



California ISO

Regional Resource Adequacy

Draft Regional Framework Proposal

December 1, 2016

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1. Executive Summary

The primary objective of this initiative is to implement a multi-state process that ensures sufficient capacity is offered into the ISO's market to serve load and operate the electric system reliably. The ISO proposes to build on existing, proven mechanisms to create a multi-state ISO resource adequacy ("RA") framework. The proposed framework provides the flexibility for Local Regulatory Authorities ("LRAs") and Load Serving Entities ("LSEs") to maintain much of their current capacity procurement programs. The ISO will facilitate these programs by clearly communicating the ISO's forecasted reliability needs to LRAs and LSEs to inform capacity procurement decisions. The ISO intends to change only those tariff provisions that require modification to make RA work in the context of an expanded multi-state balancing area. This stakeholder initiative is focused on "need to have" items for an expanded ISO balancing area. It is important that the resource adequacy provisions for a multi-state ISO be established for consideration of entities potentially interested in joining an expanded ISO balancing area.

The draft regional framework proposal includes discussion and additional details on the ISO's proposed modification to the following elements: (1) Load forecasting; (2) Reliability Assessment: including planning reserve margin, uniform counting rules, resource adequacy showings and validation process, and backstop procurement need determination and cost allocation; (3) Maximum Import Capability; (4) Imports for resource adequacy, (5) Resource substitution issues (6) Allocating resource adequacy requirements to LRAs and LSEs; (7) Monitoring locational resource adequacy needs and procurement; and (8) Updating ISO tariff language to be more.

The draft regional framework proposal provides further information on the ISO's latest proposals on the following aspects of this initiative:

1. *Load forecasting* – The ISO proposes a monthly peak load forecasting aggregation approach. This approach utilizes individual LSE load forecast submittals to identify individual LSE-level resource adequacy requirements and determine the level of system resource adequacy needs by consolidating individual LSE-level load forecasting data.
2. *Reliability Assessment* – The ISO proposes to conduct a reliability assessment similar to current practice, with some additional modifications including using a default system wide Planning Reserve Margin ("PRM") target and ISO-determined resource capacity valuations based on proposed uniform counting rules. The ISO also provides clarity on the resource showings and validation process and the proposed modifications to incorporate the updated reliability assessment into the ISO's backstop procurement provisions. The ISO proposes to exercise backstop

procurement based on any shortfalls between the demonstrated procured capacity and the reliability assessment the ISO conducts using the default system wide PRM.

3. *Maximum Import Capability* – The ISO proposes to move forward with the Maximum Import Capability (“MIC”) modifications that previously were identified in the initiative. The ISO will adjust the MIC calculation methodology to address situations where the peak load of a new region in an expanded balancing area occurs seasonally non-coincidental with the peak load of the rest of the system and when there are no simultaneous constraints between certain areas of an expanded balancing area. The ISO also proposes modifications to the MIC allocation process to reflect the ISO’s proposed Regional TAC policy and splits the MIC allocation based upon TAC sub-regions that are paying for parts of the underlying transmission in the overall system.
4. *Requirements for RA Imports* – The ISO proposes clarifications to the RA imports provisions to remove ambiguity in the current ISO tariff provisions for imports qualifying for resource adequacy. The ISO proposes to permit short term capacity arrangements to qualify towards meeting up to 10 percent (%) of an individual LSE’s total system RA requirements. This change recognizes the current practices of certain entities and the desire for some flexibility to use short-term arrangements, while reducing the exposure to potential adverse system reliability impacts. The ISO also proposes a number of protections including enhancing incentives and penalties to ensure resources secured through these short-term arrangements represent capacity available to the ISO.
5. *Resource Substitution Issues* – The ISO proposes to modify the treatment of forced outages to better align their treatment with the treatment of planned outages relative to the ISO substitution and RAIM assessment provisions. The ISO also proposes to remove the current restriction that disallows external resources from being used as substitutes for internal resources that have been shown for RA. The ISO believes that these modifications are necessary to provide flexibility and certainty to participants and entities considering the regionalization efforts of the ISO.
6. *Allocating resource adequacy requirements to LRAs and LSEs* – This aspect of the proposal addresses the need for allocating RA requirements to LSEs with LRAs that do not wish to receive RA requirements from the ISO and then allocate such requirements to their respective LSEs. The second issue that this aspect of the proposal addresses is the possibility that more than one regulatory entity oversees a multi-jurisdictional LSE’s procurement decisions. The ISO proposes to create a new mechanism that allows LRAs and state agencies to defer allocation of RA

requirements to the ISO so the ISO can allocate RA requirements directly to the LSEs under the deferring LRA's jurisdiction. The ISO also proposes to allocate resource adequacy requirements directly to all multi-jurisdictional LSEs.

7. *Monitoring locational resource adequacy needs and procurement* – The ISO proposes to monitor the locational resource adequacy needs across an expanded balancing area. The ISO also will continue to monitor any internal constraints using the ISO study processes in place today and will inform stakeholders about these locational needs. The ISO is not imposing any additional requirements under this aspect of the proposal.
8. *Updating ISO tariff language to be more generic* – This element of the ISO's Regional RA proposal addresses the need for the tariff provisions related to resource adequacy to be more generic. The current tariff utilizes California-centric language that may not be applicable to entities in an expanded balancing area. The ISO believes this aspect of the proposal is necessary to avoid any unintended barriers associated with the current tariff language as the ISO balancing area expands.

2. Stakeholder Comments and Changes to Proposal

The ISO has reviewed stakeholders' written comments on the third revised straw proposal. The ISO appreciates the input and feedback stakeholders have provided and recognizes the significant efforts made by stakeholders to participate actively in this initiative.

A summary of stakeholder comments and the ISO's responses covering major topics under consideration in this proposal has been included in Appendix A. Please see the appendix for a listing of specific topical summaries of stakeholder comments and positions. There is also a link provided for the Regional RA webpage where all previously submitted stakeholder comments are posted and available for review.

After consideration of stakeholder feedback and other factors, the ISO has made some notable changes to this iteration of the proposal as described below:

- *Load Forecasting, Uniform Counting Rules, and Maximum Import Capability* – The ISO has provided clarification and additional details on these topics to address stakeholder questions and concerns.
- *Requirements for RA Imports* – The ISO is proposing clarifications to the tariff provisions for RA imports. The ISO proposes to permit short term capacity arrangements to qualify towards meeting up to 10 percent (%) of the total system

resource adequacy requirement for an individual LSE's system RA requirements. This change recognizes the current practices of certain entities and the desire for some flexibility to use short-term arrangements, while reducing the potential exposure to adverse effects. The ISO also proposes a number of protections including enhancing incentives and penalties to ensure these short term arrangements are made available to the ISO.

- Resource Substitution Issues – The ISO has added modifications to the treatment of forced outages. The ISO proposes to modify the treatment of forced outages so as to better align their treatment with the treatment of planned outages regarding the ISO substitution and RAAIM assessment provisions. The ISO also proposes to remove the current restriction that disallows external resources from being used as substitutes for internal resources that have been shown for RA.

3. Plan for Stakeholder Engagement

The ISO previously has published an issue paper and three straw proposals under the Regional RA initiative throughout 2016. The ISO also held three working groups on specific Regional RA topics over the summer of 2016. These working groups allowed for further discussion of complex issues and provided opportunities for stakeholder feedback in order to assist in the ISO's policy development.

The ISO is using the term “draft regional framework proposal” for the Regional Resource Adequacy (“Regional RA”) proposal and the Transmission Access Charge Options (“TAC Options”) proposal being released concurrently, in an effort to distinguish these proposals and the initiatives through which they were developed from the familiar standard ISO stakeholder initiative structure. At this stage in a standard ISO policy initiative the ISO would normally issue a “draft final proposal,” indicating that the stakeholder process is near completion and ISO management has arrived at what it believes to be the best resolution of the issues and intends to present the proposal to its Board of Governors for approval in the very near future.

