection request to proceed.

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30 Namely, reviewing an interconnection request for completeness within five business days; providing an initial review for validation within ten business days of completion or April 15, whichever is later; and reviewing attempts to cure deficiencies for validation within five business days.

31 Proposed Section 3.5.3 of Appendix DD.

32 *Id*.

33 To be sure, an interconnection customer retains its extensions throughout the process. For example, if an interconnection customer submits information to cure a deficiency on May 1, and the CAISO is two days late in reviewing the material, the interconnection customer will be able to continue to submit materials until July 2 (two days beyond June 30) to have a valid request, no matter how many times its re-submits information and the CAISO reviews that information during the validation window.

34 *Id*.

Likewise, for all information submitted before May 31, to the extent the CAISO and transmission owner cannot meet the initial ten-business-day validation deadline or the five-business-day deadline for re-submissions, the interconnection customer will receive a day-for-day extension on the June 30 deadline for validation.[35] If an interconnection customer does not respond to a deficiency notice until after May 31, it will receive no extension beyond the June 30 deadline for validation.

These tariff revisions are just and reasonable because they strike an appropriate balance between fairness and deadline certainty. All parties still will be incentivized to meet their deadlines and provide high-quality documents, but the CAISO will now have the flexibility to provide fair and reasonable extensions to interconnection customers where circumstances prevent the CAISO and transmission owner from meeting their deadlines. In the past this has only occurred under aberrant circumstances, such as when nearly all interconnection requests in one cluster were to the same transmission owner, unexpectedly flooding its planning engineers with interconnection requests to review. Nevertheless, the CAISO and its stakeholders believe that having the flexibility to provide interconnection customers extensions going forward will mitigate risk and improve the interconnection request process.

III. Stakeholder Process

The CAISO continuously reviews and enhances its generator interconnection procedures.[36] After implementing significant generator interconnection reforms in 2008,[37] 2010,[38] and 2012,[39] the CAISO launched its first IPE initiative in 2013.[40] The 2013 IPE initiative resulted in interconnection enhancements to the CAISO tariff,

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35 *Id*.

36 The generator interconnection process and related provisions are set forth primarily in section 25 of the CAISO tariff. The interconnection procedures and *pro forma* generator interconnection agreements ("GIAs") are generally contained in appendices S through FF to the CAISO tariff.

37 *California Independent System Operator Corp.*, 124 FERC ¶ 61,292 (2008) (approving revisions to move from a serial to a cluster process, and to establish project viability and developer commitment as soon as interconnection customers have an estimate of the costs of their projects).

38 *California Independent System Operator Corp.*, 133 FERC ¶ 61,223 (2010) (approving revisions to harmonize the CAISO's Large Generator Interconnection Procedures ("LGIP") with its Small Generator Interconnection Procedures ("SGIP") by establishing integrated cluster study processes for small and large generators, and to expedite study processes for independent or otherwise adroit generators by implementing new independent study and fast track processes).

39 *California Independent System Operator Corp.*, 140 FERC ¶ 61,070 (2012) (approving revisions to integrate the transmission planning and generator interconnection processes).

40 Further background information on the IPE initiative is provided in the CAISO's September 30, 2013 tariff amendment filing in Docket No. ER13-2484 to implement the first set of tariff revisions to enhance the generation interconnection process for interconnection customers.

business practice manuals, and procedures in 2013 and 2014.[41] The CAISO conducted another IPE initiative in 2015 that resulted in two more sets of enhancements.[42] In 2017 the CAISO conducted an expedited IPE initiative to implement two minor but critical sets of enhancements.[43]

After the success of the previous IPE initiatives, in 2018 the CAISO re-launched the IPE initiative. In doing so, the CAISO and stakeholders identified many enhancements that will improve the interconnection process for interconnection customers, ratepayers, transmission owners, and the CAISO. The vast majority of these enhancements resulted in the CAISO's September 27, 2018 filing in Docket No. ER18-2498. This filing represents further enhancements developed in the 2018 IPE initiative.

The stakeholder process that resulted in this filing included:

- The CAISO's soliciting stakeholder suggestions on items to be included in this iteration of the IPE initiative;
- Two issue papers issued by the CAISO;
- Developing draft tariff provisions;
- Three stakeholder meetings and conference calls to discuss the CAISO papers; and
- Three opportunities to submit written comments on the CAISO papers and the draft tariff provisions.[44]

All stakeholders that commented on this issue in the IPE initiative supported or did not oppose the CAISO's proposal. The CAISO Governing Board voted to authorize this filing during its public meeting on February 7, 2019.[45]

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[41] *See, e.g., California Independent System Operator Corp.*, 149 FERC ¶ 61,231 (2014); *California Independent System Operator Corp.,* 148 FERC ¶ 61,077 (2014); *California Independent System Operator Corp.,* 145 FERC ¶ 61,172 (2013).

[42] *California Independent System Operator Corp*., 153 FERC ¶ 61,242 (2015); 154 FERC ¶ 61,169 (2016).

[43] *California Independent System Operator Corp.*, 162 FERC ¶ 61,207 (2018) (extending the deliverability parking period and reconfiguring the interconnection request window to allow more time for corrections).

[44] Materials regarding the IPE stakeholder process are available on the CAISO website at http://www.caiso.com/informed/Pages/StakeholderProcesses/InterconnectionProcessEnhancements.aspx. A list of key dates in the stakeholder process that are relevant to this tariff amendment is provided in attachment E to this filing.

[45] Materials related to the Board's authorization to prepare and submit this filing are available on the

IV. Effective Date and Request for Waiver

Pursuant to Section 35.11 of the Commission's regulations,[46] the CAISO respectfully requests that the Commission waive the 60-day prior notice requirement by seven days to assign an effective date of April 1, 2019. Such waiver would follow the Commission's policy that waiver of the 60-day prior notice requirement is appropriate where good cause is shown and the rate schedule is filed before the commencement of service.[47] Good cause exists here because an effective date of April 1, 2019 will align the revision with the next interconnection request window.

V. Communications

In accordance with Rule 203(b)(3) in the Commission's Rules of Practice and Procedure,[48] the CAISO respectfully requests that correspondence and other communications regarding this filing be directed to:

Roger E. Collanton
General Counsel
Sidney L. Mannheim
Assistant General Counsel
William H. Weaver
Senior Counsel
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VI. Service

The CAISO has served copies of this filing on the California Public Utilities Commission, the California Energy Commission, and all parties with scheduling coordinator agreements under the CAISO tariff. In addition, the CAISO has posted a

CAISO website at http://www.caiso.com/informed/Pages/BoardCommittees/BoardGovernorsMeetings.aspx. The Memoranda provided to the Board is provided in attachment D to this filing.

[46] 18 C.F.R. § 35.11.

[47] *See, e.g., Central Hudson Gas & Electric Corp.*, 60 FERC ¶ 61,106 (1992), *reh'g denied,* 61 FERC ¶ 61,089 (1992).

[48] 18 C.F.R. § 385.203(b)(3).

copy of this filing on the CAISO website.

VII. Contents of Filing

Besides this transmittal letter, this filing includes these attachments:

Attachment A	Clean CAISO tariff sheets incorporating this tariff amendment;
Attachment B	Red-lined document showing the revisions in this tariff amendment;
Attachment C	Draft final proposal on this tariff amendment;
Attachment D	Board memoranda; and
Attachment E	List of key dates in the stakeholder process.

VIII. Conclusion

For the reasons set forth in this filing, the CAISO respectfully requests that the Commission accept the tariff revisions proposed in the filing effective April 1, 2019.

Respectfully submitted,

/s/ William H. Weaver
Roger E. Collanton
General Counsel
Sidney L. Mannheim
Assistant General Counsel
William H. Weaver
Senior Counsel

Counsel for the California Independent System Operator Corporation

Attachment A – Clean Tariff

Specify Minimum Requirements for Interconnection Requests

California Independent System Operator Corporation

Appendix A

Master Definition Supplement

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- Cluster Application Window

The time period for submitting Interconnection Requests as set forth in Section 3.3 of Appendix DD.

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Appendix DD

Generator Interconnection and Deliverability Allocation Procedures (GIDAP)

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Section 3 Interconnection Requests

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3.5 Processing of Interconnection Requests

3.5.1 Initiating an Interconnection Request.

To initiate an Interconnection Request, except as set forth for the Fast Track Process in Section 5, and have the Interconnection Request considered for validation under Section 3.5.2, the Interconnection Customer must submit all of the following during the Cluster Application Window, or at any time during the year for proposed Generating Facilities applying for processing under the Independent Study Process:

(i) An Interconnection Study Deposit of $150,000.

(ii) A completed application in the form of Appendix 1, including requested Deliverability status, requested study process (either Queue Cluster or Independent Study Process), preferred Point of Interconnection and voltage level, and all other required technical data, including all data requested in Attachment A to Appendix 1 in Excel format.

(iii) Demonstration of Site Exclusivity or, for Interconnection Requests in a Queue Cluster, a posting of a Site Exclusivity Deposit of $100,000 for a Small Generating Facility or $250,000 for a Large Generating Facility. The demonstration of Site Exclusivity, at a minimum, must be through the Commercial Operation Date of the new Generating Facility or increase in capacity of the existing Generating Facility.

(iv) A load flow model.

(v) A dynamic data file.

(vi) A reactive power capability document.

(vii) A site drawing.

(viii) A single-line diagram.

(ix) A flat run plot and a bump test plot from the positive sequence transient stability simulation application.

(x) A plot showing the requested MW at the Point of Interconnection from the positive sequence load flow application.

The CAISO requires the foregoing information to be complete and specific to the Interconnection Request. The CAISO will first determine whether a submitted Interconnection Request is complete. The CAISO will not initiate any review of an Interconnection Request for completeness until the Interconnection Study Deposit is received by the CAISO. Consistent with Section 3.5.3, the CAISO will review each Interconnection Request and notify the Interconnection Customer whether it is complete or contains omissions within five (5) Business Days of submission. Any Interconnection Customer that has not submitted a complete Interconnection Request by April 15 (or the next Business Day if April 15 is not a Business Day) will be deemed incomplete with no opportunity to cure or otherwise be included in that year's Queue Cluster.

The CAISO requires Interconnection Study Deposits to review and validate the Interconnection Request. Notwithstanding Section 3.5.2 of this GIDAP or any other provision regarding validation or the ability to cure deficiencies, the CAISO will not review, process, or validate an Interconnection Request absent the Interconnection Study Deposit. Any interconnection Customer that has not submitted a complete Interconnection Study Deposit by April 15 (or the next Business Day if April 15 is not a Business Day) will be deemed invalid with no opportunity to cure or otherwise be included in that year's Queue Cluster.

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3.5.2 Validation of Interconnection Request.

For each Interconnection Request that is deemed complete pursuant to Section 3.5.1, the CAISO and Participating TO will determine whether the Interconnection Request is valid. An Interconnection Request will be deemed valid if it does not contain deficiencies that would prevent its inclusion in the Phase I Interconnection Studies. Deficiencies include but are not limited to modeling errors, inaccurate data, and unusable files.

3.5.2.1 Validation Process.

The CAISO and Participating TO will notify the Interconnection Customer whether its Interconnection Request is valid or contains deficiencies within ten (10) Business Days of April 15 or when the Interconnection Request is deemed complete, whichever is later. All Interconnection Requests must be deemed valid by June 30 to be included in that year's Queue Cluster.

3.5.2.2 Deficiencies in Interconnection Request.

If an Interconnection Request has deficiencies, the CAISO shall include in its notification to the Interconnection Customer that the Interconnection Request does not constitute a valid request and explain the deficiencies. The Interconnection Customer shall provide the CAISO the corrected requested information needed to constitute a valid request. Consistent with Section

3.5, whenever corrected requested information is provided by the Interconnection Customer, the CAISO shall notify the Interconnection Customer within five (5) Business Days of receipt of the corrected requested information whether the Interconnection Request is valid. If the Interconnection Request continues to provide deficient information, the CAISO shall include in its notification to the Interconnection Customer the reasons for such failure. If an Interconnection Request is not deemed valid, the Interconnection Customer must cure all deficiencies no later than June 30 or the next Business Day if June 30 is not a Business Day. Interconnection Requests with deficiencies after that date will be deemed invalid and will not be included in an Interconnection Study Cycle or otherwise studied.

Interconnection Requests deemed invalid under this Section 3.5.2.2 are not subject to Section 3.8. Interconnection Customers with invalid Interconnection Request under this Section 3.5.2.2 may seek relief under Section 15.5 by so notifying the CAISO within two (2) Business Days of the notice of invalidity.

3.5.3 Day-for-day Extensions.

The CAISO and Participating TO will use Reasonable Efforts to meet all deadlines in this Section 3.5.3 of the GIDAP. To the extent the CAISO and Participating TO cannot meet any deadline, the Interconnection Customer will receive a day-for-day extension on all remaining deadlines requiring its response until May 31.

Pursuant to Section 3.5.1, Interconnection Customers that submit their Interconnection Requests more than five (5) Business Days before April 15 will receive a notification from the CAISO regarding their Interconnection Request's completion, and will have an opportunity to provide any missing information by April 15. To the extent the CAISO and Participating TO cannot meet the five (5) Business Day response time for Interconnection Requests submitted or corrected more than five (5) Business Days before April 15, the Interconnection Customer will receive a day-for-day extension on the April 15 completion deadline and the June 30 validation deadline. Interconnection Customers that submit or correct their Interconnection Requests within five (5) Business Days of April 15 may not receive a notification by April 15, will not receive an extension of the April 15 deadline, and must have submitted a complete Interconnection Request to be validated pursuant to Section 3.5.2.

Pursuant to Section 3.5.2, the CAISO and Participating TO will notify the Interconnection Customer whether its Interconnection Request is valid or contains deficiencies within ten (10) Business Days of April 15 or when the Interconnection Request is deemed complete, whichever is later. The CAISO will notify an Interconnection Customer within five (5) Business Days whether its Interconnection Request is now valid when an Interconnection Customer attempts to cure a deficiency. For all information submitted prior to May 31, to the extent the CAISO and Participating TO cannot meet the deadlines described here, the Interconnection Customer will receive a day-for-day extension on the June 30 deadline for validation. If an Interconnection Customer does not respond to a deficiency notice until after May 31, it will not receive any extension beyond the June 30 deadline for validation.

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Section 6 Initial Activities and Phase I of the Interconnection Study Process for Queue Clusters

The provisions of this Section 6 shall apply to all Interconnection Requests except those processed under the Independent Study Process selecting Energy Only Deliverability Status, the Fast Track Process, or the 10 kW inverter process as set forth in Appendix 7.

6.1 Initial Activities Following the Close of the Cluster Application Window

6.1.1 [Intentionally Omitted]

6.1.2 Scoping Meeting

The CAISO shall establish a date agreeable to the Interconnection Customer and the applicable Participating TO(s) for the Scoping Meeting. All Scoping Meetings shall occur no later than June 30, unless otherwise mutually agreed upon by the Parties. The CAISO shall evaluate whether the Interconnection Request is at or near the boundary of an affected Participating TO(s) service territory or of any other Affected System(s) so as to potentially affect such third parties, and, in such case, the CAISO shall invite the affected Participating TO(s), and/or Affected System Operator(s) in accordance with Section 3.7, to the Scoping Meeting by informing such third parties of the time and place of the scheduled Scoping Meeting as soon as practicable.