In contrast, the Regional RA and TAC Options initiatives are elements of a larger set of initiatives that comprise the ISO's development of a framework for regional expansion of its balancing area. Both of these proposals have been under development with stakeholders for a year, during which time the full range of issues and the stakeholder positions and recommendations on those issues have surfaced and been discussed. However, other elements of that larger set – in particular the initiative on governance for an expanded ISO balancing area – are proceeding in parallel, and the process for finalizing the entire set of initiatives is still to be determined. Thus, while the Regional RA Draft Regional Framework Proposal and TAC Options Draft Regional Framework

Proposals are sufficiently advanced to provide the basis for Resource Adequacy and TAC frameworks, there is no imminent ISO Board decision planned for the Regional RA and TAC Options proposals.

Stakeholders and other parties interested in the ISO's regional initiatives should view these proposals as "close to final" proposals, meaning they reflect the ISO's best efforts to find a reasonable, workable balance among the various positions stakeholders have articulated and should provide stakeholders and regulators with enough information and guidance on the ISO's intent for regional provisions on these topics to allow them to make informed decisions. The ISO intends to use these draft regional framework proposals and stakeholder feedback to inform the ongoing discussions regarding ISO governance modifications, as well as other components related to the expansion of the balancing area.

The current schedule for this initiative is shown below.

Milestone	Date
Framework proposal posted	December 1
Stakeholder meeting on framework proposal - (Folsom, CA)	December 8
Stakeholder written comments on framework proposal due	December 30

4. Introduction

As entities located outside of the ISO's current balancing area consider joining the ISO, it is necessary to consider potential modifications to the ISO's resource adequacy tariff provisions to ensure they work effectively in an expanded balancing area. The efforts undertaken through this initiative address the need to modify the ISO's resource adequacy provisions to support regionalization efforts.

The primary objective of this initiative is to design and implement a multi-state resource adequacy process that ensures sufficient capacity is offered into the ISO's market to serve load and operate the electric system reliably. The ISO proposes to build on existing mechanisms to create a multi-state ISO resource adequacy framework. The proposed framework provides the flexibility for LRAs and LSEs to maintain their current capacity procurement programs. The ISO will facilitate these programs by clearly communicating the ISO's forecasted reliability needs to regulatory authorities and LSEs to inform their capacity procurement decisions.

Resource adequacy is a critical feature that helps ensure the ISO can reliably operate the electric system and effectively serve load. To accomplish these important responsibilities, the ISO must have sufficient resources available and offered into its markets. The ISO's resource adequacy construct ensures that a sufficient pool of resources with the necessary attributes are available at the right time and in the right locations to meet reliability needs. The must offer obligations associated with the resource adequacy construct act as an important market power mitigation measure to protect against physical withholding. Reliability in the ISO balancing area is safeguarded through these forward planning mechanisms.

The ISO focuses on changes that are necessary for resource adequacy provisions to work in a multi-state balancing area. Additionally, the proposed modifications seek to avoid potential resource leaning to the extent possible and disincentivize leaning when the potential exists.

5. Draft Regional Framework Proposal

The ISO's draft regional framework proposal builds on previous regional resource adequacy proposals and incorporates stakeholder feedback received to date. The policy topics addressed in this draft regional framework proposal include the following topics:

- Load forecasting
- Reliability assessment:
 - Planning Reserve Margin
 - Uniform counting rules
 - Resource adequacy showings and validation process
 - Backstop procurement need determination and cost allocation
- Maximum Import Capability
- Imports for resource adequacy
- External resource substitution for internal resources
- Allocating resource adequacy requirements to LRAs and LSEs
- Monitoring locational resource adequacy needs and procurement
- Updating ISO tariff language to make it more generic

The following sections of the draft regional framework proposal describe the various elements of the ISO's latest proposal and provide additional details and clarifications.

5.1. Resource Adequacy Load Forecasting

The ISO proposes to revise the process for resource adequacy load forecasting. These revisions focus on the load forecast submittals for individual LSEs that are used for resource adequacy needs determinations. The ISO must be able to establish monthly system coincidence peak forecasts throughout an expanded balancing area.

Load Forecasting Proposal Background

The ISO has explored various options for modifying the resource adequacy load forecasting provisions in previous iterations of the proposal.¹ The ISO proposes a bottom-up, monthly peak load forecasting aggregation approach. This approach utilizes individual LSE load forecast submittals to identify individual LSE level resource adequacy requirements. This allows the ISO to determine the level of system resource adequacy needs by consolidating individual LSE level load forecasting data.

The ISO believes it is vital to integrate targeted, appropriate changes with the current processes utilized for load forecasting to the extent possible. For example, under the ISO's proposal, the California Energy Commission ("CEC") could continue conducting the load forecasting for LSEs in the existing ISO balancing area. The ISO wants to provide similar flexibility for all LSE's and/or load forecasting agencies in an expanded balancing area with minimal impact to their current processes. To accomplish these important load forecasting objectives, the ISO explored various potential approaches and believes that a flexible, bottom-up, monthly coincident peak load forecasting approach is most appropriate.

The bottom-up, monthly peak load forecasting aggregation proposal will allow the ISO to establish the system coincidence peak load for use in the resource adequacy process in an expanded balancing area. The ISO will use this forecast aggregation process to identify the necessary level of system-wide resource adequacy requirements. Identifying system-wide resource adequacy needs will ensure that the ISO has adequate resources committed to meet the system coincident peak load forecast plus a PRM. Additional details for the latest resource adequacy load forecasting proposal are described below.

Bottom-Up Load Forecasting Aggregation

The ISO proposes to utilize a bottom-up load forecast aggregation based upon individual LSE load forecasts. This approach allows LSEs to determine how to conduct their individual coincident peak forecasting. To conduct a load forecast aggregation using individual LSEs' load forecasts, the ISO will need to receive monthly coincident peak

¹ A prior proposal discussed with stakeholders was to require hourly load forecasting submittals. Stakeholders commented that the previous direction was problematic, and this has helped inform the ISO's ultimate direction on this aspect of the proposal. The ISO agrees that it would be appropriate to move away from the prior hourly forecasting proposal.

forecast submittals for all LSEs. This means that either the LSEs themselves, or a forecasting agency, such as the CEC, must submit these individual LSE load forecasts to the ISO.

To discern the system coincidence peak based on an expanded balancing area footprint, individual LSEs or forecasting agencies must forecast the individual LSE peak demand at the time of the expanded balancing area's system coincident peak. In other words, to capture the benefits of regional diversity, load forecasts conducted by individual LSEs or their forecasting agencies need to apply a coincidence adjustment to their non-coincident peak forecasts based on their contribution to the overall expanded regional footprint observed system peak. The ISO will provide historical monthly system peak data for use in this process and will post this information on the ISO's public website.

This proposed approach allows for maximum flexibility because individual LSEs can determine how to apply a coincidence factor unique to their needs to determine their coincident peak load forecasts. Therefore, it is not necessary for the ISO to develop a uniform coincidence factor methodology under this proposal.

The ISO proposes that if it does not receive a load forecast for an LSE in a timely manner from either the LSE or the LSE's forecasting agency, then the ISO will conduct a load forecast for that LSE to determine that LSE's contribution to the ISO's overall resource adequacy needs and the individual LSE's RA requirements. The ISO also proposes to allow individual LSEs to defer their load forecasting responsibilities to a third party such as a load forecasting agency, Utility Distribution Company ("UDC"), or any other capable forecasting entity, if they choose to do so and come to an arrangement with the third party. This option is meant to provide flexibility for LSEs and only allows a third party to submit a forecast on the LSEs behalf with agreement to do so (and potential financial compensation). This flexibility will help to accommodate smaller LSEs that may not have sophisticated forecasting capabilities to hire a third party, such as the CEC or some other load forecasting vendor, to submit a load forecast on the LSE's behalf.

The ISO proposes that all load forecast submittals will still be the responsibility of the LSE and its LRA, or load forecasting agency that submitted the data. Although, any auditing of a forecast may necessarily involve the third party vendor, the LSE or LRA responsible for the submittal would need to coordinate involvement of a third party. This proposal allows entities to utilize third party service providers for forecasting services, while clearly placing the responsibility for the final forecast on the individual LSE or LRA responsible for the load forecast, not on other third party vendors.

The ISO also proposes to allow individual LSEs to request that the ISO conduct a load forecast on their behalf. If an LSE elects this option, the ISO will not accept a submission from the LSE, thus preventing the LSE from trying to game its RA

requirement by selecting the load forecast it prefers. The ISO will publish the methodology used for the load forecasts it conducts on behalf of individual LSEs for transparency.

Some stakeholders sought clarification regarding the level of granularity that would be required for these LSE forecast submittals. As stated previously, these requirements are for the forecast submittals to be made for individual LSEs. The ISO will not require further granularity such as the Scheduling Coordinator (“SC”) or Scheduling Coordinator Identifier (“SCID”) level.

Treatment of Load Modifiers

The ISO previously proposed that it would not define how various LSEs should include demand response, energy efficiency, distribution generation, and other potential load modifiers in load forecasting submittals.² The ISO’s proposal provides entities discretion regarding how these load modifiers are used and how they should be treated under their individual load forecasting approaches. The ISO continues to believe it is appropriate to allow LSEs and their LRAs or load forecasting agencies to make that determination, and the ISO intends to allow for LSEs/LRAs to determine their treatment in individual load forecasting processes. The ISO notes that this proposal does not restrict the ability of LRAs or other load forecasting agencies to direct LSEs to utilize a particular treatment for these modifiers. In fact, this approach helps individual LSEs meet their unique State or LRA policy goals because they have the flexibility to determine how to treat these items in their load forecasting processes.

Intra-Year Load Forecast Updates

The ISO believes it is appropriate to allow LSEs to update load forecasts intra-year for load migration due to retail choice. For individual LSEs submittals, the ISO will allow LSEs to submit monthly load forecast adjustments that are based on quantifiable and demonstrated load migrations. The ISO will allow individual LSEs to submit adjustments for all load migration associated retail choice, *i.e.*, changes in customer base due to direct access, community choice aggregation, or any other type of demonstrable load migration. The ISO would also request that the LSE’s LRA or load forecasting agency such as the CEC, provide any verification or supporting documentation, if possible. It should be reasonably straightforward for entities that already work with the CEC and their LRAs to verify load migration and update load forecasts monthly.

² The ISO understands that resources such as demand response and distributed generation may be treated as supply resources in some states and under some circumstances. The ISO’s proposal focuses only on instances when these resources are treated as load modifiers and not when the resources would be shown as supply resources for meeting RA requirements.

Previously, stakeholders requested that the ISO allow intra-year updates to load forecasts for other reasons outside of the LSE's control. The ISO has some concerns allowing that level of flexibility for intra-year load forecast updates because it could create gaming and manipulation opportunities. However, after significant consideration, the ISO has determined it is appropriate to allow for some additional flexibility in this area because the ISO is already deferring to LSEs and LRAs or load forecasting agencies. The ISO proposes to allow monthly load forecast adjustments for reasons beyond only load migration, such as hydrological conditions, only if the LSE's LRA or other government load forecasting agency, such as the CEC, submits updates on behalf of the individual LSE, and the regulatory or government agency submitting the monthly update verifies that it has reviewed the updated forecast and believes the update is reasonable. The LRA or other government load forecasting agency providing the monthly updates for reasons other than load migration must not have any load serving function or RA obligation themselves. This requirement will help avoid the gaming concerns described above.

The ISO will not have the opportunity to fully review all monthly updates; so, there must be some minimum protections such as requiring any monthly updates for reasons beyond load migration to be vetted by the LSE's LRA or government load forecasting agency. The ISO will not perform a review of these monthly updates but believes that the requisite LRA oversight is sufficient to ensure reasonable updates are provided and mitigate manipulation concerns.

The ISO notes that these monthly load forecasts will only affect LSEs' System resource adequacy requirements. The ISO will not update the Local or Flexible resource adequacy requirements for individual LSEs intra-year. Those requirements are established under separate processes that utilize other forecasting components that are not being changed under this proposal.

Local and Flexible RA Requirements and Load Forecasting

Stakeholders have requested information and clarifications on how the load forecasting proposal would address Local and Flexible resource adequacy load forecasting needs and resulting resource adequacy requirements. The ISO is not proposing to adjust the processes it currently utilizes for Local and Flexible resource adequacy requirement determinations and believes these processes can work effectively and apply in an expanded balancing area without modifications. These processes utilize separate forecasting methods that are not related to this proposed System resource adequacy bottom up load forecast aggregation. The ISO's local RA process is clearly described in

section 40.3.2 of the tariff.³ The overall Local capacity process is also described in the ISO Local Capacity Technical Study.⁴ Because most local areas peak at different times than the system, the base case load forecast used in the LCR studies is done by the PTOs. Each local area forecast is not LSEs specific, and it is derived from available load forecasts like the one proposed herein, individual state load forecasts, as well as recorded historical peak data at the local level. However, the ISO needs the LSE individual coincident forecast based on the ISO peak to be provided split per each PTO area. This is required so the ISO can correctly allocate the LCR needs to the LSE. As stated in section 40.3.2 of the ISO Tariff:

The responsibility for the aggregate Local Capacity Area Resources required for all Local Capacity Areas within each TAC Area as determined by the Local Capacity Technical Study will be allocated to all Scheduling Coordinators for Load Serving Entities that serve Load in the TAC Area in accordance with the Load Serving Entity's proportionate share of the LSE's TAC Area Load at the time of the CAISO's annual coincident peak Demand set forth in the annual peak Demand Forecast for the next Resource Adequacy Compliance Year [...] This will result in a MW responsibility for each Load Serving Entity for each TAC Area in which the LSE serves Load. The LSE may meet its MW responsibility, as assigned under this Section, for each TAC Area in which the LSE serves Load by procurement of that MW quantity in any Local Capacity Area in the TAC Area.

For Flexible resource adequacy, the process the ISO utilizes is described under section 40.10 of the tariff and in the Flexible Capacity Needs Assessment.⁵

Accounting for Shifting Peak Hours

Some stakeholders expressed concern that changing system peak hours due to Distributed Energy Resources ("DER") and other factors could pose significant issues if not properly taken into account. Under the proposed approach, individual LSEs and/or load forecasting agencies could account for potential peak hour shifts caused by net load peak changes due to DER or other factors. These entities are well situated to make LSE level adjustments for this concern by incorporating those projected impacts in individual load forecasting submittals. Individual LSEs and load forecasting agencies are best positioned to account for LSE specific contributions to shifting peak load hours because

³ CAISO tariff, Section 40:

http://www.caiso.com/Documents/Section40_ResourceAdequacyDemonstrationForAllISCsInTheCAISOBAAsofNov12016.pdf

⁴ CAISO 2017 Local Capacity Technical Study:

<http://www.caiso.com/Documents/Final2017LocalCapacityTechnicalReportApril292016.pdf>

⁵ CAISO 2017 Final Flexible Capacity Needs Assessment:

<http://www.caiso.com/Documents/FinalFlexibleCapacityNeedsAssessmentFor2017.pdf>

they have the most information regarding changing conditions in their own service territories.

Accuracy Concerns Associated with Flexibility of the ISO Forecasting Proposal

Some stakeholders expressed concern that the flexibility this proposal provides could cause inaccuracy due to the potential use of inconsistent forecasting methodologies. The ISO recognizes this possibility, but does not believe these concerns are warranted. MISO implemented a similar approach, and it has proven workable. Experience in that region demonstrates bottom-up load forecasting results are consistently accurate compared to actual observed annual peaks.

Furthermore, recent load forecasting results from MISO were consistent with a top-down system wide forecast that was conducted for the MISO balancing area over three consecutive years by an independent university forecasting group using publicly available state level econometric data and U.S. Energy Information Agency (“EIA”) forecasting data. The ISO continues to believe that the proposed flexible bottom-up load forecasting approach strikes an appropriate balance that allows for regional and individual differences to load forecasting that provides acceptable accuracy without dictating that uniform forecasting methodologies be utilized.

Finally, the ISO believes that the Western States Committee (“WSC”) can serve as a potential forum for LRAs to discuss the different approaches used to produce forecasts in different jurisdictions. For example, the WSC would be able to provide jurisdiction-to-jurisdiction transparency and guidance regarding LSE forecasting practices. The potential role and oversight of the WSC, while relevant to the subject matter of this proposal, is under consideration in other forums and is not a topic of this initiative.