The purpose of the Scoping Meeting shall be to discuss reasonable Commercial Operation Dates and alternative interconnection options, to exchange information including any transmission data that would reasonably be expected to impact such interconnection options, to analyze such information and to determine the potential feasible Points of Interconnection and eliminate alternatives given resources and available information. The applicable Participating TO(s) and the CAISO will bring to the meeting, as reasonably necessary to accomplish its purpose, the following: (a) such already available technical data, including, but not limited to, (i) general facility loadings, (ii) general instability issues, (iii) general short circuit issues, (iv) general voltage issues, and (v) general reliability issues, and (b) general information regarding the number, location, and capacity of other Interconnection Requests in the Interconnection Study Cycle that may potentially form a Group Study with the Interconnection Customer's Interconnection Request.

The Interconnection Customer will bring to the Scoping Meeting, in addition to the technical data in Attachment A to Appendix 1, any system studies previously performed. The applicable Participating TO(s), the CAISO and the Interconnection Customer will also bring to the meeting personnel and other resources as may be reasonably required to accomplish the purpose of the meeting in the time allocated for the meeting. On the basis of the meeting, the Interconnection Customer shall designate its Point of Interconnection. The duration of the meeting shall be sufficient to accomplish its purpose.

The CAISO shall prepare minutes from the meeting, and provide the Interconnection Customer and the other attendees an opportunity to confirm the accuracy thereof, that will include, at a minimum, discussions among the applicable Participating TO(s) and the CAISO of the expected results and a good faith estimate of the costs for the Phase I Interconnection Study.

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Attachment B – Marked Tariff

Specify Minimum Requirements for Interconnection Requests

California Independent System Operator Corporation

Appendix A

Master Definition Supplement

* * * * *

- Cluster Application Window

The time period for submitting Interconnection Requests as set forth in Section 3.3 of Appendix ~~Y~~DD.

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Appendix DD

Generator Interconnection and Deliverability Allocation Procedures (GIDAP)

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Section 3 Interconnection Requests

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3.5 Processing of Interconnection Requests

3.5.1 Initiating an Interconnection Request.

To initiate an Interconnection Request, except as set forth for the Fast Track Process in Section 5, and have the Interconnection Request considered for validation under Section 3.5.2, the Interconnection Customer must submit all of the following during the Cluster Application Window, or at any time during the year for proposed Generating Facilities applying for processing under the Independent Study Process:

(i) An Interconnection Study Deposit of $150,000.

(ii) A completed application in the form of Appendix 1, including requested Deliverability status, requested study process (either Queue Cluster or Independent Study Process), preferred Point of Interconnection and voltage level, and all other required technical data, including all data requested in Attachment A to Appendix 1 in Excel format.

(iii) Demonstration of Site Exclusivity or, for Interconnection Requests in a Queue Cluster, a posting of a Site Exclusivity Deposit of $100,000 for a Small Generating Facility or $250,000 for a Large Generating Facility. The demonstration of Site Exclusivity, at a minimum, must be through the Commercial Operation Date of the new Generating Facility or increase in capacity of the existing Generating Facility.

(iv) A load flow model.

(v) A dynamic data file.

(vi) A reactive power capability document.

(vii) A site drawing.

(viii) A single-line diagram.

(ix) A flat run plot and a bump test plot from the positive sequence transient stability simulation application.

(x) A plot showing the requested MW at the Point of Interconnection from the positive sequence load flow application.

The CAISO requires the foregoing information to be complete and specific to the Interconnection Request. The CAISO will first determine whether a submitted Interconnection Request is complete. The CAISO will not initiate any review of an Interconnection Request for completeness until the Interconnection Study Deposit is received by the CAISO. Consistent with Section 3.5.3, the CAISO will review each Interconnection Request and notify the Interconnection Customer whether it is complete or contains omissions within five (5) Business Days of submission. Any Interconnection Customer that has not submitted a complete Interconnection Request by April 15 (or the next Business Day if April 15 is not a Business Day) will be deemed incomplete with no opportunity to cure or otherwise be included in that year's Queue Cluster.

The CAISO requires Interconnection Study Deposits to review and validate the Interconnection Request. Notwithstanding Section 3.5.2 of this GIDAP or any other provision regarding validation or the ability to cure deficiencies, the CAISO will not review, process, or validate an Interconnection Request absent the Interconnection Study Deposit. Any interconnection Customer that has not submitted a complete Interconnection Study Deposit by April 15 (or the next Business Day if April 15 is not a Business Day) will be deemed invalid with no opportunity to cure or otherwise be included in that year's Queue Cluster.

* * * * *

3.5.2 Validation of Interconnection Request.

For each Interconnection Request that is deemed complete pursuant to Section 3.5.1, the CAISO and Participating TO will determine whether the Interconnection Request is valid. An Interconnection Request will be deemed valid if it does not contain deficiencies that would prevent its inclusion in the Phase I Interconnection Studies. Deficiencies include but are not limited to modeling errors, inaccurate data, and unusable files.

3.5.2.1 ~~Acknowledgment of Interconnection Request~~Validation Process.

The CAISO and Participating TO will ~~shall~~ notify the Interconnection Customer whether its Interconnection Request is valid or contains deficiencies within ten (10) Business Days of April 15 or when ~~receipt of the Interconnection Request, which notice shall state whether~~ the Interconnection Request is deemed complete, ~~valid, and ready to be studied~~whichever is later. All Interconnection Requests must be deemed valid by June 30 to be included in that year's Queue Cluster.

3.5.2.2 Deficiencies in Interconnection Request.

~~An Interconnection Request will not be considered to be a valid request until the CAISO determines that the information contained in the Interconnection Request is complete and the~~

~~Interconnection Customer has provided all items in satisfaction of Section 3.5.1.~~ If an Interconnection Request ~~fails to meet the requirements set forth in Section 3.5.1~~ has deficiencies, the CAISO shall include in its notification to the Interconnection Customer ~~under Section 3.5.2.1 the reasons for such failure and~~ that the Interconnection Request does not constitute a valid request and explain the deficiencies. The Interconnection Customer shall provide the CAISO the ~~additional~~ corrected requested information needed to constitute a valid request. Consistent with Section 3.5, ~~W~~whenever ~~additional~~ corrected requested information is provided by the Interconnection Customer, the CAISO shall notify the Interconnection Customer within five (5) Business Days of receipt of the ~~additional~~ corrected requested information whether the Interconnection Request is valid. If the Interconnection Request continues to ~~fail to meet the requirements set forth in Section 3.5.1~~ provide deficient information, the CAISO shall include in its notification to the Interconnection Customer the reasons for such failure. If an Interconnection Request is~~has~~ not ~~been~~ deemed valid, the Interconnection Customer ~~must submit all information necessary to meet the requirements of Section 3.5.1~~ must cure all deficiencies no later than ~~May 31~~ June 30 or the next Business Day if ~~May 31~~ June 30 is not a Business Day. Interconnection Requests ~~that have not met the requirements of Section 3.5.1~~ with deficiencies after~~by~~ that date will be deemed invalid and will not be included in an Interconnection Study Cycle or otherwise studied.

Interconnection Requests deemed invalid under this Section 3.5.2.2 are not subject to Section 3.8. Interconnection Customers with invalid Interconnection Request under this Section 3.5.2.2 may seek relief under Section 15.5 by so notifying the CAISO within two (2) Business Days of the notice of invalidity.

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Section 6 Initial Activities and Phase I of the Interconnection Study Process for Queue Clusters

The provisions of this Section 6 shall apply to all Interconnection Requests except those processed under the Independent Study Process selecting Energy Only Deliverability Status, the Fast Track Process, or the 10 kW inverter process as set forth in Appendix 7.

6.1 Initial Activities Following the Close of the Cluster Application Window

6.1.1 [Intentionally Omitted]

6.1.2 Scoping Meeting

~~Within five (5) Business Days after the CAISO notifies the Interconnection Customer of an Interconnection Request that is complete, valid, and ready for study, t~~The CAISO shall establish a date agreeable to the Interconnection Customer and the applicable Participating TO(s) for the Scoping Meeting. All Scoping Meetings shall occur no later than June 30, unless otherwise mutually agreed upon by the Parties. The CAISO shall evaluate whether the Interconnection Request is at or near the boundary of an affected Participating TO(s) service territory or of any other Affected System(s) so as to potentially affect such third parties, and, in such case, the CAISO shall invite the affected Participating TO(s), and/or Affected System Operator(s) in accordance with Section 3.7, to the Scoping Meeting by informing such third parties of the time and place of the scheduled Scoping Meeting as soon as practicable.

The purpose of the Scoping Meeting shall be to discuss reasonable Commercial Operation Dates and alternative interconnection options, to exchange information including any transmission data that would reasonably be expected to impact such interconnection options, to analyze such information and to determine the potential feasible Points of Interconnection and eliminate alternatives given resources and available information. The applicable Participating TO(s) and the CAISO will bring to the meeting, as reasonably necessary to accomplish its purpose, the following: (a) such already available technical data, including, but not limited to, (i) general facility loadings, (ii) general instability issues, (iii) general short circuit issues, (iv) general voltage issues, and (v) general reliability issues, and (b) general information regarding the number, location, and capacity of other Interconnection Requests in the Interconnection Study Cycle that may potentially form a Group Study with the Interconnection Customer's Interconnection Request.

The Interconnection Customer will bring to the Scoping Meeting, in addition to the technical data in Attachment A to Appendix 1, any system studies previously performed. The applicable Participating TO(s), the CAISO and the Interconnection Customer will also bring to the meeting personnel and other resources as may be reasonably required to accomplish the purpose of the meeting in the time allocated for the meeting. On the basis of the meeting, the Interconnection Customer shall designate its Point of Interconnection. The duration of the meeting shall be sufficient to accomplish its purpose.

The CAISO shall prepare minutes from the meeting, and provide the Interconnection Customer and the other attendees an opportunity to confirm the accuracy thereof, that will include, at a minimum, discussions among the applicable Participating TO(s) and the CAISO of the expected results and a good faith estimate of the costs for the Phase I Interconnection Study.

Attachment C – Draft Final Proposal

Specify Minimum Requirements for Interconnection Requests

California Independent System Operator Corporation

2018 Interconnection Process Enhancements

Addendum #2 to Draft Final Proposal

December 21, 2018

Table of Contents

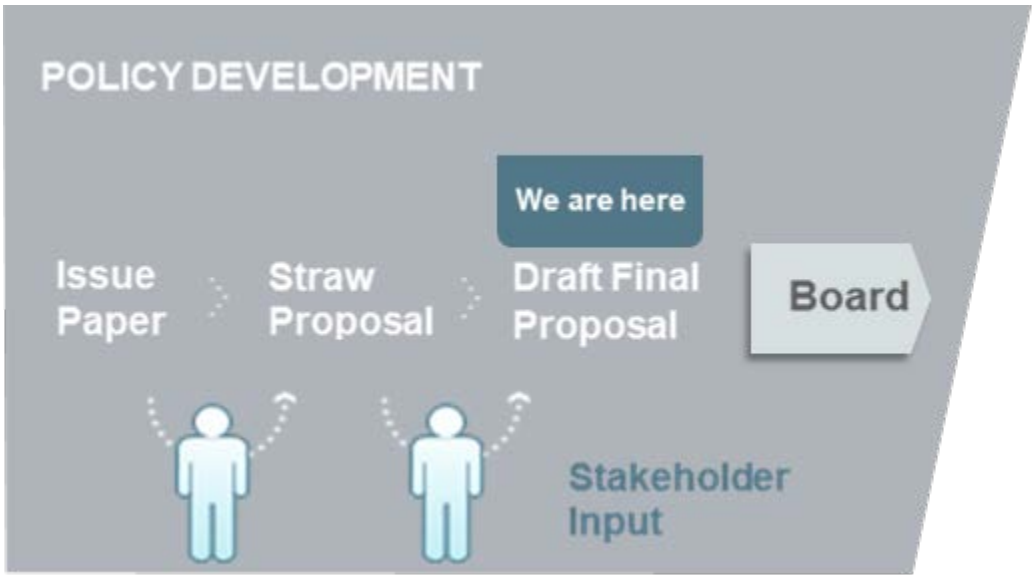
1. Introduction

Previous iterations of the California Independent System Operator Corporation's (CAISO) Interconnection Process Enhancement (IPE) initiative focused on several enhancements to the CAISO's interconnection and deliverability allocation procedures. The 2018 IPE addresses some substantial concepts, but also a myriad of minor concepts that have not been addressed in some time, along with issues that have surfaced since the 2015 IPE that need to be resolved. This addendum #2 to the draft final proposal reviews topics still under development as well as two recently added topics. Topics included in the 2018 IPE initiative fall into six broad categories; deliverability, energy storage, generator interconnection agreements, interconnection cost responsibility and financial security, interconnection requests, and modifications.

2. Stakeholder Process

The 2018 IPE stakeholder process is now at the Addendum #2 to the Draft Final Proposal stage. Figure 1, below, shows the current status within the overall 2018 IPE stakeholder process. This addendum #2 to the draft final proposal provides further discussion on maximum cost responsibility and two recently added topics regarding interconnection request acceptance and validation criteria. The two recently added topics are a direct result of recent experiences with the cluster 11 validation process and the ISO believes these topics need to be addressed, and seeks resolution in time for the upcoming cluster 12 application window. The CAISO has reviewed and considered stakeholder feedback provided through comments submitted on the addendum to the draft final proposal and has incorporated and addressed these comments in this addendum to the draft final proposal.

Figure 1: Stakeholder Process for 2018 IPE Stakeholder Initiative



3. Scope

Topics included in track 1 were finalized in the straw proposal and were approved at the July 2018 Board of Governors meeting, topics in track 2 were finalized in the revised straw proposal and were approved at the September 2018 Board of Governors meeting, and topics in track 3 will be presented at the November Board of Governors meeting. The table below reflects the total scope for this initiative and includes the identification of the Board of Governors meetings that each topic included in this initiative has been or will be presented for approval. Track 4 was added following the September 17, 2018 Stakeholder meeting to allow further discussion around topic 7.1 Maximum Cost Responsibility for NUs and two new topics 11.1 and 11.2 regarding interconnection request acceptance and validation criteria. The CAISO intends to present these track 4 topics to the February 2019 Board of Governors meeting in order to allow the resultant tariff revisions to be approved before the next cluster window opens on April 1. We thank you in advance for your prompt review and response to the compressed timeline of this proposal.

Table 1: Overall Topic Status

Category	Section	Topic	Targeted Board of Governors Meeting
Deliverability	4.1	Transmission Plan Deliverability Allocation	September 2018
	4.2	Balance Sheet Financing	September 2018
	4.3	Participating in the Annual Deliverability Allocation	September 2018
	4.4	Change in Deliverability Status to Energy Only	September 2018
	4.5	Energy Only Projects' Ability to Re-enter the Queue for Full Capacity	September 2018
	4.6	Options to Transfer Deliverability	September 2018
Energy Storage	5.2	Replacing Entire Existing Generator Facilities with Storage	BPM Change
Generator Interconnection Agreements	6.1	Suspension Notice	September 2018
	6.2	Affected Participating Transmission Owner	November 2018
	6.3	Clarify New Resource Interconnection Requirements	July 2018
	6.4	Ride-through Requirements for Inverter-based Generation	November 2018
Interconnection Financial Security and Cost Responsibility	7.1	Maximum Cost Responsibility for NUs and potential NUs	February 2019
	7.3	Eliminate Conditions for Partial IFS Recovery upon Withdrawal	September 2018
	7.5	Shared SANU and SANU Posting Criteria Issues	BPM Change
	7.6	Clarification on Posting Requirements for PTOs	July 2018
	7.7	Reliability Network Upgrade Reimbursement Cap	November 2018
	7.9	Impact of Modifications on Initial Financial Security Posting	July 2018
Interconnection Requests	8.1	Study Agreements	July 2018
	8.4	Project Name Publication	September 2018
Modifications	9.1	Timing of Fuel Type Changes	September 2018
	9.2	Commercial Viability – PPA Path Clarification	September 2018
	9.3	PPA Transparency	July 2018
	9.4	Increase Repowering Deposit	July 2018
	9.5	Clarify Measure for Modifications After COD	July 2018
	9.6	Short Circuit Duty Contribution Criteria for Repower Projects	BPM Change
Interconnnection Request Acceptance and Validation Criteria	11.1	Interconnection Request Acceptance	February 2019
	11.2	Validation Criteria	February 2019

Note: The topics in yellow were combined into one topic.

7. Interconnection Financial Security and Cost Responsibility

7.1 Maximum Cost Responsibility for Network Upgrades and Potential Network Upgrades

Background/Issue

Currently, an interconnection customer's Maximum Cost Responsibility (MCR) is established in its phase I and phase II study reports. The combined costs for reliability and local deliverability network upgrades in the phase I and phase II studies are compared, and the lower sum of the costs set the MCR for network upgrades for the project. An interconnection customer's *current* cost responsibility (*i.e.,* not necessarily its maximum) is then used to calculate its required interconnection financial security (IFS), which can change as the result of, *inter alia*, customers withdrawing from the queue. Additionally, the CAISO is aware that the current reassessment-related cost responsibility changes and the increased presence of conditional assigned (f.k.a. potential/contingent) network upgrade costs in project's study reports has created confusion around how the MCR plays out in practice. The CAISO also has observed confusion regarding when and how a given upgrade impacts the MCR and/or the current cost responsibility and IFS posting requirements.

Based on comments received on the addendum to the draft final proposal, the CAISO determined that further refinement to the proposal was warranted. The CAISO has amended its proposal in this addendum #2 as further specified below.

To avoid similar or duplicate acronyms, the CAISO is converting the use of *potential* network upgrades to *conditionally assigned* network upgrade.

The following terms and acronyms are used throughout this paper and further defined below:

- Assigned Network Upgrade (ANU)
- Conditionally Assigned Network Upgrade (CANU)
- Interconnection Service Reliability Network Upgrades (ISRNU)
- Precursor Network Upgrades (PNU)
- Current Cost Responsibility (CCR)
- Maximum Cost Responsibility (MCR)
- Maximum Cost Exposure (MCE)

Stakeholder Input

For purposes of clarification in this addendum #2, the CAISO generally refers to LSA, SPower, Nextera, EDF-Renewables (EDF-R), First Solar, Intersect Power, and Avangrid renewables (and sometimes, generally speaking, the generation developer community) collectively as "generators" or "developers" and further refer to PG&E, SCE, and SDG&E collectively as the "PTOs".

LSA, SPower, Nextera, EDF-Renewables (EDF-R), and First Solar have provided comments to numerous issues relative to this topic as follows:

The developers believe there are serious implications for generators with certain cost impacts and

increased uncertainty around cost exposure, project financing, and potential buyers. First Solar asks the CAISO to consider a proposal that does not increase the MCE, MCR, or financial postings from current practice.

1. **Maximum Cost Exposure adjustment downward:** the developers support the concept of adjusting the MCE downward with the MCR, pursuant to Appendix DD, Section 7.4, with the understanding that it could increase with the MCR if the situation were to occur.
2. **Identification and treatment of ISRNUs:** the developers believe the treatment and allocation of ISRNUs should be the same as other network upgrades and believe the CAISO has not adequately explained why these upgrades should be subject to more stringent requirements. Further, developers believe that if multiple projects share ISRNUs that are actually built then inclusion of the full cost of the upgrade in the MCR serves no purpose. Overall, developers propose that the CAISO include the allocated cost of an ISRNU as an ANU and the balance as a CANU, where the remaining amount could become that project's responsibility if the allocation changes.
3. **PTO network upgrade cost responsibility milestone to posting of third IFS:** the developers are opposed to changing the point at which a PTO becomes responsible for the cost of a network upgrade to the posting of the third IFS. They believe there is not sufficient evidence that the PTOs are actually harmed by the current practice of PTOs becoming responsible for backstopping a network upgrade at the execution of a GIA. Further, the developers believe the non-refundable amounts should cover the financing costs associated with backstopping a network upgrade.
4. **CANU allocation treatment in the Phase I study:** the developers believe that the 100% allocation of all CANUs in the Phase I study provides an unrealistic view of a project's true potential cost and could hinder projects starting to seek PPAs following their Phase I study. They note that the proposal provides no historical evidence of "gaming" and that the proposal ignores the significant cost of submitting an interconnection request.
5. **Projects needing to fund a PNU or CANU early to achieve COD or deliverability:** the developers believe projects should not be required to fully fund a PNU or CANU if needed for the later cluster project to achieve COD or obtain deliverability, and that they should only be responsible for the "expediting" costs of such upgrades. Developers believe Appendix DD, Section 14.2.2 should be adjusted to extend to network upgrades for deliverability required for later-queued projects. And further, the CAISO should retain the current requirement that ICs must fund only the cost to expedite upgrades, not the entire upgrade cost.
6. **RNU reimbursement cap impacts from CANU-to-ANU conversion:** the developers oppose the concept that when a CANU is converted to an ANU, the addition of converted RNUs will impact the total reimbursement cap established for such RNUs. They believe that when a CANU RNU is converted to an ANU RNU, the upgrade should not impact the RNU reimbursement cap.
7. **Additional developer reimbursement when later-queued projects utilize previously developed RNU:** the developers would like the opportunity to be reimbursed by later-clustered projects that use a RNU developed by current cluster where the RNU costs

exceeded the RNU Reimbursement Cap. Developers understand the complexity of the topic and have provided what they believe to be a simplified proposal in their recent comments.

Intersect Power provided comments asking about the implementation and timing impacts of cost-shift of network upgrades from GIA execution to posting of the third IFS. Further, Intersect Power agrees with LSA that the MCE should be adjusted downward with and according to the MCR reduction allowed in Appendix DD, Section 7.4.

Avangrid Renewables supports the CAISO's proposal to provide policy clarifications and structure to the existing framework though new definitions, however, opposes a number of the proposed policy items. Avangrid believes that the potential for gaming is unlikely when CANUs would be allocated in the Phase I study and notes the significant cost of submitting interconnection requests. Avangrid also requested that CAISO further clarify in what instances an increase of the MCR could occur after it is reduced according to Appendix DD, Section 7.4. Additionally, specific to the proposal, Avangrid believes the proposal imposes greater cost uncertainty over a longer period of time compared to existing policy; namely, the posting of the third IFS for PTOs to backstop the cost responsibility of a network upgrade. Avangrid is asking the CAISO to clarify the timing and impact of future and prior cluster projects due to the changes proposed. Lastly, Avangrid supports LSA's comments specific to ISRNU definition and treatment as well as the RNU reimbursement impacts of CANU-to-ANU conversions.

PG&E, SCE, and the Six Cities strongly support the Addendum to Draft Final proposal and believe it to be a balanced between the risk and cost allocation and responsibility between interconnection customers and PTOs. SDG&E has no objections to the addendum to draft final proposal.

SCE noted a few key points as follows:

1. SCE is aware of situations where developers have executed GIAs and have not proceeded to commercial operation in a timely manner. Generators use various tactics (like suspension or COD extensions) to delay start of construction and third postings and do not believe the GIA execution to be a good indicator that a project will truly construct a project.
2. SCE also references a situation where a project withdrew after executing a GIA that subsequently required SCE to backstop the financing and construction of an upgrade. In this situation, SCE stepped up and provided the required financing beyond the non-refundable fund amount from the withdrawn project.
3. SCE notes that they have experienced situations where developers have significantly slowed their pace of development following the execution of their GIA, therefore delaying their third posting. This resulting in the developer having more time to achieve a PPA, financing, and permitting, or not, and determine whether to withdrawal or proceed with development. Overall, SCE believes posting of the third IFS to be an appropriate point for the PTO to inherit responsibility for an upgrades cost due to the projects withdrawal.

PG&E believes the proposal and definitions proposed provide clarity and transparency to customers such that the terms and cost responsibility is clearly defined. Further, PG&E

supports the change to the trigger for removing a CANU from a project to the posting of the third IFS such that it protects the PTO from time and resource investments from potentially less-viable projects.

The Six Cities support the revised definitions and components of and adjustments to the MCR and MCE as proposed. The Six Cities observe that maintaining the MCE at the true potential cost exposure of the project, without adjustment downward will likely provide greater certainty and may minimize controversy regarding potential financing exposure that could occur if the MCE is adjusted upward and downward with the MCR.

CAISO's response to stakeholder comments

The CAISO appreciates the direct and descriptive stakeholder comments received following the addendum to the draft final proposal. The CAISO provides the following in response to the seven items established above and to individual stakeholder comments and questions.

1. **Maximum Cost Exposure adjustment downward:** CAISO agrees that it is reasonable to allow a downward adjustment the MCE in the same manner as the MCR is adjusted per Appendix DD, Section 7.4. It is important to note that the MCE can also increase based on the same requirements as the MCR in Section 7.4. This change is effectuated in the proposal below.

   Some developers also requested an explanation of how MCR could increase after it has decreased. Unforeseen system changes could occur where the scope of a previously identified upgrade increases or a new upgrade is now needed in a subsequent reassessment. While such circumstances are rare, they have occurred in the past and the current CAISO tariff provisions in Appendix DD, Section 7.4 allow for such an adjustment.

2. **Identification and treatment of ISRNUs:** the CAISO considered alternative options to change the treatment of ISRNUs by segregating the allocated and non-allocated ISRNUs between the MCR and MCE. In doing so, the CAISO determined that segregating ISRNUs between the MCR and MCE created extreme challenges and significant administrative burden for defining, calculating, and tracking a project's true MCR throughout the life of a project. More specifically, without including the full allocated cost of an ISRNU in the MCR, the process to define a MCR and provide an opportunity for adjustment downward according to Appendix DD, Section 7.4 became overly complex. This situation resulted in a complex process of tracking the cost of each upgrade for every project, which study each upgrade's allocation change occurred in, and which upgrade cost actually contributes to the MCR from each study. Therefore, the CAISO will not make adjustments to the separation of ISRNUs within the MCR and MCE. As defined above, 100% of an ISRNU will remain within a project's MCR and the project will only be required to post IFS on that allocated ISRNU cost.

3. **PTO network upgrade cost responsibility milestone to posting of third IFS:** the CAISO understands the generator community concerns that moving the milestone where a PTO assumes cost responsibility for network to the 3rd financial posting will add additional uncertainty to project development. The CAISO also understands the PTOs concern that assuming cost responsibly for network upgrades too early in the development process increases the PTO's financial risk. The ISO has reviewed this issue and believes there is

a compromising solution. The CAISO notes that there are two competing tariff requirements around executing a GIA, 1) the concept of executing a GIA just-in-time to begin construction of network upgrades[1], and 2) that generators must execute a GIA in order to retain its TPD allocation[2]. This second provision requires the PTOs and the generators to execute a GIA very early in the development process, and therefore increases the probability that a number of these projects will ultimately withdraw and therefore the PTO will assume the network upgrade cost responsibility for still needed upgrades. As such, the CAISO is changing this proposal such that it will retain the point at which the PTO becomes responsible for a network upgrade as the GIA execution, and proposes to remove the requirement for interconnection customers to execute a GIA to retain its TPD allocation. This will better align GIA execution with posting financial security toward construction.

4. **CANU allocation treatment in the Phase I study:** the CAISO understands the generator community concerns regarding the belief that the 100% allocation of all CANUs in the Phase I study provides an unrealistic view of a project's true potential cost and could hinder a projects starting to seek PPAs following their Phase I study. The PTOs and Six Cities appreciate that the proposal provides clarity and transparency to the cost allocations and true cost exposure of a project. The CAISO has reviewed this issue and the developer's suggested compromise and agrees that CANUs can be assigned an allocated cost in the phase I study. Given this agreement, it is important to ensure it is clear and defined that the final MCE will be defined in the Phase II study. The MCE created in the Phase I study is preliminary, not fixed, and could increase based on adjusted allocations to its CANUs in the phase II study. The CAISO does not believe it is reasonable to allow the phase I study to establish a projects final MCR because of the typically high withdrawal rate between phase I and phase II.

   The CAISO understands, based on historical stakeholder comments, that interconnection customers oppose the uncertainty of the MCEs' potential to adjust upward in the phase II study. However, the CAISO supports a process that allows for a final MCE to be defined in the phase II study and not be artificially deflated (by number of requests whether by the same or multiple customers). The CAISO believes the allocation of CANUs in Phase I as proposed in this addendum #2 is a reasonable adjustment to the CAISO's proposal in the first addendum to the draft final proposal where 100% of the CANU's cost was assigned to the project's MCE in phase I. The CAISO does not believe that any further accommodation of removing the cost signal of a CANU from a projects cost responsibility is appropriate. To do so would increase cost responsibility uncertainty for individual projects and or greatly increase cost risk to the PTOs.