LRA Oversight of Jurisdictional LSE’s Load Forecast Submittals

Several stakeholders raised concerns that the ISO’s load forecasting proposal would take control away from LRAs and state commissions that oversee the load forecasting for their jurisdictional LSEs. This flexible load forecasting proposal allows LRAs that oversee individual LSE load forecasting to retain their established processes and provide input into the load forecast development and the coincidence factor methodologies their jurisdictional LSEs will utilize. The ISO reiterates that this proposal is not intended to eliminate LRAs’ current ability to review and approve/acknowledge their jurisdictional LSEs’ load forecasts. In fact, the ISO believes LRA involvement and review provides a necessary check to ensure the work conducted by the forecasting entities’ is accurate and reasonable. The ISO proposal is not intended to supersede the LRAs’ role in load forecasting; rather, the ISO believes that the robustness of the ISO system-wide load forecast aggregation would be bolstered by the continued involvement and review by LRAs/state commissions.

Proposed Load Forecasting Submittal Requirements

The ISO will create a template to be used by entities for submitting individual LSE specific load forecasting data and other required forecasting information.

The ISO proposes the following load forecasting data and supporting documentation be required for individual LSEs load forecast submittals.

Primary Load Forecast Submittal Components:

- Non-Coincident Peak Demand Forecast
 - Submittals should include the 1-in-2 (50/50 probability) non-coincident peak demand forecast expected for the load served within the ISO balancing area. Non-coincident peak demand forecasts will be required for each month of the upcoming year and should identify the hour that each monthly non-coincident peak is forecasted to occur. The submitted values should include transmission losses.
- Peak Demand Forecast, Coincident with ISO's System Monthly Peak Demand
 - Submittals should include the 1-in-2 peak demand forecast expected at the time of each of the ISO's system monthly peaks for the load served within the ISO balancing area.
 - Monthly coincident peak demand values are required for the upcoming year (*i.e.*, twelve monthly values). The coincident peak demand value should include transmission losses occurring at peak.
 - ISO will post the historic monthly peak data for previous years on the ISO website to be used by forecasters for calculating their coincident peak loads.

Supporting Load Forecast Submittal Components:

The following documentation, calculations, explanations, and descriptions will be required in addition to the primary forecast elements described above.

- Narrative summary of the non-coincident peak forecasting methodology.
- Narrative summary of the methodology for determining the coincident peak based on the non-coincident peak forecast.

The narrative summary of the non-coincident peak forecasting methodology should include an executive summary explaining how the forecast value is determined. The narrative summary should describe the primary input elements, variables, factors, etc. and explain the method by which these elements determine the forecast values.

- Descriptions of all forecast models used in the forecast process including a textual summary of each forecast model, its principle, parameters, and all independent input variables.
- A description of the source of any economic and demographic information used as inputs to the forecast model.
- Documents or studies directly relied upon, if any, by the forecast process (e.g., end-use studies from which parameters are obtained).
- Actual and weather normalized monthly peaks for previous year
 - Non-Coincident Peak Demand
 - Peak Demand, coincident with ISO's System Peak Demand
- List of load modifiers and other load modifying resources such as demand response programs⁶ (only those demand response programs that are not registered as supply side resources) and other related programs; these include adjustments for energy efficiency programs, behind-the-meter-generation, and distributed energy resources. For each load modifier adjustment or program, submittals should provide the following related information:
 - Categorization of each resource/modifier ("demand side resource", "energy efficiency", "behind-the-meter-generation", or "distributed energy resource").
 - Methodology for accounting for the load modifiers in the forecasting process (e.g. used to reconstitute the historical load, used as an independent variable in the forecast process, etc.)
 - Monthly estimate of total MW demand reduction realized at time of historical non-coincident peak and estimate at ISO's system historical peak for each load modifying resource or program.
 - Total MW of demand reduction expected at non-coincident peak and at ISO's system peak for each load modifying resource or program.

Some stakeholders have expressed concerns about the potential burden and costs associated with providing these components as supporting documentation. The ISO acknowledges that some of these supporting documentation elements may be beyond what is currently provided today. These elements are important to ensure the submitted forecasts are reasonable and allow the ISO to review the submittals in a meaningful manner. The ISO does not believe it would be appropriate to estimate the cost of this required documentation because it could vary depending on the entity submitting the forecasts. The ISO understands these cost considerations and acknowledges there will be some costs to initially develop the narrative and other documentation, but these

⁶ List of resources or programs included in the forecast under the category of load modifiers including, but not limited to, demand-side management, direct-load control, or other programs through which retail customer load is reduced following notification or based upon special circumstances.

supporting documentation requirements are reasonable and prudent given the flexibility that is being provided to LSEs and LRAs under this proposal. Further, the requirements are consistent with those MISO has implemented.

Additionally, the CEC forecasting process for the existing balancing authority area is transparent and well documented. Because of the robust documentation already developed under that process the ISO will accept the current CEC IPER forecast documentation as meeting these documentation requirements for entities that are in the current balancing area. This CEC documentation is sufficient to meet the ISO's needs, and this approach would not add any additional costs for LSEs that are jurisdictional to the CEC. The ISO will treat other load forecasting agencies or LRA documentation in a similar manner, if that documentation provides enough detail and transparency to meet the necessary ISO review ability. The ISO also notes that if an LSE fails to provide the required supporting documentation with their load forecast submittal the ISO will automatically review those submittals and request the necessary information be provided by the LSE at that time.

Load Forecasting Submittal Contact Information:

In addition to the values and documents described above, forecast submittals should provide complete primary point of contact information for each LSE load forecast submittal. In other words, for each LSE specific load forecast submittal under this process, the ISO will need a primary point of contact. If a forecasting agency such as the CEC or a UDC submits a load forecast on behalf of an LSE, then that submitting entity must provide the contact information for the primary point of contact in their organization that has specific expertise of the development of that individual LSE load forecast submittal.

- Primary contacts should have sufficient knowledge of forecast development to be able to assist the ISO with any technical or informational questions that might arise during the forecast review process.

ISO Guidance on Reasonable Forecasting Methodologies

Because the proposed approach is flexible and provides an opportunity to utilize different forecasting methodologies, the ISO will need to provide some guidance to the LSEs and forecasting agencies regarding acceptable and unacceptable statistical methodologies for load forecasting. To provide this guidance, the ISO intends to develop and publish a document that outlines the various statistical methodologies that are acceptable. The ISO would develop this load forecasting methodology review document prior to any new participants joining an expanded ISO balancing area. This document will help guide

forecasters in producing reasonable forecast submittals and will be similar to MISO's load forecasting review whitepaper.⁷

Load Forecasting Submittal Review Process

Because the ISO is providing significant flexibility to individual LSEs, LRAs and/or forecasting agencies, the ISO must be able to review any submittals for accuracy and ensure that reasonable forecasting methodologies have been used.⁸ The ISO proposes to review a subset of all of the individual LSE forecast submittals each year. The ISO will utilize aforementioned load forecasting methodology to review documents in this process. The ISO hopes this will deter inaccurate and unreasonable forecasting and discourage potential manipulation of individual forecasts.

The ISO also intends to publish all LSE specific load forecast error (%) for previous years once that data is available. This will allow all stakeholders to benchmark the accuracy of the proposed bottom-up aggregation approach and provide transparency regarding the accuracy of LSE-specific level forecasting. The ISO would not post any confidential information, *i.e.*, the ISO would only publish the individual LSE load forecast error percentage; it would not post the actual peak loads for individual LSEs.

If the ISO's review reveals an improper statistical method or unrealistic forecast, the ISO proposes the following process:

- The ISO will discuss the issues the ISO identified in its review with all of relevant entities, including the LSE, and the LRA, and any involved forecasting agency.
- The ISO will not seek to adjust LSE forecasts if there is an adequate explanation or justification of the causes that triggered the ISO review.
- However, if the ISO believes that the entities have not adequately explained or justified the issues raised with the submittal, the ISO retains the right to request that the forecasting entity submit an adjusted load forecast that addresses the ISO's identified concerns.

The ISO reiterates that it would only require an LSE or forecasting agency to make adjustments to the load forecast submittal after a subsequent discussion between the ISO and all relevant entities, including the LSE and any LRA or forecasting agency that is overseeing the LSE load forecasts in question, and then only if the ISO's issues with the forecast remain unaddressed. The ISO proposes to have the right to conduct a load

⁷ MISO Peak Forecasting Methodology Review Whitepaper, <https://www.misoenergy.org/Library/Repository/Communication%20Material/Key%20Presentations%20and%20Whitepapers/Peak%20Forecasting%20Methodology%20Review%20Whitepaper.pdf>

⁸ Previously, the ISO proposed a 4% variation from historical data would trigger an ISO review of individual forecast submittals.

forecast for LSEs that decline to resubmit an adjusted load forecast following the ISO's request to do so.