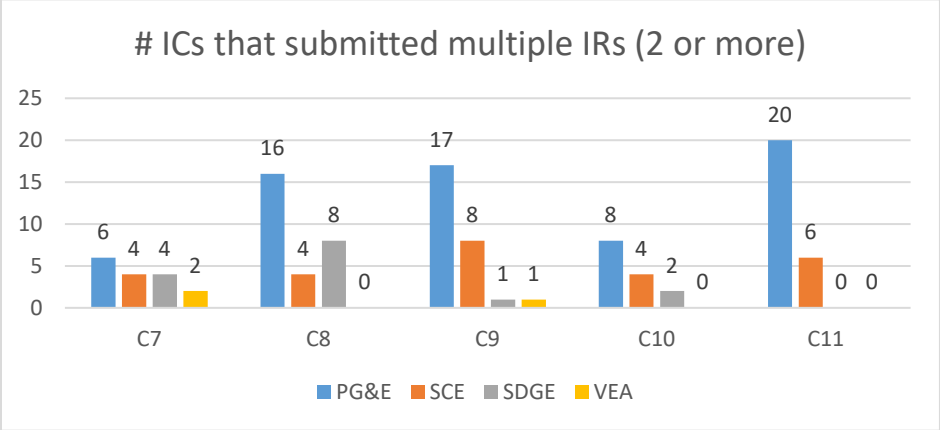
   Further, developers asked the CAISO to provide scenarios where gaming has occurred regarding interconnection customers submitting multiple interconnection requests to intentionally dilute the cost allocation of upgrades. The CAISO does not have sufficient visibility into developers' intent in submitting interconnection requests to determine

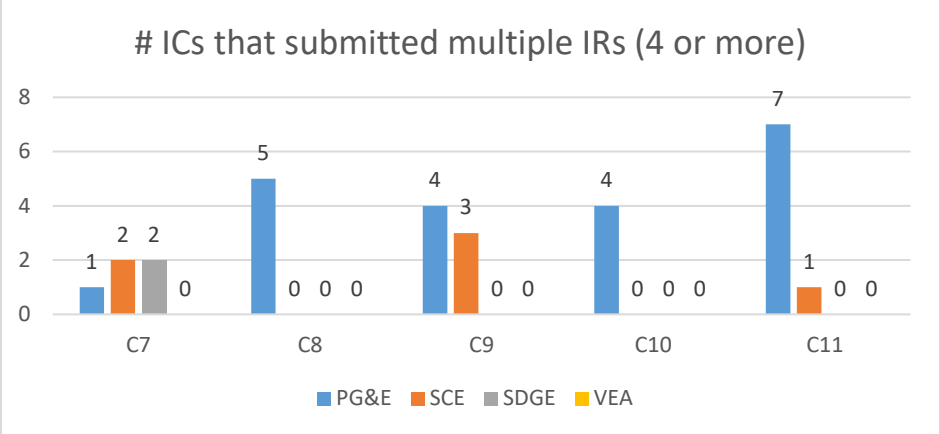
[1] Appendix DD, Section 13.1.1 – Tendering of generator interconnection agreement

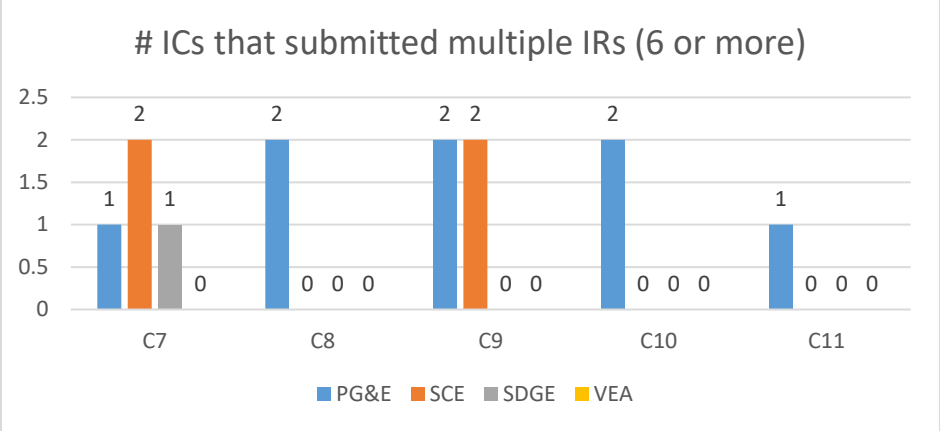
[2] Appendix DD, Section 8.9.3(3) – Criteria for retaining TP deliverability allocation

whether gaming is the intent. The CAISO's intention with this proposal is to eliminate this situation from occurring. While the CAISO considers the gaming issue to be of less significance than the issues described above, the following information is provided in response to the stakeholder request.

Over the past 5 clusters (7 through 11), 112 interconnection customers have submitted 2 or more interconnection requests within the same PTO area, 29 have submitted 4 or more, and 13 have submitted 6 or more. These figures indicate that interconnection customers are capable of submitting multiple interconnection requests to an area that could be sharing the same set of CANUs. The following Charts depict the values noted above:







5. **Projects needing to fund a PNU or CANU early to achieve COD or deliverability:** The CAISO notes that there is a distinction between a PNU, where a GIA was previously executed, and a CANU, where no GIA has been executed. The CAISO does not intend to change the applicability of the existing Appendix DD, Section 14.2.2 for later cluster projects that would like to proceed where a previous cluster required to build an upgrade that has executed a GIA, and therefore this upgrade is identified as a PNU for the later cluster. In item 3 below, the CAISO merely notes that, because no previous clusters have executed a GIA, the later cluster needing the CANU early (in order to achieve COD or deliverability) must post IFS for and fully fund that upgrade. The CAISO does not support a situation where the PTO or others are required to fund an upgrade when a GIA has not been executed and no interconnection customer or PTO has committed to constructing the upgrade.
6. **RNU reimbursement cap impacts from CANU-to-ANU conversion:** The CAISO does not agree with excluding the cost of CANUs (when CANUs convert to ANUs) from the RNU reimbursement cap calculation. An RNU identified as a CANU (because a GIA has not been executed) that is converted to an ANU will add to the total cost of RNUs and be subject to the RNU reimbursement cap. The CAISO implemented in a previous IPE track to adjust the reimbursement cap based on industry indices and believe this to be a reasonable solution to ensuring interconnection customers are refunded a fair value for the RNUs identified for their project. Frequently, interconnection customers withdraw projects that have high RNU costs, and to shelter later-cluster projects from these same high RNU costs would result in ratepayers paying for high costs that the reimbursement policy is intended to protect against.
7. **Additional developer reimbursement when later-queued projects utilize RNU previously developed:** consistent with our response in Track 3, the CAISO continues to note that this topic is not in the 2018 IPE scope. Further, introducing a new topic at this stage of the 2018 IPE process, particularly one the CAISO has grappled with in the past and knows to be complex, would not provide enough time to effectively evaluate and achieve a resolution.

CAISO's Response and Proposal

The CAISO is amending its proposal in this addendum #2 to the draft final proposal and attempts to respond to all stakeholder comments and balance the concerns of providing reasonable cost certainty for upgrades for all participants and ensure accurate cost allocations and responsibility are assigned and at the appropriate time. The proposal recognizes that the cost certainty concerns also apply to the PTOs and ratepayers and seeks to not increase cost risks to PTOs inappropriately. The CAISO believes the following definitions and amended proposal provides the right balance for maintaining consistency with current tariff requirements and CAISO practices that are not explicitly provided for in the current tariff, but have been used historically (specifically, the allocation of conditionally assigned network upgrade costs in a manner consistent with cost allocations for assigned network upgrades).

In response to stakeholder comments and suggestions, among other things, the proposal:

1. Proposes to adjust the MCE downward with the MCR, pursuant to Appendix DD, Section 7.4, with the understanding that it could increase with the MCR if the situation were to occur.
2. Identifies each ISRNU as 'allocated ISRNU' and 'non-allocated ISRNU' for the purposes of defining cost responsibility within the CCR and MCR.
3. As an alternative to the prior proposal's changing the point at which a PTO becomes responsible for the cost of a network upgrade to the posting of the third IFS, the CAISO proposes to retain the GIA as the point at which a PTO becomes responsible for network upgrade costs and appropriately align the execution of GIAs in the projects development process by removing the execution of a GIA from the TPD retention requirements.
4. Proposes to allocate non-ISNU CANUs per Appendix DD, Section 8.3 for RNUs and 8.4 for LDNUs, with the understanding that the potential revised allocation of such CANUs in Phase II can cause the MCE to increase.
5. Provides clarification as to the impacts of a project that needs to fund a PNU or CANU early in order to achieve COD or deliverability.
6. Clarifies that the RNU reimbursement cap can be impacted from a CANU-to-ANU conversion.
7. Clarifies that additional reimbursement to developers when later-queued projects utilize RNU previously developed by that developer is not within scope of this IPE paper.

The CAISO's amended proposal is a framework for overall upgrade assignments and associated cost responsibility as well as proposed definitions related to upgrades and cost responsibilities. They are:

Proposed Definitions:[3]

Assigned Network Upgrade (ANU): *Reliability and Local Delivery Network Upgrades for which the Interconnection Customer has a direct cost responsibility. Assigned Network Upgrades exclude Conditionally Assigned Network Upgrades until, or unless, they become Assigned Network Upgrades.*

Conditionally Assigned Network Upgrade (CANU): *Reliability and Local Delivery Network Upgrades whose cost responsibility is assigned to an earlier Interconnection Customer, but which may become the responsibility of the Interconnection Customer.*

Interconnection Service Reliability Network Upgrades (ISRNU): *Reliability Network Upgrades at the Point of Interconnection to accomplish the physical interconnection of the generator to the CAISO Controlled Grid. Conditionally Assigned Network Upgrades can be identified as Interconnection Service Network Upgrades.*

Precursor Network Upgrades (PNU): *Network Upgrades required for an Interconnection Customer, consisting of (1) Network Upgrades whose cost responsibility is assigned to an earlier Interconnection Customer that has* executed its GIA*; and (2) Network Upgrades in the approved CAISO Transmission Plan.*

Current Cost Responsibility (CCR): *The sum of the Interconnection Customer's current allocated costs for (1) Assigned Network Upgrades and (2) the current allocated cost for Interconnection Service Reliability Network upgrades, not to exceed the Maximum Cost Responsibility. This cost is used to calculate the Interconnection Customer's Interconnection Financial Security requirement.*

Maximum Cost Responsibility (MCR): *Pursuant to Appendix DD, the lower sum of an Interconnection Customer's (1) Assigned Network Upgrade costs, and (2) Interconnection Service Reliability Network Upgrades, from its Phase I or Phase II Interconnection Studies, which may be adjusted if a subsequent reassessment converts Conditionally Assigned Network Upgrades to Assigned Network Upgrades.*

Maximum Cost Exposure (MCE): *The sum of (1) the Interconnection Customer's Maximum Cost Responsibility and (2) the sum of the Interconnection Customer's Conditionally Assigned Network Upgrades from its Phase I or Phase II Interconnection Study, where the Maximum Cost Exposure established in the Phase II Interconnection Study defines the project's final Maximum Cost Exposure.*

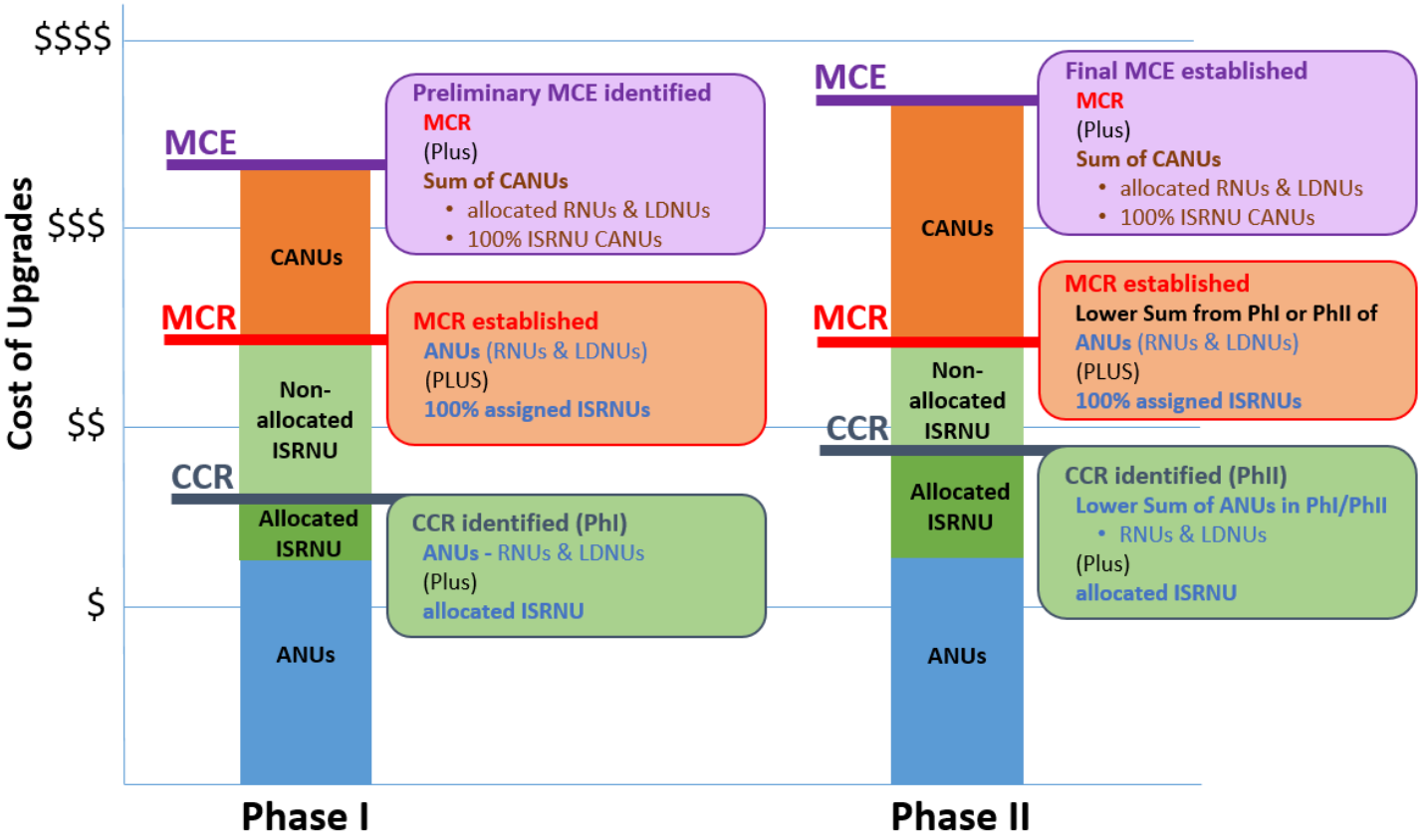
[3] The CAISO notes that these definitions are included to better understand the policy discussed herein. The CAISO Board of Governors approves policy; not specific tariff revisions, which the CAISO and stakeholders discuss separately near the conclusion of the policy process. Although the CAISO does not anticipate substantial changes to these definitions, the CAISO may change them—so long as they are consistent with the Board-approved policy—up to when it files its tariff revisions with FERC.

Amended proposal for upgrade assignments and cost responsibility:

Incorporating the definitions above, the CAISO proposes the following modified approach to the assignment and cost allocation of network upgrades. The following depiction is intended to summarize how all the following factors play-out in the Phase I & Phase II and related MCR & MCE:

Key takeaways:

- Phase I includes allocated % of cost responsibility for CANUs (instead of 100%)
  - Except ISRNU CANUs – allocated 100%
- ISRNUs are assigned 100% cost responsibility within the phase I & phase II MCR
- Phase I MCE is preliminary identification only – Final MCE established in phase II
- MCE can increase or decrease between phase I and phase II
- MCR can increase up to Phase II MCE when CANUs convert to ANUs
- CCR can increase up to the MCR if ISRNU allocations are adjusted
- MCE can decrease when CANUs are removed from IC responsibility



1. An interconnection customer is assigned network upgrades and associated cost responsibility for the following three components in its phase I and phase II study reports:

    a. Assigned network upgrades

    b. Conditionally assigned network upgrades

    c. Interconnection service reliability network upgrades

    Conditionally assigned network upgrades could be identified as an Interconnection Service Reliability Network Upgrade (ISRNU-CANU) as described in item 4 below.

2. Cost allocation of **assigned network upgrades** will follow the current provisions in tariff Appendix DD, Section 8.3 for RNUs, and 8.4 for LDNUs. (refer to item 4 below for treatment of ISNRU)

3. Cost allocation of **conditionally assigned network upgrades** is as follows:

    a. The phase I cost responsibility for CANUs will follow the current provisions in tariff Appendix DD, Section 8.3 for RNUs and 8.4 for LDNUs when the upgrade is required to interconnect or achieve requested deliverability status.

    A MCE will be provided in the phase I study, however, it is important to note that the MCE in phase I is preliminary only. The MCE may increase in Phase II due to allocation changes of CANUs in the phase II studies – at which point item b. below will take effect (a final MCE is established).

    The CAISO is aware of and understands the tension between having a MCE that will not increase from phase I to phase II (Addendum 1 proposal to allocate 100% CANU costs in Phase I and then allocate percent share in Phase II) and not being saddled with a 100% cost responsibility for CANUs in phase I. For purposes stated in the CAISO's comments above, this proposal seeks to find a solution to not saddle developers with the highest possible MCE in the phase I study, but allow the MCE to increase in phase II. This proposal further provides the PTOs greater certainty and understanding of financial risk, while not hindering developers with excessive cost signals in the phase I study reports.

    The CAISO believes the allocation of CANUs in Phase I, as proposed in this addendum #2, is a reasonable adjustment to the CAISO's proposal in the first addendum to the draft final proposal where 100% of the CANU's cost was assigned to the project's MCE in phase I. The CAISO does not believe that any further accommodation of removing the cost signal of a CANU from a projects cost responsibility is appropriate. To do so would increase cost responsibility uncertainty for individual projects and or greatly increase cost risk to the PTOs.

    b. The phase II cost responsibility for CANUs will also follow the current provisions in tariff Appendix DD, Section 8.3 for RNUs and 8.4 for LDNUs.

    The cost allocation for CANUs assigned in a project's Phase II study will establish a fixed-cost for each CANU for the sole purpose of establishing the MCE for the project and for adjusting the MCR and MCE when applicable (as discussed

herein). At the time a CANU is converted to an ANU, the project's MCR will increase by an amount equal to that upgrade's fixed-cost established in that project's phase II study. At the time the CANU is removed from a projects responsibility, the MCE will be reduced by an amount equal to that upgrade's fixed-cost established in that project's phase II study.

Said another way for clarification, the fixed-cost for each CANU in the phase II study as established above is only used to 1) adjust the MCR upward when the CANU is converted and an ANU, or 2) adjust the MCE downward when the CANU is removed from a project's responsibility. When the CANU is converted to an ANU, all ANU cost allocations are recalculated based on the number of remaining projects that have cost responsibility for the ANUs. The sum of a project's revised ANU cost allocations are assigned to the project and any costs that exceed the MCR become the responsibility of the PTO.

A CANU stops being a CANU and becomes a precursor network upgrade when at least one of the prior cluster project executes its GIA. In that event, later cluster project(s) will no longer have cost responsibility for that network upgrade.

A CANU stops being a CANU and becomes an assigned network upgrade when all prior cluster projects allocated a cost responsibility (assigned or conditionally) for the network upgrade withdraw without having executed its GIA. Once the CANU is converted to an ANU, the ANU is just like any other ANU and, in accordance with current tariff policy for reassessment studies, may create headroom for other ANUs up to the projects MCR. Moreover, after the CANU is converted to an ANU, a project's cost allocation for the ANU may then adjust (up or down) in a reassessment study, similar to other ANUs, up to the project's MCR. Any costs allocated above the MCR become the responsibility of the PTO.

Eligibility for adjustments to the MCR will follow Section 7.4 of Tariff appendix DD. Additionally, after a CANU is converted to an ANU, the increased cost may impact the RNU reimbursement cap.

No IFS postings are made for CANUs. IFS postings are only required when a CANU becomes an ANU, as discussed below.

The CAISO believes that the proposed approach for allocating CANUs in phase I and the allocated fixed-cost established in phase II is a fair and reasonable solution to interconnection customers' request to improve the cost allocation methodology[4] and their request for clear cost certainty. A significant number of projects withdraw from the queue between phase I and phase II, and, unlike network upgrades triggered within a cluster study group, CANUs will typically not go away due to withdrawals between phase I and phase II. This could result in the phase I allocation of CANU costs being very low per project and the phase II allocated costs being significantly higher, based on the smaller

[4] The Draft Final Proposal proposed that a CANU be included in the MCR and that any time a CANU is removed from a project's MCR, it may provide headroom within the MCR for increasing cost allocations of a project's other ANUs through the reassessment study process.

number of projects left needing the CANU in the phase II study. This methodology provides for a more realistic scope and impact to those projects that proceed through the phase II study. It also eliminates any potential gaming opportunity for interconnection customers to submit multiple projects into a cluster only to intentionally dilute the phase I CANU cost allocations and reduce the MCE[5]. It also provides more certainty to the PTOs regarding the potential cost risk associated with those upgrades required by clusters later than the currently assigned cluster.

If the interconnection customer wishes to achieve its commercial operation date before its CANU(s) are completed by the cluster/project that is currently funding such upgrades, if no project that currently has the CANU as an ANU has executed a GIA, that interconnection customer must post and fully fund the reliability CANU(s) required for the interconnection in lieu of the earlier-queued cluster. The CAISO merely notes that because no previous clusters have executed a GIA the later cluster needing the CANU early (in order to achieve COD or deliverability) must post IFS for and fully fund that upgrade. The CAISO does not support a situation where the PTO or others are required to fund an upgrade when a GIA has not been executed and no interconnection customer or PTO has committed to constructing the upgrade. The CAISO notes that interconnection customers have only desired to achieve commercial operation ahead of such CANUs in very few circumstances, and in those situations the CAISO and PTO worked to find case-by-case solutions. The CAISO anticipates that if this situation arises again, other options may be available, and the CAISO and PTO would work with the interconnection customer to identify potential solutions in addition to those identified above.

4. The treatment and cost allocation for **upgrades identified as ISRNUs** is as follows:

    a. The treatment and cost allocation for **CANUs identified as ISRNUs** (ISRNU CANUs) is as follows:

        The allocation of cost responsibility for CANUs that are identified as ISRNUs will be fully allocated (100% cost responsibility) within the MCE in the phase I and phase II study to each generation project that requires the upgrades to interconnect.

        At the time a CANU identified as an ISRNU becomes the responsibility of the current cluster/project and the project is allocated all or a portion of the cost, the allocated portion will convert to an 'allocated ISRNU' cost and, potentially, a 'non-allocated ISRNU'. The allocated-ISRNU will be included in the projects CCR and MCR and the non-allocated ISRNU will be included in the calculation of MCR.

    b. The treatment and cost allocation for **assigned RNUs identified as ISRNU**s is as follows:

        i. **'allocated ISRNUs'** is the portion of the ISRNU that is allocated to a project in any given study and that will fall within the project's CCR and MCR. Projects within a cluster requiring the same ISRNU will be allocated and share the cost for the upgrade(s) equally. This is identified as the 'allocated

[5] The CAISO only points out a potential gaming opportunity, but does not have evidence that this type of gaming has occurred in the past.

ISRNU' cost responsibility. This cost is used to calculate the interconnection customer's CRR, from which the IFS posting requirement is determined.

ii. **'non-allocated ISRNUs'** is the portion of the ISRNU cost that equals 100% of the ISRNU's cost minus the project's allocated ISRNU amount for the ISRNU. The non-allocated amount will be included in the costs that are used in the calculation of the project's MCR. [6]

Note that this is an adjustment to the previous proposal and current practice and in place to accommodate project developers as well as protect the PTOs from having to fund the ISRNU when there is only one project remaining.

Note that the allocated and non-allocated ISRNU costs will always sum to 100% of the ISRNU's cost (split between the calculations for CCR and MCR as discussed below) because, unlike other RNUs, the ISRNU is needed even for just one project and, further, is needed regardless of the capacity size of the interconnecting project. The allocated amount can change in each study (phase I, phase II and reassessments) depending on the number of projects that share the need for the ISRNU in that study, which will revise the CCR as appropriate to cover the allocated amount. This will continue up until the time of the third posting, at which time the final cost allocation will be determined based on the projects in the cluster group that remain to fund the ISRNU. At that time, the final allocations will be determined and set, with the non-allocated amounts no longer needed (and will go away), because 100% of the cost of the ISRNU will be covered by project's that have made their third postings.

An example of a non-allocated-to-allocated ISRNU cost shifting to CCR would be a scenario where 4 projects share an ISRNU in the phase II study, and therefore, each project is allocated 25% of the upgrade cost within their CCR and each project would then have 75% of the ISRNU's cost as a non-allocated ISRNU portion of the upgrade within their MCR (totaling 100% of the ISRNU's cost for each project). Then, two projects withdraw prior to reassessment 1, resulting in an incremental adjustment to the remaining two project's allocation to 50% each of the ISRNU, which will increase the CCR by an equal amount. The remaining projects would then have 50% of the ISRNU's cost as a non-allocated ISRNU amount in their respective MCRs.

5. The interconnection customer's **maximum cost responsibility** equals:

a. In Phase I

The sum of 1) the allocated ANU costs in the phase I study before the phase II study is completed, plus 2) the sum of the assigned ISRNU costs,

[6] SCE's previous comments raised a concern with "plan of service" RNUs, stating, confirmation is needed from the CAISO that plan of service RNUs will be treated differently versus other RNUs. The ISO believes that by allocating that portion allocated ISRNU within the CCR and the remaining non-allocated IRSNU in the calculation of the MCR, it achieves what SCE seeks to accomplish.

AND

b. In Phase II

The lesser sum of 1) the allocated ANU costs, plus 2) the sum of the assigned ISRNU costs, between the phase I and phase II studies

PLUS

c. CANUs that become ANUs

At the time a CANU becomes the cost responsibility of the interconnection customer (because all previous cluster projects assigned that upgrade have withdrawn without executing its GIA) the CANU converts to an ANU and becomes part of the project's MCR and within the CCR for IFS posting requirements.

At the time a CANU becomes an ANU, the project's MCR and CCR will increase by the fixed-cost of the CANU established in that project's phase II study report. The IFS postings will also increase accordingly. The project's total assigned CANU cost responsibility is reduced by the fixed-cost of the CANU converting to an ANU.[7] The MCE will remain unchanged when CANUs are converted to ANUs because its cost switches from being a portion of the MCE (above the MCR) to being a portion of the CCR (below the MCR).

PLUS

d. ISRNU CANUs that become allocated to a project

At the time a CANU identified as an ISRNU becomes the cost responsibility of the interconnection customer (because all previous cluster projects assigned that upgrade have withdrawn without executing its GIA), that portion of the allocated ISRNU becomes part of the project's MCR and CCR for IFS posting requirements. The MCR will increase by an equal amount of that now allocated ISRNU. That portion of the non-allocated ISRNU remains within the calculation that determines project's MCR.

Eligibility for adjustments to the MCR will continue to follow Appendix DD, Section 7.4.

[7] For example, if cluster 5 triggered an upgrade, it is considered a CANU for cluster 6, cluster 7, and cluster 8 if no projects in cluster 5 requiring the upgrade has executed its GIA. When all applicable cluster 5 projects withdraw, the upgrade becomes an assigned upgrade for cluster 6, but remains a CANU for cluster 7 and cluster 8.

In this example, assuming all cluster 5 projects withdrawal and a cluster 6 project executed its GIA, the CANU becomes an assigned network upgrade and that project becomes responsible for the fixed-costs of the CANUs as identified in that Cluster 6 project's Phase II study report. Such fixed-costs will then be included in the project's MCR and CCR and the project must then post additional financial security for that now ANU. Then, for cluster 7, cluster 8, and any future cluster, that network upgrade now becomes a precursor network upgrade and any CANU cost responsibility is removed from those project's MCE.

6. The interconnection customer's **maximum cost exposure** is as follows;

   a. In Phase I:

   The sum of (i) MCR as defined above, and (ii) the sum of allocated costs of CANUs, and (iii) the sum of the full allocated costs of CANUs identified as ISRNUs,

   AND

   b. In Phase II

   The sum of (i) MCR as defined above, and (ii) the sum of allocated costs of CANUs, and (iii) the sum of the full allocated costs of CANUs identified as ISRNUs,

   The MCE established in the phase II study establishes a final MCE that will remain for the life of the project, except when the MCE can be reduced as discussed in c. below.

   PLUS

   c. At the time a CANU is removed from the cost responsibility of the interconnection customer (because a previous-cluster project executed a GIA or the upgrade is no longer needed), the MCE will be reduced by an amount equal to that upgrades' fixed-cost established in the project's Phase II study.

   At any time a (or a portion of the) non-allocated ISRNU cost allocation has converted to an allocated ISRNU (because a re-allocation has occurred in an interconnection or reassessment study), the CCR increases by the amount of the non-allocated portion converted to the allocated ISRNU cost and the MCE remains unchanged.

   Note that if the MCR is adjusted following Appendix DD, Section 7.4, the MCE will be adjust in an equal manner to an amount equal to the sum of 1) the new MCR, plus 2) any remaining CANUs.

7. The interconnection customer only posts **interconnection financial security** for the current cost responsibility, including 1) the ANUs, and 2) current allocated ISRNUs (those upgrades that attribute to their current cost responsibility). Interconnection customers will not post IFS for the cost of 1) CANUs (unless and until the upgrades become ANUs within the ANU Cap), or 2) that portion of non-allocated ISRNUs.

Timing and Implementation of this proposal:

The timing and implementation of topics in this section 7.1 proposal are as follows:

1. **Upgrade and cost responsibility definitions and policy:** the CAISO proposes to introduce the upgrade definitions and treatment of CCR, MCR, and MCE in the Cluster 11, Phase II studies. Previous clusters will retain their previously identified MCR and treatment of 'other potential network upgrades' (as identified in the cluster 10 and prior studies).
2. **Removal of GIA execution requirement to retain deliverability:** the CAISO proposes to implement this effective immediately following the FERC ruling for all projects that have not yet executed a GIA. Specifically, interconnection customers will not be required to execute a GIA to retain its TPD allocation at the time they submit their TPD retention affidavits in 2019 (typically due December 1).