If the outcome of the review process is unacceptable, the ISO Alternative Dispute Resolution ("ADR") process is available as an additional avenue for potential recourse. Entities would be able to seek relief through the ADR process if they do not agree with the ISO's determination. The ISO will set interim RA requirements for LSEs that decide to seek relief under the ADR process. The ISO will set the LSE requirement at 90% of an ISO conducted load forecast for the LSE in question pending the resolution of the ADR process.

System Load Forecasting Benchmark Check

Although the bottom-up load forecast aggregation approach provides maximum flexibility to all LSEs to perform their own individual coincidence peak forecast, inconsistent forecast methodologies in the LSE's individual coincidence peak forecast may result if the sum of all LSE's individual coincidence peak forecast does not equate to a reasonable system coincidence peak forecast. As a benchmark check, the ISO proposes to perform a system load forecast similar to the year-ahead forecasts it performs annually for the ISO Summer Load and Resources Assessment. The ISO would use a system wide forecast to compare to the aggregate of LSE forecasts. If the difference is not material, the ISO would not perform additional review. If the difference is significant, (e.g., greater than 5% variation between forecasted coincident peaks) the ISO would further investigate the matter during its review of individual forecasts, but would not use the top down ISO benchmarking forecast to determine if individual load forecast submittals are reasonable or not. The ISO will only use the supporting documentation provided for individual load forecasts submittals to determine if some LSEs may have submitted unreasonable forecasts.

Stakeholders expressed concerns over what actions the ISO might take if there were discrepancies between the ISO calculated coincident peak and the resulting coincident peak requirement of the bottom-up LSE forecast aggregation. The proposed ISO system-wide top down load forecast is simply a benchmarking exercise, and the ISO will use it only as advisory for reviewing the bottom-up load forecasting aggregation results. The ISO will not perform backstop procurement due to any variation between the coincident peak values determined through the ISO's top down forecast and the LSE bottom-up forecast. This proposed top down ISO forecast is only intended to inform the process and provide additional transparency to compare the results of the overall system-wide load forecasting results and would not be used to identify if individual LSEs forecast submittals were in need of review, the ISO review process is separate and will be performed regardless of the results of the top-down ISO load forecasting benchmark. The ISO will publish the methodology used for the top down forecast for transparency.

Load Forecasting Process Timeline

The ISO provides the following timeline for the major milestones of the load forecasting process. This timeline is not finalized and is intended only to provide a general sense of when the ISO believes these major milestones should occur whenever the proposed process is implemented. The final details and exact dates are subject to change and refinements. The ISO will work with stakeholders in the future to finalize the exact dates and provide greater clarity on the annual timeline.

Date	Milestone
Feb 1	Individual LSE load forecast submittals due
Apr 1	ISO review of individual load forecast submittals complete
Apr 15	Draft system-wide load forecast report posted to ISO website
May 15	Final system-wide load forecast report posted to ISO website

5.2. Reliability Assessment

The ISO believes a reliability assessment is necessary to ensure that LSE and LRA procurement programs have provided for adequate resources to be committed to the ISO markets. The proposed reliability assessment will mitigate the potential for undue “leaning” on the system by individual entities. To perform this reliability assessment, the ISO requires the following elements:

- System-wide PRM target to evaluate total system-wide procurement levels.
- Uniform counting methodologies for assessing the capacity value that each resource type can provide towards meeting the ISOs reliability needs.

The ISO is not proposing any significant changes to the proposals recommended in the prior straw proposals but provides some additional clarifications and responses to stakeholder concerns. In particular, the ISO provides additional details on the changes needed for the ISO’s established resource adequacy showings and validation process. These details explain how the ISO proposes to evaluate individual resource adequacy showings and make deficiency determinations. The ISO also provides additional detail on the proposed revisions to the current backstop procurement authority and cost allocation tariff language that are necessary to fully implement this reliability assessment. The ISO’s latest proposal for each of these components of the reliability assessment is discussed below.

5.2.1. System-Wide Planning Reserve Margin Target

To assess the adequacy of RA showings and properly conduct any reliability assessment, the ISO must first have an established system-wide PRM target to evaluate reliability levels and ensure sufficient capacity will be made available to the ISO markets. It is important to establish the PRM target through a method that (1) accurately measures the appropriate level of reliability that must be maintained, and (2) mitigates the potential for entities to lean on the rest of the system.

The ISO recognizes that states should have significant input into establishing a system wide PRM and has proposed a specific role for the WSC in that regard. The WSC's role is being addressed in a different forum, not in this initiative. The ISO's latest PRM proposal is discussed in further detail below.

ISO default PRM target: Probabilistic Loss of Load Expectation study approach

The ISO proposes using a probabilistic study to determine a default system-wide PRM target. Probabilistic PRM targets are generally considered an industry best practice and are used in many other regions. This approach provides a robust and accurate assessment of the necessary reserve margins required to maintain a specified level of reliability across an expanded balancing area. The specified level of reliability can be measured using an established reliability criterion, such as 1-in-10 Loss of Load Expectation ("LOLE").

The ISO notes that it considered the following major factors in developing a probabilistic PRM analysis methodology:

- Probability concepts such as LOLE provide the ability to quantitatively incorporate uncertainty in the assessment of power systems, which cannot be done using deterministic methods.
- LOLE is a complex probabilistic criterion that accounts for the dynamic nature of a power system because it:
 - Uses statistical methods to address future uncertainties in various system components.
 - Accounts for individual unit level variability of characteristics such as availability/outage rates.

The ISO proposes to utilize a LOLE study to identify the default system-wide PRM target. LOLE studies are conducted with powerful analytical software packages utilizing rigorous probabilistic methods, such as Monte Carlo simulation. Under this approach, multiple uncertainties in the system are considered simultaneously, and the output is obtained after a high number of simulated iterations. The ISO proposes to utilize an analytical software package and, with stakeholder input, would develop the assumptions, models,

techniques and cases it would utilize to complete a LOLE study. The intended process the ISO proposes to develop a loss of load study is detailed below.

Loss of Load Expectation PRM Analysis Process

The ISO provides the following details outlining the necessary aspects and process for conducting the proposed default system-wide PRM study process.

The ISO previously has indicated that it would need to determine the appropriate level of reliability to be used in an LOLE analysis. In other words, the first step in the LOLE study process is to determine what level of LOLE is appropriate to use when studying the loss of load potential in order to establish the default system-wide PRM target (e.g., 1-in-5, 1-in-10, etc.). As noted previously, many other regions use a 1-in-10 LOLE for their generation reliability criterion. This level of reliability is generally set by North American Electricity Reliability Corporation's ("NERC") regional entities through their established reliability standards. In the West however, the Western Electricity Coordination Council ("WECC") has not established a reliability criterion standard like many of the other NERC regional entities have done. Because there is no currently established WECC standard and the ISO believes the best practice utilized in other regions is the 1-in-10 LOLE standard, the ISO proposes to conduct the initial PRM analysis utilizing a 1-in-10 LOLE level of reliability to set the ISO's default system-wide PRM target.

The ISO will conduct a stakeholder process to establish the inputs, variables, cases, and model development, and such a process would ensure transparency and engagement with stakeholders at the time the study is being conducted. The ISO will build the appropriate models and cases and collect the required inputs and data sources necessary to conduct the study. The ISO will also review the results and subsequent report on the study with its stakeholders.

The initial LOLE PRM analysis should occur after completion of this stakeholder initiative but prior to establishing the resource adequacy requirements for any new participants joining an expanded ISO balancing area. The ISO understands that stakeholders seek certainty on important issues such as the ultimate PRM target level. However, it is not feasible to conduct this sort of study in a short timeframe, and the accuracy of the results depend on dependable inputs and effective model design. Additionally, the system footprint and topology, resource mix, and load and other system conditions are variable and subject to change with other potential new entrants over the upcoming years. The analysis should be conducted with the most up to date information available. For these reasons, the ISO believes that this sort of probabilistic PRM approach will yield an appropriate PRM target to meet the specified reliability criterion, but the study will not be completed during this stakeholder initiative.