The following examples and charts depict the establishment of a MCR and MCE, the allocation treatment of an ISRNU (including allocated costs (in MCR) and non-allocated costs (in MCE)), the conversion of a CANU to an ANU, and the removal of a CANU from a projects cost responsibility:

1) In this example, a few things occur between Phase I and Phase II:

a. ANU2 increases from $4M to $8M bringing the sum of ANUs from $7M to $11M, and

b. The allocation of the ISRNU is assigned to 3 projects in Phase I and changes from 3 projects to 2 projects (due to withdrawal) in Phase II. The allocated ISRNU cost increases from $2M to $3M (causing the CCR to increase), and

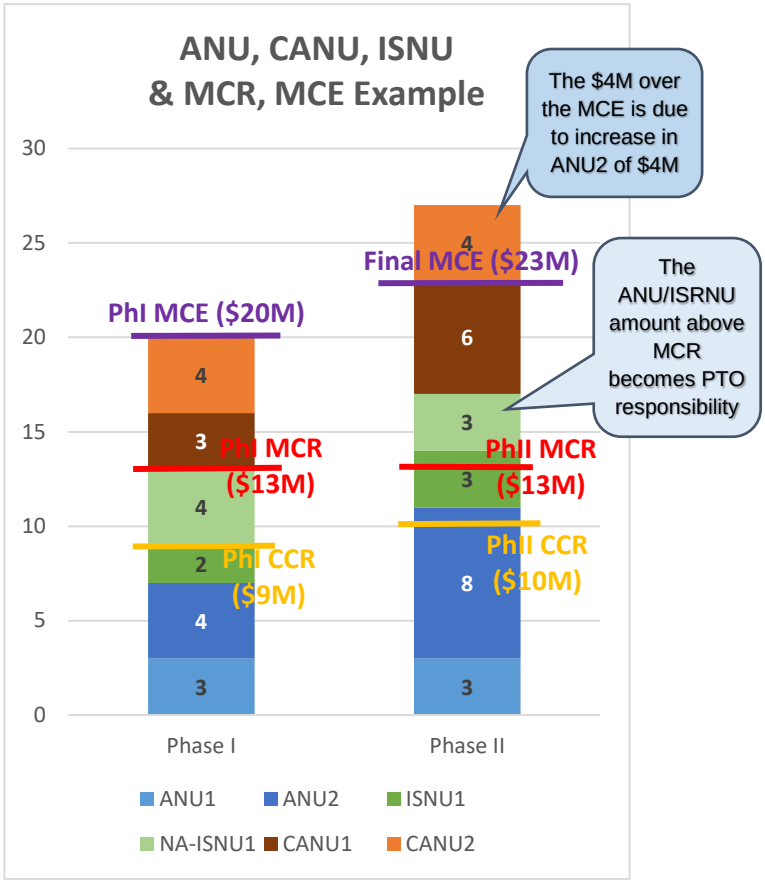
c. The allocation of CANU1 increases from $3M to $6M (causing the MCE to increase).

In Phase I:

a. The CCR is established by the sum of 1) ANUs, plus 2) the allocated ISRNU cost. In this case $9M (3+4+2)

b. The MCR is established by the sum of 1) ANUs, plus 2) 100% allocated ISRNU cost. In this case $13M (3+4+2+4), and

c. The preliminary MCE is provided by the sum of 1) the MCR above, plus 2) the allocated cost of each CANU. In this case $20M (3+4+2+4+3+4),



In Phase II:

a. The CCR is established by 1) the lower sum of ANUs between the phase I and phase II, plus 2) the allocated ISRNU costs in phase II. In this case $10M (3+4+3)

b. The MCR is established by the lower sum of 1) the ANUs, plus 2) 100% allocated ISRNU cost, in the phase I and phase II study. In this case MCR = $13M (3+4+2+4)). In this case the MCR is set by phase I and remains unchanged between phase I and phase II, and

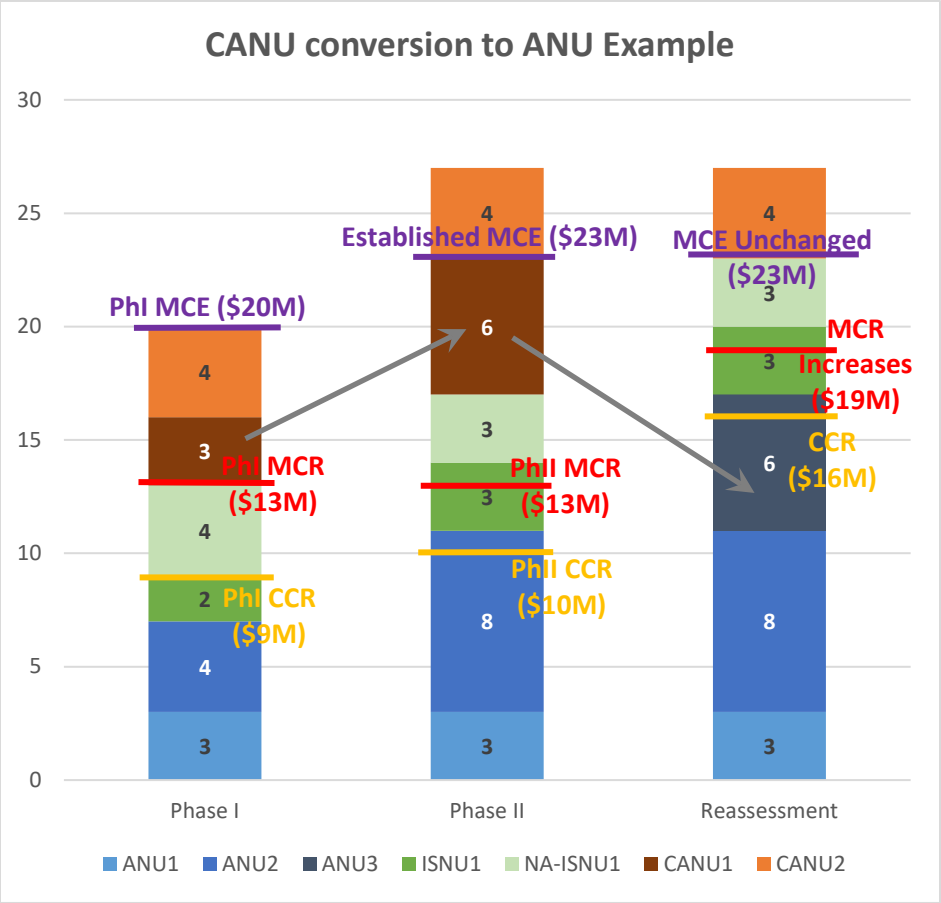
c. The final MCE is established by the sum of 1) the MCR above, plus 2) the allocated cost of each CANU in the Phase II study. In this case $23M (13+6+4).

At this point in the scenario, the total ANU costs exceed the adjusted MCR. Therefore, the amount over the MCR will become the cost responsibility of the PTO.

	ANU1	ANU2	ISNU1	NA-ISNU1	CANU1	CANU2
Phase I	3	4	2	4	3	4
Phase II	3	8	3	3	6	4
PhI CCR	9	PhI MCR	13	PhI MCE	20	
PhII CCR	10	PhII MCR	13	PhII MCE	23	

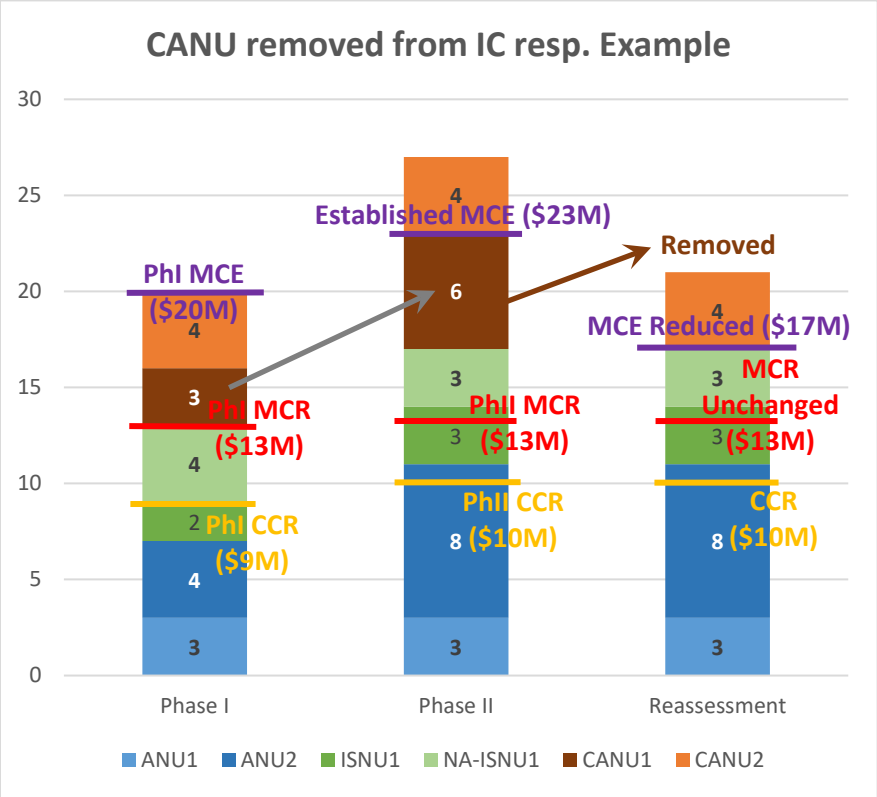
One of two situations can occur with CANUs, 1) they are converted to an ANU, or 2) they are removed from a project's cost responsibility. When a CANU is converted to an ANU, the MCR will increase by the fixed-cost of that upgrade as identified in the project's phase II study and the MCE will remain unchanged. Conversely, when a CANU is removed from a project's cost responsibility, the MCE will be reduced by the fixed-cost of that upgrade as identified in the project's phase II study and the MCR will remain unchanged. The following two examples depict them independently of each other.

2a) In a subsequent reassessment study: CANU1 ($6M in phase II) becomes an ANU3 ($6M) and the current cost responsibility of the project increases. This example shows the interconnection customer's MCR and CCR has increased by the fixed-cost of CANU1 ($6M) as identified in the phase II study. The established MCE remains unchanged.



	ANU1	ANU2	ANU3	ISNU1	NA-ISNU1	CANU1	CANU2
Phase I	3	4	---	2	4	3	4
Phase II	3	8	---	3	3	6	4
PhI CCR	9	PhI MCR		13	PhI MCE		20
PhII CCR	10	PhII MCR		13	PhII MCE		23
Reassessment	3	8	6	3	3	---	4
Reassess CCR	16	Reassess MCR		19	Reassess MCE		23

2b) In a subsequent reassessment study: CANU1 ($6M in phase II) is removed from the cost responsibility of the project. This example shows the interconnection customer's MCE has decreased by the fixed-cost of CANU1 ($6M) as identified in the phase II study. The MCR and CCR remains unchanged.



	ANU1	ANU2	ISNU1	NA-ISNU1	CANU1	CANU2
Phase I	3	4	2	4	3	4
Phase II	3	8	3	3	6	4
PhI CCR	9	PhI MCR	13	PhI MCE	20	
PhII CCR	10	PhII MCR	13	PhII MCE	23	
Reassessment	3	8	3	3	0	4
Reassess CCR	10	Reassess MCR	13	Reassess MCE	17	

3) Following the previous examples in 1, 2a, and 2b, the example below depicts a more complex (and somewhat extreme) scenario that impacts the MCR and MCE in various ways. In this example and as depicted:

i. In Phase I:

a. ISRNU1 has a total cost of $6M and is currently allocated between three projects ($2M each); therefore $2M is considered an allocated ISRNU and remaining $4M is considered a non-allocated ISRNU, and

b. CANU1 is currently allocated between two projects ($3M each), and

c. ANU2 is currently allocated between two projects ($4M each), and

d. The CCR is established by the sum of 1) ANUs, plus 2) the allocated ISRNU cost. In this case (3+4+2)

e. The MCR is established by the sum of 1) ANUs, plus 2) plus the 100% allocated ISRNU cost. In this case $13M (3+4+2+4), and

f. The MCE is established by the sum 1) the MCR above, plus 2) of the allocated cost of each CANU. In this case $20M (3+4+2+4+3+4).

ii. In Phase II:

a. One project withdrew that was sharing in the cost of the ISRNU. Therefore the ISRNU is now allocated between two projects ($3M each); therefore $3M is considered an allocated ISRNU and remaining $3M is considered a non-allocated ISRNU, and

b. The other project sharing CANU1 has withdrawn. The allocation increased to $6M, and

c. The other project sharing ANU2 has withdrawn. The allocation increased to $8M, and

d. The CCR is established by 1) the lower sum of ANUs between the phase I and phase II, plus 2) the allocated ISRNU costs in phase II. In this case $10M (3+4+3)

e. The MCR is established by the lower sum of 1) the ANUs, plus 2) the 100% allocated ISRNU cost, between the Phase I and Phase II study. In this case MCR = $13M (3+4+2+4)), and

f. The MCE is established by the sum of 1) the MCR above, plus 2) the allocated cost of each CANU. In this case $23M (3+4+2+4+6+4), and

g. Additionally, based on the phase II study, each CANU has established it's fixed-cost for the sole purpose of adjusting the MCR or MCE in the event the CANU is converted to and ANU or removed from the projects responsibility, and

h. At this point in the scenario, the total ANU plus ISRNU costs exceed the MCR. Therefore, the amount over the MCR will become the cost responsibility of the PTO.

iii. In Reassessment 1:

a. CANU1 ($6M) is converted to ANU3, which causes the established CCR and MCR to increase by $6M, the fixed-cost amount established in the phase II study, and

b. At this point in the scenario, the total ANU costs exceed the adjusted MCR. Therefore, the amount over the MCR will become the cost responsibility of the PTO.

iv. In Reassessment 2:

a. ANU1 ($3M) and ANU3 ($6M) are removed from the project's cost responsibility:

b. This results in the project's CCR to be adjusted downward and equals the sum of 1) the ANUs, plus 2) the allocated ISRNU. In this case $11M (8+3)

c. The MCR also adjusted downward based on Appendix DD, Section 7.4. In this scenario, the MCR was reduced by $5M to the sum of remaining ANUs and ISRNUs of $14M (8+3+3), and

d. The MCE has also been reduced. At this point, the MCE is established by the sum of 1) the MCR established in c. above ($14M), plus 2) the remaining CANU cost ($4M), totaling $18M (14+4).

v. In Reassessment 3:

a. CANU2 ($4M) is converted to an ANU4 at the fixed-cost ($4M) established in the project's phase II study, and

b. The other remaining project responsible for the ISRNU withdrew resulting in the full cost of the ISRNU to become this projects responsibility ($3M to $6M), and

c. Due to system changes, a new ANU5 was added to the project's cost responsibility at $6M[8]. (The CAISO understands this may be an unlikely case but wanted to show how it would impact a project's MCR and MCE if it were to occur)

As a result of the three items above, a few things occur in reassessment 3:

1. For the purpose of establishing MCR, the MCR is 1) the original phase II MCR, plus 2) all phase II CANUs costs that have ever converted to ANU[9] in the course of the reassessments. In this case $23M (13+6+4).

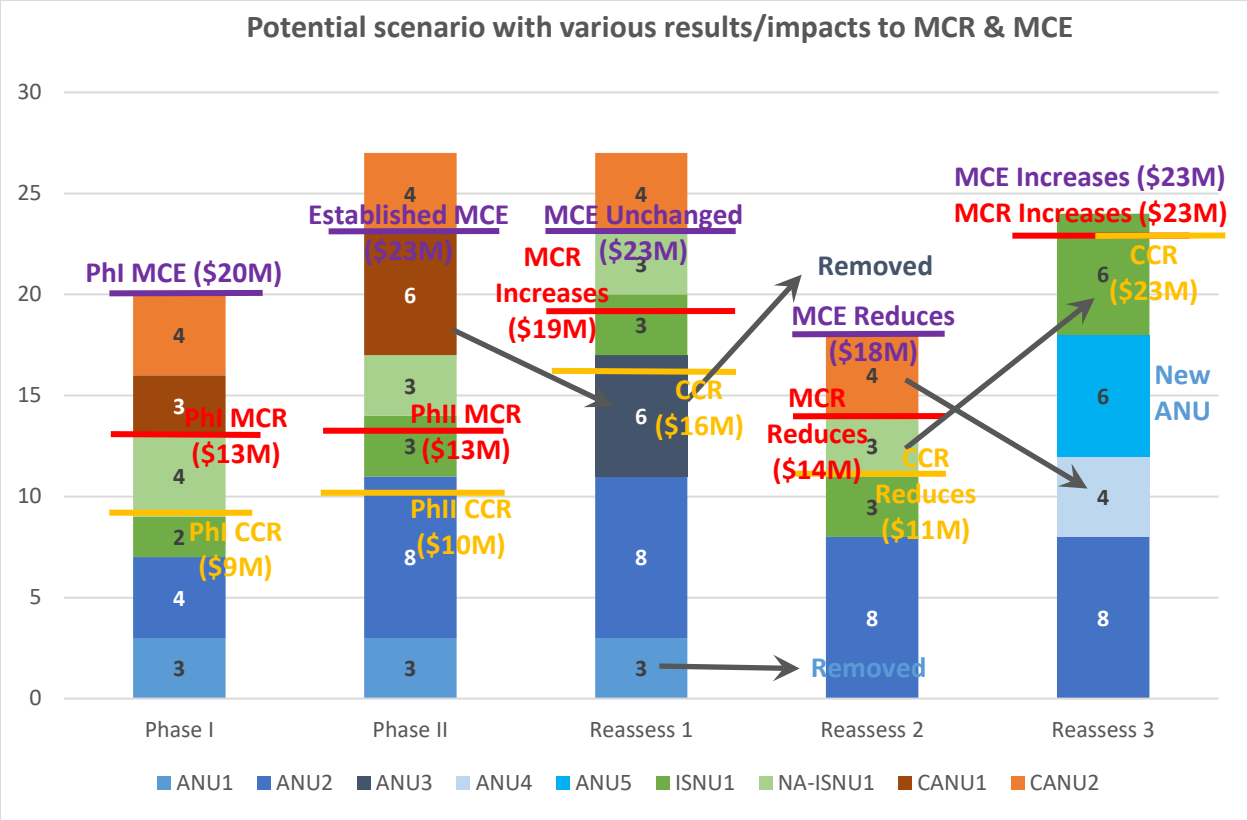
2. The cost re-allocation is the sum of 1) the allocated ANUs (including the new ANU5), plus 2) the allocated ISRNUs, $24M (8+4+6+6). However, the MCR cannot increase above the MCR as established in 1. above. Therefore, the MCR increases to the $23M as the total re-allocation is higher than MCR as established in 1. above.

[8] In accordance with Tariff Appendix DD Section 7.4.3(ii).

[9] All CANUs converted to an ANU are considered in this calculation, even those that have been removed in a reassessment study, such as CANU1 that became ANU3 in reassessment 1 and was removed in reassessment 2.

3. The CCR is the lower between the re-allocated costs and the MCR. In this case $23M.
4. The MCE increases to $24M upon the same criteria as 2. above, however, cannot exceed the MCE established in the Phase II study. Therefore the MCE is established here at $23M.

Eligibility for downward adjustments to the MCR will follow Appendix DD, Section 7.4.



	ANU1	ANU2	ANU3	ANU4	ANU5	ISNU1	NA-ISNU1	CANU1	CANU2
Phase I	3	4	---	---	---	2	4	3	4
Phase II	3	8	---	---	---	3	3	6	4
PhI CCR	9	PhI MCR		13		PhI MCE	20		
PhII CCR	10	PhII MCR		13		PhII MCE	23		
Reassess 1	3	8	6	---	---	3	3	---	4
Reassess 1 CCR	16	Reassess 1 MCR		19		Reassess 1 MCE	23		
Reassess 2	0	8	0	---	---	3	3	---	4
Reassess 2 CCR	11	Reassess 2 MCR		14		Reassess 2 MCE	18		
Reassess 3	0	8	0	4	6	6	---	---	---
Reassess 3 CCR	23	Reassess 3 MCR		23		Reassess 3 MCE	23		

11. Interconnection Request Acceptance and Validation Criteria

This topic was introduced in the addendum to draft final proposal in 2018 IPE as a result of the cluster 11 validation process. As detailed in the first addendum to the draft final proposal, the CAISO put forth a proposal to improve problematic areas of the GIDAP cluster interconnection request receipt and validation process.

11.1 Interconnection Request Acceptance Criteria

In the first addendum to the draft final proposal, the CAISO proposed to specify minimum requirements for documentation and information that interconnection customers must provide when submitting an interconnection request during a cluster application window. The CAISO proposed that an interconnection request submittal would need to meet minimum requirements to be deemed a complete interconnection request and eligible to continue on to the validation process. The CAISO further proposed a five (5) business day tariff requirement for the CAISO to review interconnection request submittals and notify interconnection customer whether an interconnection request submission has been deemed complete or incomplete. If the interconnection request is not deemed complete by the close of the cluster application window the interconnection request would be rejected and would not move into the validation process.

11.2 Interconnection Request Validation Criteria

In the first addendum to the draft final proposal, the CAISO proposed revisions to the interconnection request validation process and timelines. The CAISO believes the proposal will more efficiently and effectively assist interconnection customers during the interconnection request validation process and scoping meetings. The proposal also provides greater flexibility to the CAISO when large volumes of complex interconnection requests are received by enabling the CAISO to give interconnection customers more time if the CAISO misses any of its validation timeline requirements.

Stakeholder input to Sections 11.1 and 11.2:

PG&E and SCE support the interconnection acceptance criteria and validation criteria proposals and believe the process of accepting and validating interconnection requests should become more efficient. PG&E continued to note that they support the day-for-day extension when the CAISO and PTOs exceed their response timeline.

LSA is seeking additional comment as to why the additional two week addition to the interconnection request validation window implemented with cluster 11 was not sufficient to meet the needs proposed by this topic. Additionally, they are seeking clarification on the terms completeness and validation processes.

First Solar supports LSA's comments related to both topics.

CAISO's response to stakeholder comments

In response to LSAs request for clarification: in 2017, for implementation in the queue cluster 11 interconnection request application/validation window, the CAISO proposed, and FERC approved, a change to the close of the application window from April 30 to April 15th for the purpose of increasing the time necessary to validate the increasing volume of and technically complicated interconnection requests submitted during the window. The vast majority of interconnection customers submit their interconnection requests on the last day of the window regardless of how long the window is open. The CAISO thus sought to take unused time from the window to increase the much-needed time for interconnection customers to cure deficiencies.

Independent of those changes, in the cluster 11 process, the CAISO and PTOs were faced with many challenges during the validation process, including, but not limited to, interconnection requests missing or having incorrect data or models being submitted that do not function. Much of the issues encountered were of such severity that the CAISO and PTOs maintain the interconnection request should not be accepted and interconnection requests with certain deficiencies should not be allowed to proceed into the interconnection request validation process. These types of issues often require multiple turns between the interconnection customer and the CAISO/PTOs, taking time to review and re-review as needed. While the increased validation window did assist with the validation process, the CAISO remained challenged with meeting specific tariff-driven timelines and requirements. During cluster 11, the issues encountered were especially problematic because the vast majority of interconnection requests were submitted to one area, thereby burdening the same set of engineers disproportionately.

To summarize and explain the difference between the "completeness" and the "validation" processes – the CAISO is proposing that an interconnection request must meet a set of minimum requirements to be deemed a complete and accepted interconnection request. Any interconnection request that does not meet the requirements listed below by the close of the request window would be deemed incomplete and would not proceed to the interconnection request validation process. The validation process reviews and confirms the technical data submitted meets the requirements for the project to be studied.

1) Study deposit
2) Evidence of site exclusivity or deposit in lieu of site exclusivity
3) Completed Appendix 1 (Interconnection Request Form)
4) Completed Attachment A to Appendix 1 (Generating Facility Data -Excel)
    a. Technical Validation tab – must have no errors, all warnings must be explained[10]

[10] The technical validation tab within the IR form is not a comprehensive validation tool. It is designed to lists errors and warnings that are obvious such as missing or inconsistent data. Each error or warning message will include specific information regarding the data item in question and the reason for the error or warning. Missing and indisputably wrong data are categorized as an error. Suspicious data are categorized as a warning and would not subject an interconnection request to be deeded incomplete.

   b. IR Validation & Comments tab – must have Column A filled in with “Yes” or “N/A” on all items
5) Load Flow Model (*.epc) must be submitted
6) Dynamic Data (*.dyd) must be submitted
7) Reactive Power Curve must be submitted
8) Site drawing must be submitted
9) Single Line Diagram must be submitted
10) Plot showing flat run and bump test (fault at bus and clear after 4-6 cycles) from the PSLF must be submitted [the red underlined text was recommended change by PG&E in their comments]
11) Plot showing requested MW at POI from the PSLF must be submitted

The two proposals are intended to ensure interconnection customers are submitting quality data that can be reviewed and validated in a timely manner. Additionally, the proposals provide fair and equitable treatment for interconnection customers when the CAISO and PTOs exceed their tariff-driven timelines during the application window or validation process.

12. EIM Governing Body Role

For this initiative, the ISO plans to seek approval from the ISO Board only. The ISO believes this initiative falls outside the scope of the EIM Governing Body’s advisory role, because the initiative does not propose changes to either real-time market rules or rules that govern all ISO markets. This initiative is focused on ISO generator interconnection process. This process applies only interconnections to the ISO controlled transmission, and does not apply to transmission outside the ISO balancing authority area. The ISO seeks stakeholder feedback on this proposed decisional classification for the initiative.

Attachment D – Board Memoranda

Specify Minimum Requirements for Interconnection Requests

California Independent System Operator Corporation

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President, Market and Infrastructure Development

Date: January 30, 2019

Re: **Decision on Interconnection Process Enhancements – Track 4**

This memorandum requires Board action.

EXECUTIVE SUMMARY

The interconnection process enhancement (IPE) 2018 is the California Independent System Operator Corporation's current stakeholder initiative in its ongoing commitment to a continuous improvement process of the Generator Interconnection and Deliverability Allocation Procedures (GIDAP). IPE 2018 included a large number of topics, the majority of which were approved by the Board in 2018. Management now seeks Board approval of proposals for the following three remaining 2018 IPE topics:

1. Network upgrade definitions and cost responsibility
2. Minimum acceptance criteria for interconnection requests
3. Validation procedures for interconnection requests

Management recommends the following motion:

> ***Moved, that the ISO Board of Governors approves the proposed interconnection process enhancements, as described in the memorandum dated January 30, 2019; and***
>
> ***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.***

DISCUSSION AND ANALYSIS

There are currently 288 active projects in the interconnection queue that have not achieved commercial operation. To accomplish the interconnection and queue

management processes effectively in a changing environment, the ISO strives to enhance interconnection processes when needed. To that end, Management seeks Board approval of the following enhancements:

1. Network upgrade definitions and cost responsibility

This enhancement seeks to provide tariff definitions to clarify which network upgrades impact interconnection costs and how those costs are established. Currently, an interconnection customer's maximum cost responsibility is established in the ISO interconnection study reports. An interconnection customer's *current* cost responsibility (*i.e.,* not necessarily its maximum) is then used to calculate its required interconnection financial security posting, which can change over time as the result of customers withdrawing from the queue or other factors, and which can be confusing to interconnection customers. The ISO also has observed confusion with some interconnection customers regarding when and how a given transmission upgrade impacts their maximum cost responsibility, current cost responsibility, and interconnection financial security posting requirements.

To address this ambiguity, Management proposes to establish new cost responsibility terms into the tariff and the ISO studies that will clarify the various levels of cost responsibility and potential financing requirements. These terms are intended to increase transparency without disrupting the ISO's current generator interconnection procedures. Specifically, Management proposes to:

a. establish terms to the tariff that will clearly distinguish between currently assigned network upgrades and conditional network upgrades the interconnection customer could be assigned;

b. identify those network upgrades needed to interconnect for reliability; and identify those precursor network upgrades financed by others, but which the interconnection customer needs to interconnect; and

c. establish terms to the tariff clearly distinguishing among an interconnection customer's current cost responsibility, current maximum cost responsibility, and total financial exposure for financing the network upgrades and interconnection facilities it needs to interconnect and to achieve its requested level of service.

By doing so, the ISO, transmission owners, and interconnection customers will have a clear and thorough understanding of each party's financial responsibilities and risks throughout the interconnection process.

Management also proposes to remove the requirement that projects receiving an allocation of transmission plan deliverability must execute a Generation Interconnection Agreement (GIA) to retain the allocation. Currently, any project that receives an allocation of transmission plan deliverability must execute a GIA by December 31 of the year they receive an allocation to retain it. In many cases, this results in the execution of GIAs very

early in a project's life cycle, increasing the likelihood of projects with GIAs withdrawing. Early execution of a GIA also adds financial risks to Participating Transmission Owners (PTOs) because the PTO assumes financial responsibility for the construction of still needed network upgrades when a project with an executed GIA withdraws. Management believes this proposal will better align the execution of GIAs with a project's lifecycle and the point where projects are more likely to move forward with construction, and in turn, reduces the risk of PTOs having to finance network upgrades.

2. Minimum acceptance criteria for Interconnection requests

This enhancement seeks to establish specific requirements for what must be included in an interconnection request application by the close of the application window. The vast majority of interconnection requests are submitted for inclusion in a group study called the annual cluster study process. The annual cluster application window is open from April 1 through 15 of each year. The current minimum requirements for submitting an interconnection request are a study deposit, site exclusivity documentation (or a deposit), and a completed interconnection request application. However, the current tariff does not clearly define what constitutes a complete interconnection request, and therefore the ISO and the PTOs have found it increasingly challenging to timely validate many interconnection requests because of missing or incorrect information. This has resulted in an inordinate amount of time being used to obtain missing or incomplete information during the limited time period the ISO has to validate interconnection requests. During the last two cluster windows the ISO and PTOs have struggled to begin the study process on schedule because not all interconnections requests have been validated on schedule.

To address this problem, Management proposes to clarify and document the minimum requirements for a complete interconnection request application and the associated timelines with verifying that an interconnection application is complete. When the ISO receives an interconnection request, it will perform an initial review to verify completeness. The ISO's completeness review will confirm, for example, that all components of the applications have been submitted. Only once an interconnection request is deemed complete will the ISO and PTO proceed to the technical review for validation.