Frequency of System-Wide PRM Target Analysis

Given the significant time and resource commitments associated with conducting an LOLE study, the ISO proposes to conduct an LOLE study to determine the system-wide PRM target on a periodic basis, but not annually. The ISO proposes to refresh the system-wide PRM target at a minimum, when significant changes to the ISO system occur, such as a new PTO joining the ISO balancing area. The ISO intends to set the default PRM target at a value that would remain fixed between LOLE study updates. Changes to the PRM would be made only once a new PRM value is established by a new study with stakeholder input. The consistency provided by a typically static system-wide PRM target will encourage certainty in consideration of the bilateral contracting construct utilized within the ISO balancing area and other related procurement decisions.

5.2.2. Uniform Counting Rules

Consistent counting rules that both allow the ISO to determine whether sufficient system, local, and flexible capacity has been procured and enable an LSE to demonstrate the adequacy of its RA showings is a critical element of a regional RA program. Further, it ensures that all resources' capacity contributions reflect the capacity contribution to an expanded ISO, not just to a particular LRA. The ISO proposes uniform counting rules based on assessing the capacity value that each resource type can provide towards meeting the ISO's reliability needs and will be subject to an ISO deliverability assessment. The remainder of this section describes the ISO's proposed uniform counting methodologies and the associated resource/fuel types.

Deliverable Capacity Verification Test

The Pmax methodology is an evaluation of a resource's maximum output, submitted by the resource's scheduling coordinator (SC), which may be verified by the ISO. However, as part of a resource's interconnection study process the ISO conducts deliverability studies to determine how much of that capacity is deliverable to the rest of the system under peak load conditions. It is possible that not all of the capacity of the resource may be deliverable under those conditions. Because that capacity may not be deliverable to address peak load it would, therefore, not be eligible to provide resource adequacy capacity beyond the amount of capacity that is deemed deliverable. Once the ISO makes the determination about how much capacity is deliverable from a resource, it does not reassess or lower that deliverability value for the resource.⁹

Although the interconnection study process determines, in theory, how much of a resource's capacity is deliverable, it does not account for the ability of the resource to

⁹ Interconnection studies for future resources assume the same level of deliverable capacity that was established in the initial interconnection study process.

actually provide its full deliverable capacity. Therefore, the ISO must be able to conduct a verification test to determine if the resource can, in fact, produce at its full deliverable capacity. This verification test would apply to the following resource/fuel types:

1. Thermal: Nuclear, natural gas, oil, coal, geothermal, biomass, and biogas (excludes QFs)
2. Participating hydro

Further, although the resource SC submits the Pmax value, the resource may also be subject to Pmax testing by the ISO. Specifically, the ISO would reserve the right to test the resource for any month in which the resource is shown for RA. The resource must demonstrate that it is able to maintain output at Pmax for one hour. Because Pmax can be greater than the deliverable capacity value, successful completion of a Pmax test would also count as verification that a resource can provide its deliverable capacity. If a resource is called for a verification test, the resource SC may provide the ISO with a demonstration that resource sustained output at its deliverable capacity value for one hour based on a market dispatch in the previous 30 days. If such a demonstration is made, the ISO will waive the verification test.

Effective Load Carrying Capability (ELCC)

The ISO will develop an Effective Load Carrying Capability (“ELCC”) methodology to determine uniform counting rules for wind and solar resources. The ISO is not proposing to develop the ELCC methodology as part of this stakeholder initiative. Instead, sometime after completing the present stakeholder process, the ISO will commence a new stakeholder initiative to develop all of the inputs, assumptions, and processes needed to conduct an ELCC study process.¹⁰

Although the specific details of the ELCC study will be determined in a separate stakeholder process, the ISO will determine ELCC values based on an assessment of entire ISO footprint. This ensures that the capacity benefits that resources provide to the expanded ISO are captured and that the impacts of geographic diversity are also properly reflected wind and solar capacity values. The ISO is only proposing to utilize ELCC for wind and solar at this time. However, it may review the benefits of applying this methodology more broadly to more technologies in the future.

Finally, many stakeholders have sought additional details about how the ISO proposes to treat wind and solar resources for purposes of determining if sufficient local capacity has been procured to meet local capacity requirements. Additionally, many stakeholders objected to the ISO’s proposal to default to the exceedance methodology if the ELCC

¹⁰ Examples of elements the ISO would be resolve include, but are not limited to converting annual ELCC values to monthly capacity values, establishing correct LOLE levels, and methods for developing load profiles and/or resource portfolios.

cannot be completed prior to the expansion of the ISO. Therefore the ISO no longer proposes to utilize the exceedance methodology as a fall back option. The ISO will also not propose to utilize a date certain by which it must complete an ELCC study. Instead, the ISO will defer this matters to the ELCC study development process.

Registered Capacity Value

Supply-Side Demand response resources do not have a defined nameplate capacity or Pmax value like most other resource types. Therefore, the ISO proposes to establish the uniform counting rules for supply-side demand response resources, *i.e.* Proxy Demand Resources and Reliability Demand Response Resources, by allowing the SC for the resource to submit a registered capacity value to the ISO.

A registered capacity value provides significant latitude for the resource's SC to set an appropriate capacity value that the proxy demand resource or reliability demand response resource can consistently deliver under its applicable must offer obligation. Given this latitude, the ISO must be able to validate the registered capacity value the SC sets for these resources. The ISO has two methods for testing the registered capacity value. The first method is to audit actual resource dispatches. These audits would assess the resource's bid in capacity and compare it to the resource's performance. Further, the ISO would assess the resource's bid-in quantity to ensure its availability is consistent with its registered capacity value. The second method to test the veracity of the registered capacity value is via a test dispatch that can be performed seasonally. Note, however, that testing is not needed if an actual dispatch has already demonstrated the resource's ability to deliver its registered capacity value during a given season.

The ISO proposes two seasons:¹¹

- Non-summer (January – April, October – December)
- Summer (May – September)

The ISO would have the authority to conduct one four-hour test per season if the resource is shown as an RA resource. A test dispatch ensures the registered capacity value is based on a resource's ability to sustain output (*i.e.* load reduction) over the peak hours of the day. The ISO will reserve the ability to issue a test dispatch in situations meeting where:

- 1) The resource has not already demonstrated its ability to provide its registered capacity value for that season,
- 2) It is a non-holiday weekday, and;

¹¹ This represents a reduction from the ISO's previous proposal of three seasons

- 3) It is during the applicable availability assessment hours for the month.¹²

If the resource fails the test, the ISO will assess the resource as unavailable under the RA Availability Assessment Mechanism for the number of MWs the resource fell short of its registered capacity value. The resource would be eligible for retesting by submitting a request to the ISO to retest. The ISO would then administer an unannounced retest within seven days. If the resource fails the second test, the ISO would determine the resource unavailable for RA above the lower testing shortfall MW quantity for the remainder of the season.

Certain stakeholders have argued that the retail tariff penalty provisions applied indirectly to Reliability Demand Response Resources through the underlying retail program, like the IOUs' Base Interruptible Program, is sufficient to exempt these resources from ISO testing requirements.¹³ However, Reliability Demand Response Resources are not required to be associated with an IOUs' retail demand response program. Additionally, Reliability Demand Response Resources are only available for dispatch during critical, emergency conditions. If the ISO declares a warning or a transmission emergency per the Reliability Demand Response Resource dispatch terms, the ISO will include Reliability Demand Response Resource bids in the real-time market run. Because these resources are relied on during emergency and stressed system conditions, it is critical that the ISO have confidence these resources are capable of delivering their full registered capacity value.

Historic Output

The historical output methodology is a resource's monthly historic performance during the Availability Assessment Hours for the same month, using a three-year rolling average. For resources with missing data due to outages occurring during the availability assessment hours, the methodology will use average values for the same hours on the same calendar day, but from other years. The ISO proposes to use the historical methodology for the following resource/fuel types:

1. Run-of-the-river hydro
2. Qualifying facilities including Combined Heat and Power

Sustained Energy Output Test

The ISO has always had to manage energy limited resources. However, there is an ever-expanding group of storage technologies that requires the ISO to more closely

¹² CAISO tariff section 40.9.3.