Management also proposes adding a 5 business day timeline for the ISO to review an interconnection request for completeness and inform the interconnection customer of the results. The ISO will, however, make a good faith effort to complete the review in less than 5 business days from the receipt date of each interconnection request. If the ISO fails to inform the interconnection customer within the 5 business day requirement, and the interconnection customer should have been informed prior to April 15, the ISO will grant a day-for-day extension to the interconnection customer beyond the April 15 window closure. Given this 5 business day review time, interconnection customers that submit applications before April 7[1] and are determined by the ISO to be incomplete will have an opportunity to resubmit their application before the window closes on April 15. Submittals received after

[1] For certain calendar years, April 8 and 9 would be the last date to guarantee having a second opportunity to submit.

these dates are at risk of not having their review completed until after the window closes, which risks having their application found incomplete with no opportunity to correct for missing items and therefore not being able to participate in that year's cluster study process.

This risk should be easy to manage as interconnection customers have months, if not years, to prepare for the April 1 through April 15 annual open window period. Customers wanting an opportunity to cure an incomplete application simply need to submit it prior to April 7. Moreover, the proposed specific list of submittal requirements provides clear expectations for developing a complete interconnection request.

Management believes that clarifying interconnection request requirements will provide more time for the ISO and PTO to review and validate credible interconnection requests and does not disadvantage those interconnection customers that made the appropriate effort to submit a complete interconnection request by April 15. Clearer requirements also will benefit the ISO, PTOs, and interconnection customers by eliminating much of the back-and-forth communication on data and document deficiencies.

3. Validation procedures for interconnection requests

This enhancement seeks to modify the interconnection request validation process by extending the validation period and by providing flexibility in meeting validation timelines. Even with complete interconnection requests, the ISO and the PTOs have been challenged to meet the validation timelines currently established in the tariff. This has been the result of more interconnection requests, increased complexity of the proposed generating facilities, and the complex reliability requirements they must meet. To provide the ISO and PTO sufficient time to work with interconnection customers to ensure that their interconnection requests are valid and ready for the Phase I study process, the ISO proposes to adjust the interconnection request validation timelines. This will be achieved principally by extending the validation deadline by one month, and by allowing some flexibility for extensions to what previously were rigid deadlines. The proposal extends the deadline for deeming an interconnection request valid from May 31 to June 30.

In recent cluster windows, the ISO and interconnection customers have found it beneficial in certain circumstances to hold scoping meetings prior to an application being deemed completely valid. Therefore, this proposal removes the requirement that scoping meetings must be held only after an interconnection request is deemed valid.

The proposal also provides flexibility by easing the current rigid validation timelines and enabling the ISO to give interconnection customers more time if the ISO or PTO misses its expected timelines due to an extremely large volume of interconnection requests or a large number of highly complex interconnection requests. In these cases, the ISO will grant a day-for-day extension to the interconnection customer beyond the June 30 validation deadline for every day the ISO or PTO exceeds their expected response time. Management believes the proposed modifications to the interconnection request validation procedures will

provide increased efficiency and flexibility, benefiting interconnection customers, the ISO, and the PTOs.

POSITIONS OF THE PARTIES

A majority of stakeholders generally support Management's proposal to clarify network upgrade definitions and cost responsibility, though some caveated their support with a request for certain clarifications or by raising a concern with one specific component. PG&E and SCE fully supported topics 2 and 3 and no other stakeholder raised objections to them. A comprehensive summary of all stakeholder comments with Management's response is provided in Attachment A.

CONCLUSION

Management recommends that the Board approve the three proposals in this memorandum. These changes are generally supported by most stakeholders and were refined through a yearlong stakeholder process that addressed the majority of stakeholder comments and concerns. The proposed modifications improve the effectiveness of the interconnection process, improve transparency, and improve the balance of risk between participants in the process. The proposed modifications will continue to improve the ISO's generator interconnection procedures to help California and the West to have robust capacity and meet their public policy goals while protecting ratepayers from undue costs.

Attachment A

Stakeholder Process: Decision on Interconnection Process Enhancements – Track 4

Summary of Submitted Comments

Stakeholders submitted six rounds of written comments to the ISO related to Topic 1 on the following dates:

- Round One, Issue Paper, submitted January 17, 2018
- Round Two, Straw Proposal, submitted May 5, 2018
- Round Three, Revised Straw Proposal, Submitted July 10, 2018
- Round Four, Draft Final Proposal, Submitted September 4, 2018
- Round Five, Addendum to Draft Final Proposal, Submitted November 11, 2018
- Round Six, Addendum #2 to Draft Final Proposal, Submitted December 21, 2018

Topics 2 and 3 of the January 30, 2019 Board Memorandum were introduced in the Addendum to Draft Final Proposal, submitted November 11, 2018. The ISO received minor comments on the proposals for topics 2 and 3. In response to stakeholder comments, the ISO made clarifications and a minor addition in the Addendum #2 to Draft Final Proposal. Only supporting comments were received on the Addendum #2 to Draft Final Proposal.

Parties that submitted written comments to the Revised Straw Proposal:
Avangrid (Avangrid Renewables), EDF-R (EDF Renewables), First Solar, LSA (Large-scale Solar Association), NextEra, PG&E (Pacific Gas & Electric), the Public Advocates Office, SCE (Southern California Edison), SDG&E (San Diego Gas & Electric) the Six Cities and SPower

Parties that participated in meetings or conference calls:
Avangrid Renewables, California Department of Water Resources, California Energy Commission, CESA, City of Anaheim, City of Riverside, Clark Hill PLC, CPUC, Customized Energy Solutions, Duncan Weinberg, Energy GPS, FERC, First Solar, Flynn RCI, GridLiance West, NCPA, NRG Energy, Inc., PG&E, Phoenix Consulting, the Public Advocates Office, SCE, SCAAP, SDG&E, Silicon Valley Power - City of Santa Clara, TEA, Terra-Gen, Thompson Coburn LLP, Tri-State G&T, VEA, WAPA-SNR, Wellhead Electric Company, Western Energy & Water, ZGlobal Inc.

Stakeholder comments are posted at: http://www.caiso.com/informed/Pages/StakeholderProcesses/InterconnectionProcessEnhancements.aspx

Stakeholder meetings include:

- Issue Paper, in-person meeting, January 24, 2018
- Straw Proposal, conference call, May 21, 2018
- Revised Straw Proposal, conference call, July 17, 2018
- Draft Final Proposal, in-person meeting with conference call, September 17, 2018
- Addendum to Draft Final Proposal, conference call, November 20, 2018
- Addendum #2 to Draft Final Proposal, conference call, January 3, 2019

Management proposal	Stakeholders Support with Request for Clarification or Addition of New Topic Avangrid, EDF-R, First Solar, LSA, NextEra, SPower	Stakeholders Conditionally Support PG&E, Public Advocates Office, SCE, SDG&E, Six Cities	Management response
Topic 1 **Network upgrade definitions and cost responsibility treatment**	(1) EDF-R, First Solar, LSA, SPower – request the ISO clarify that the non-allocated portion of interconnection service reliability network upgrades (ISRNU) cost in the maximum cost responsibility (MCR) cannot create headroom for assigned network upgrades when reallocations occur. (2) EDF-R, LSA, SPower – request the ISO consider allowing ISRNUs to be removed from cost responsibility when all projects sharing ISRNU execute GIAs and provide their third interconnection financial security (IFS) posting. (3) First Solar and NextEra – request the ISO exclude conditionally assigned network upgrades (CANUs) from the reliability network upgrade (RNU) reimbursement limit when a CANU converts to an assigned network upgrade. (4) First Solar, Nextera – seek additional RNU reimbursement from later-cluster projects that utilize a previous-cluster RNU that exceeded the RNU reimbursement cap.		(1) The ISO agrees and confirms that headroom is not created by a non-allocated portion of ISRNUs. Headroom cannot be created within the MCR when an ISRNU is assigned to a project and a non-allocated portion is required. Without a modification to the interconnection customer's project, an ISRNU assigned to a project will always be needed and cannot be removed. Any non-allocated ISRNU assigned to a project must be preserved to protect the PTO from having to take on a portion of the ISRNU's cost. Since the amount of the non-allocated ISRNU assigned to a project must be preserved within the MCR up until the third posting, there is no opportunity for headroom to be created. (2) The ISO agrees to remove non-allocated ISRNUs when all projects sharing the upgrade have executed their GIAs and provided their third IFS. (3) The ISO stands behind the belief that all reliability network upgrades (RNUs) assigned to a project should be included in the calculation of the total RNU reimbursement for that project, including CANUs that convert to an assigned network upgrade. (4) As the ISO stated in its response to the same comment in the IPE Track 3 stakeholder comments, this is not in scope of the 2018 IPE process and would take longer to work through than the 2018 IPE initiative can accommodate.

Management proposal	Stakeholders Support with Request for Clarification or Addition of New Topic Avangrid, EDF-R, First Solar, LSA, NextEra, SPower	Stakeholders Conditionally Support PG&E, Public Advocates Office, SCE, SDG&E, Six Cities	Management response
Topic 1 (cont'd) **Network upgrade definitions and cost responsibility treatment**		(5) PG&E, SCE, SDG&E, Six Cities – believe the trigger for PTO backstop funding of network upgrades should be the point of customers providing third IFS postings, as proposed in first addendum to draft final proposal. SCE stated – "execution of a GIA does not guarantee that a project will move forward towards commercial operation in a timely manner, given the high probability of either suspension or withdrawal, and believes the more appropriate milestone to be the posting of the third IFS."	(5) Interconnection customers are required to make postings of IFS after the phase I study, after the phase II study and at the beginning of construction of network upgrades, the latter known as the third posting. Currently the trigger for PTO backstop funding is the execution of the GIA. This initiative originally considered moving the trigger for PTO backstopping the financial responsibility for network upgrade cost to the third posting. Upon consideration of stakeholder comments from the addendum to the draft final proposal, the ISO agrees that setting the third IFS posting as the point that PTO becomes responsible for backstopping the financial responsibility for network upgrade costs creates an excessively long period of uncertainty for interconnection customers before they know if they will be required to take on a conditionally assigned network upgrade or not. The ISO believes retaining the GIA execution as the backstop trigger, coupled with the proposal to remove the requirement to execute a GIA in order to retain an allocation of transmission plan deliverability (discussed in management response (6) below), creates the right balance of risk between developers and the PTOs.

Management proposal	Stakeholders Support with Request for Clarification or Addition of New Topic Avangrid, EDF-R, First Solar, LSA, NextEra, SPower	Stakeholders Conditionally Support PG&E, Public Advocates Office, SCE, SDG&E, Six Cities	Management response
Topic 1 (cont'd) **Network upgrade definitions and cost responsibility treatment**		(6) SCE, SDG&E, Public Advocates Office, Six Cities – believe interconnection customers should be required to execute a GIA to retain Transmission Plan Deliverability (TP Deliverability). The Public Advocates Office stated – "While this proposal offers a compromise solution that addresses concerns regarding executing a GIA too early in the development process, it risks creating another problem on the timely reallocation of TP deliverability in the event a generation project fails to continue to make progress towards commercial operation. While the proposal would remove the requirement to execute a GIA to retain TP deliverability allocation, it is silent as to what measures would be used as a replacement to ensure system deliverability is reallocated in a timely fashion."	(6) Coupled with the ISO's proposal to retain the GIA execution as the backstop trigger (discussed in management response (5) above), Management proposes to remove the requirement that projects receiving an allocation of transmission plan deliverability must execute a GIA to retain the allocation. Management believes the proposal will better align the execution of GIAs with the construction timelines for network upgrades and with the point where projects are more likely to move forward to construction. This will decrease the number of projects with executed GIAs that withdraw – the point where a PTO is required to assume the financial responsibility of the withdrawing project for the construction of still needed network upgrades. The Public Advocates Office states – the ISO is "silent as to what measures would be used as a replacement to ensure system deliverability is reallocated in a timely fashion." The July 10, 2018, Revised Straw Proposal, made significant modifications to the TP Deliverability allocation process to ensure that projects that receive an allocation move forward or lose their allocation.

Management proposal	Stakeholders Support with Request for Clarification or Addition of New Topic Avangrid, EDF-R, First Solar, LSA, NextEra, SPower	Stakeholders Conditionally Support PG&E, Public Advocates Office, SCE, SDG&E, Six Cities	Management response
Topic 1 (cont'd) **Network upgrade definitions and cost responsibility treatment**			(6) (Continued) Historically, the allocation group most likely to receive an allocation and not proceed to commercial operation were those projects that used the balance sheet financing option to obtain its allocation. The tariff changes filed with FERC removed the balance sheet financing option and instituted a "proceeding without a power purchase agreement" option that includes criteria that significantly restricts projects that receive an allocation through that option from sitting on its allocation and not moving forward. Assuming FERC approves that filing, it will be more difficult for projects choosing the proceeding without a power purchase agreement option to retain its allocation if it is not proceeding as expected, regardless of whether it has an executed GIA or not. Moreover, as SCE stated, "execution of a GIA does not guarantee that a project will move forward towards commercial operation in a timely manner, given the high probability of either suspension or withdrawal" The ISO believes its proposal (collectively described in these management responses (5) & (6)) provides the appropriate balance of risk between the PTOs and developers.

Management proposal	Stakeholders Support with Request for Clarification or Addition of New Topic Avangrid, EDF-R, First Solar, LSA, NextEra, SPower	Stakeholders Conditionally Support PG&E, Public Advocates Office, SCE, SDG&E, Six Cities	Management response
Topic 1 (cont'd) **Network upgrade definitions and cost responsibility treatment**		(7) SDG&E suggests that if a project executes a GIA and that project withdraws, then the upgrade would then be converted from a precursor to a conditionally assigned upgrade.	(7) This proposal was not raised until the second addendum comment period and would be a contentious issue between stakeholders. This would be a significant change to a long-standing policy and is provided too late to consider in the 2018 IPE.

Attachment E – List of Key Dates

Specify Minimum Requirements for Interconnection Requests

California Independent System Operator Corporation

List of Key Dates in the Stakeholder Process for this Tariff Amendment[1]

Date	Event
August 10, 2017	CAISO solicits stakeholder suggestions for IPE topics
September 18, 2017	Stakeholders submit IPE topic suggestions
January 17, 2018 – September 4, 2018	CAISO publishes papers and solicits stakeholder feedback on other IPE topics
November 11, 2018	CAISO publishes proposal on this tariff amendment, *inter alia*
November 20, 2018	CAISO hosts stakeholder conference call and web conference on proposal
December 7, 2018	Stakeholders submit comments on proposal
December 21, 2018	CAISO publishes draft final proposal on this topic
January 3, 2019	CAISO hosts stakeholder conference call and web conference on draft final proposal
January 14, 2019	Stakeholders submit comments on draft final proposal
January 22, 2019	CAISO publishes draft tariff revisions
February 1, 2019	Stakeholders submit comments on draft tariff revisions
February 4, 2019	CAISO hosts stakeholder conference call and web conference on draft tariff revisions
February 5, 2019	CAISO publishes revised draft tariff revisions

[1] Please note that IPE 2018 split topics into different tracks, beginning and resolving at different times. This topic was addressed in the first and second addenda to the CAISO's draft final proposal. *See* http://www.caiso.com/informed/Pages/StakeholderProcesses/InterconnectionProcessEnhancements.aspx for links to all documents.