¹³ A review of 2016 RA showings shows that the number of proxy demand resources on RA showings is increasing. This increase is likely due to the CPUC's Demand Response Auction Mechanism. There were no Reliability Demand Response Resources on any RA showings.

consider the RA capacity value than had been previously. Unlike thermal resources, holding Pmax for multiple hours would not risk draining the fuel source supplying the resource. For energy limited resources, the ISO must have confidence that they can sustain energy across daily peak. The ISO currently has two technology types that qualify for treatment under this option: Pumped hydro storage and non-generator resources (NGRs) that provide energy bids. Therefore, as with the resources using the registered capacity value, the ISO proposes to base the capacity value of energy limited resources based on the ability to sustain energy output for four hours. As a substitute for an actual test, the resource SC could substitute an actual four-hour dispatch from the previous 12 months as a demonstration of capacity value.

Additionally, an NGR's NQC cannot not exceed the resource's maximum instantaneous discharge capability. Similar to a Pmax test for thermal resources, an SC would submit a request to the ISO to conduct a four hour Pmax test. The test would require an NGR to provide four hours of continuous output to determine its maximum discharge capability in order to establish the NGR's QC value.

Ancillary Service Testing

There are currently two types of resources that participate in the ISO market by submitting non-energy bids: participating load and Regulation Energy Management (REM) NGRs. Participating load participates by submitting bids as non-spinning reserves' whereas, REM-NGRs are only required to submit regulation bids. Because the ISO needs both products to reliably operate the system, these resources should have uniform counting rules. Because these resources are providing ancillary services, the ISO proposes using a 15 minute energy test to determine the capacity values. However, because these resources are not designed to provide sustained energy, the ISO will assess whether there is a need to apply a limit on the amount of RA capacity these resources can provide.

Process for Determining Capacity Values

The ISO recognizes the importance of providing resource capacity values in a timely manner to (1) allow stakeholder review capacity values and request adjustments or correct errors in resource capacity values and (2) ensure LSEs are able to complete any procurement activities prior to the resource adequacy showings described in section 0. Therefore, the ISO proposes the following schedule¹⁴ for releasing uniform capacity values:

¹⁴ All dates will be included in the ISO's Business Practice Manuals.

Date	Milestone
May 1	ISO publishes final Local, Flexible, and ELCC study results
June 1	All resources utilizing registered capacity value option submit registered capacity value to the ISO
July 1	Draft uniform capacity values (including ELCC values) posted to ISO website
July 15	Resource SC requests for modification to draft uniform capacity values must be submitted to the ISO
August 1	Final uniform capacity values posted to ISO website
October 31	Final annual RA showings submitted to the ISO for validation purpose

5.2.3. Resource Adequacy Showings and Validation Process

The ISO requires LSEs and suppliers to participate in a resource “showing” process that (1) requires LSEs to demonstrate that they have procured and made available to the ISO adequate resources to meet system, local, and flexible operational needs and (2) cross validates LSE demonstrations against supplier’s similar showings in their supply plans. The ISO validates these showings during each month-ahead assessment to ensure LSEs have met their resource adequacy requirements and determine whether any potential deficiencies exist and, if so, whether they would cause reliability concerns.

The ISO provides the following details and clarifications regarding how the future validation process would function. The ISO intends to continue utilizing the current showing and validation process with some necessary modifications. The most important modifications to note include the following:

- ISO will utilize the system-wide PRM target for the System RA assessment, and no longer will use individual LRA PRMs for this assessment. (Please see System-wide PRM section above for additional information, Section 5.2.1)
- ISO will utilize the uniform capacity values for resources (please see Uniform Counting Rules section above for additional details on uniform capacity value determination; Section 5.2.2).

LSEs will use RA showings to demonstrate to the ISO what resources they have procured for RA purposes. Suppliers will continue to submit supply plans to confirm that the resource’s Scheduling Coordinator is committed to scheduling and/or bidding the RA capacity that has been reported to ISO. The supply plan will continue to be the means

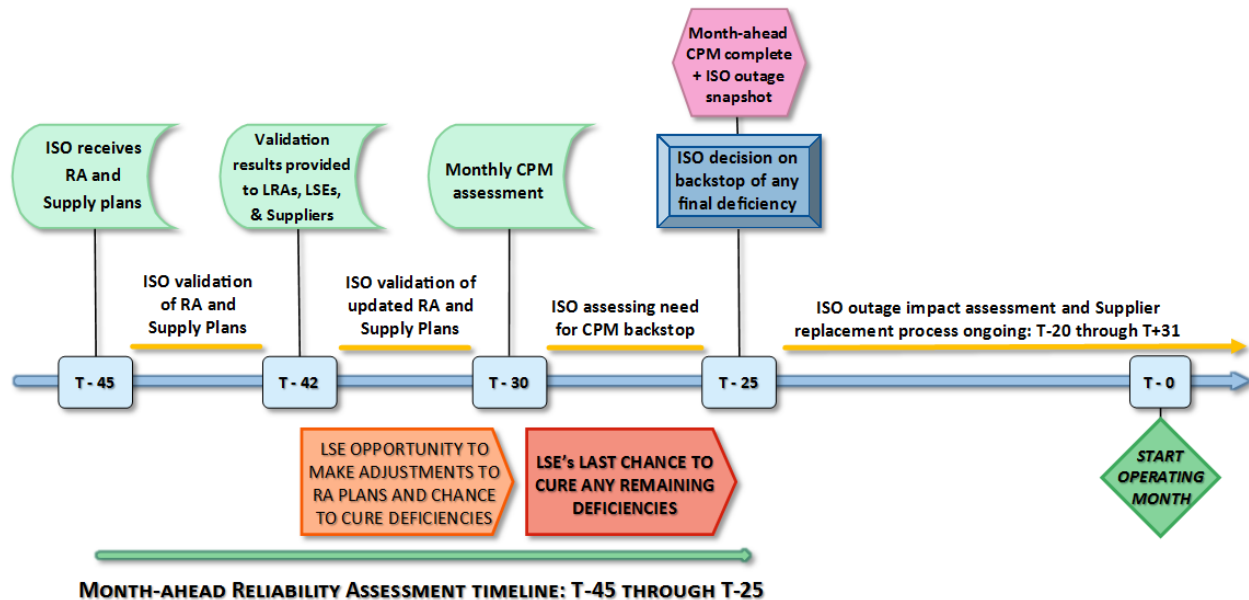
that establishes the commitment of RA resources and confirms the status of a resource as an RA resource. The ISO will validate RA showings and supply plans against the uniform capacity values list for all ISO resources, and the ISO will cross-validate RA and supply plans under this process. Showings for a particular Resource ID should not exceed the deliverable uniform counting rules MW capacity value.

Cross validation is the first step the ISO conducts during each month-ahead assessment process. In this step, the ISO matches LSE records to supplier records and generates basic errors and warnings when records do not match. The ISO will confirm that the total MW value for each resource ID does not exceed each resource's deliverable MW capacity value as determined through ISO uniform counting rules process. Any error-free capacity submissions become committed as RA capacity. Once designated capacity records on RA and supply plans are validated and cross-validated, resources and associated capacity are established as RA capacity for the time period indicated in the showings and are subject to the ISO's tariff provisions regarding bidding, availability, outage reporting, and substitution.

Resource adequacy showings and the validation process allow the ISO to identify any potential deficiencies for individual LSEs and on a system-wide basis. The ISO will use the system-wide PRM target as an input to determine whether the system RA requirements have been met. The ISO will notify any potentially deficient LSEs and provide opportunities to cure those potential deficiencies as shown in the following diagram.

ISO Resource Adequacy Showings and Validation Timeline

The following diagram illustrates the timeline for the ISO showings and validation process that was approved by the ISO Board under the RSI 1 initiative. This timeline reflects the changes that will be implemented in accordance with that approved process. The dates indicated in the diagram are not yet in effect.



5.2.4. Backstop Procurements Need Determination and Cost Allocation Modifications

The current resource adequacy framework in the ISO balancing area is based on bilateral procurement. Under this framework, LSEs procure capacity through bilateral contracts to meet their RA requirements for system, local, and flexible capacity. The ISO is permitted to engage in backstop procurement pursuant to its Capacity Procurement Mechanism (“CPM”) provisions in a limited number of defined circumstances in order to maintain reliability. Backstop procurement is not automatic or mandatory under the CAISO tariff. Rather, the ISO has discretion to procure backstop capacity if there is a capacity deficiency or potential reliability event. The ISO notes that effective November 1, 2016 it began procuring CPM capacity pursuant to a competitive solicitation process. The ISO will be able to procure the lowest cost resource(s) to meet identified reliability needs that require backstop procurement.¹⁵

To determine whether the ISO’s reliability needs have been met, the ISO will conduct the reliability assessment described above. If the ISO determines that there is a shortage of capacity that requires remediation based on the reliability assessment, the ISO will inform stakeholders and evaluate the need for potentially exercising its backstop procurement authority. The process the ISO will follow in situations where it identifies

¹⁵ This proposal does not discuss the mechanics of the competitive solicitation process. Stakeholders seeking additional information regarding that process should refer to section 43A of the ISO tariff.

the reliability need are defined in the ISO tariff under Section 43A.¹⁶ To effectively incorporate the proposed reliability assessment the ISO will need to make some adjustments to these tariff provisions. In particular, the ISO will need to reflect the language used to describe the reliability assessment proposal, as detailed below.

The current ISO tariff language does not expressly contemplate the ISO performing a reliability assessment as proposed under this initiative. The ISO proposes to revise the tariff to recognize that a reliability assessment may identify a shortage that the ISO needs to cure and authorize the ISO to procure backstop capacity as a last resort to cure the shortage. If the ISO determines there is a shortage of capacity based on the reliability assessment, the ISO will continue to follow the notification processes described above prior to exercising its backstop procurement authority. The ISO will provide the same level of transparency and protections against unnecessary or over procurement that exist under today's backstop procurement framework.

Specifically, the ISO proposes to revise Section 43A of the ISO tariff for the following four categories of CPM designation to recognize a potential shortage that could result from the reliability assessment:

- Insufficient RA resources in a LSE's annual or monthly RA plan
- Deficiency in local capacity area resources in a LSE's annual or monthly RA plan
- Collective deficiency in a local capacity area after accounting for all procured RA resources
- Cumulative deficiency in the total flexible RA capacity in the annual or monthly flexible RA capacity plans or in a flexible capacity category in the monthly RA plans of LSEs

These four categories of CPM designation are affected because applying the system PRM requirement or uniform resource adequacy counting rules used in the reliability assessment may result in a shortage of one of these four types of resource adequacy capacity. Only these categories of CPM designation are affected under the draft regional framework proposal. Other CPM tariff language regarding reporting requirements, transparency, opportunities to cure, duration of designation, etc. would not change.

The ISO does not propose any changes to the tariff language regarding the following three categories of CPM designation:

- A "Significant Event" occurs that threatens reliability and there are insufficient resource adequacy resources available to address the problem

¹⁶ Section 43A Capacity Procurement Mechanism as of Sep 25, 2016:
http://www.caiso.com/Documents/Section43A_CapacityProcurementMechanism_asof_Sep25_2016.pdf

- Reliability or operational need requires the ISO to “Exceptionally Dispatch” non-resource adequacy capacity
- Capacity that is at risk of retiring in the current resource adequacy compliance year and will be needed for reliability by the end of the calendar year following the current resource adequacy compliance year

Backstop Procurement Decision and Cost Allocation Process

In the proposed reliability assessment, the ISO will evaluate the overall system-wide level of procurement provided through the cross-validated RA showings against the system-wide PRM target in order to determine resource sufficiency or identify a system-wide cumulative deficiency. A cumulative deficiency occurs when the sum total of all RA capacity shown is less than the approved system wide RA requirement. It is possible for an individual LSE to be deficient and for the ISO not have a resulting cumulative deficiency if another LSE has shown capacity in excess of its requirement. It is not possible to have a cumulative system deficiency if all LSEs show their required quantity of RA capacity. The ISO may opt to engage backstop procurement only where there is an identified cumulative deficiency that remains uncured. Additionally, the ISO will only make a backstop procurement decision after all deficient LSEs have been notified of the deficiency and provided with opportunities to cure.

If the ISO procures backstop capacity to fill an uncured cumulative deficiency, it will only make a designation sufficient to fill the deficiency (*i.e.* the ISO will only procure up to the amount needed to eliminate the cumulative deficiency, not to cure each individual LSE deficiency). The associated costs will be allocated first to those LSEs that have not met their individual system RA requirements. This is consistent with the current ISO cost allocation rules for backstop procurement for collective deficiencies. Cost allocation for any backstop procurement will continue to be based on the short LSEs’ proportional share of any backstopped cumulative shortage.

The equation for this cost allocation method can be expressed as follows:

$$\text{Total cost allocation to a deficient LSE} = \text{Backstop MW procured} \times (\text{LSE showing deficiency} \div \text{sum of all deficiencies of deficient LSEs})$$

Examples of how this cost allocation will be applied were presented at the August 10, 2016 working group meeting.¹⁷

¹⁷ This presentation is available at <http://www.caiso.com/Documents/AgendaandPresentation-RegionalResourceAdequacyWorkingGroup-Aug102016.pdf> at slides 27-33.

5.3. Maximum Import Capability

The ISO is not proposing any significant changes to the MIC modifications it has proposed in the prior straw proposals, but it provides some additional clarifications and responds to stakeholder concerns in the following section. It is necessary to revisit both the MIC calculation and allocation methodologies to align the processes with the needs of an expanded balancing area to recognize and account for differences in peak loads that may occur non-simultaneously between sub-regions. The ISO has provided detailed background on the MIC calculation and allocation processes in previous proposals.¹⁸ The ISO provides additional details on why the recommended changes are necessary and it would implement these modifications in the following sections of this proposal.

The ISO has considered stakeholder input on the proposed modifications and determined that it would not be appropriate to adopt a transition period or transition mechanism for these MIC refinements. The MIC proposal is intended to work in any new potential expanded balancing area and is not intended to be a transitional modification. Although the ISO is not convinced that a transitional mechanism is needed, the ISO understands the potential concerns expressed by some stakeholders. Therefore, the ISO commits to monitor the MIC process as the ISO and stakeholders gain experience with these proposed refinements in an expanded footprint and will reevaluate the need for further MIC refinements in the future.

As explained in previous straw proposals, the current process is flexible enough in most aspects to accommodate the existing rights and practices of potential new participants in an expanded balancing area. To provide additional clarity and certainty to entities that have concerns that some of their current import practices and Existing Transmission Contracts (“ETCs”), or resource obligations (Pre-RA Commitments) will not be allowed or protected under the ISO MIC process, the ISO provides the following additional background regarding the process and current tariff protections. The ISO MIC allocation process has dual protections. First, any LSEs with ETCs (ETCs also include transmission ownership rights, “TORs”) will be protected. This means that the holders of ETCs will receive corresponding MIC allocations to protect their ability to import resources on those interties for resource adequacy purposes. The ETCs are established and provided by the new PTO to the ISO for management. Second, if no ETCs are established, the Pre-RA Import Commitments (resource contracts signed before a cut-off date) also receive priority for MIC allocation purposes. These first two priorities apply to the entire MW amount irrespective of the LSEs load share ratio within the relevant TAC area. These priorities are protected for the current life of the ETC and/or Pre-RA Import Commitment, without the possibility of renewal. If the sum of the ETC and Pre-RA

¹⁸ Regional RA Revised Straw Proposal at pg. 19-24: <http://www.caiso.com/Documents/RevisedStrawProposal-RegionalResourceAdequacy.pdf> & Regional RA Second Revised Straw Proposal at pg. 15-16: <http://www.caiso.com/Documents/SecondRevisedStrawProposal-RegionalResourceAdequacy.pdf>

Import Commitments is greater than the LSE load share ratio within the relevant TAC, then the LSE will not receive any additional Remaining Import Capability (RIC) that LSE can further choose to allocate to non-oversubscribed intertie scheduling points. Otherwise, the LSE will receive additional RIC, if any remain, to nominate at available intertie scheduling points within the relevant TAC area.

Establishing a Pre-RA Commitments Date for MIC Process

Currently, March 10, 2006 is the cut-off date for considering what arrangements count as Pre-RA Commitments in the Available Import Capability Assignment Process. The ISO recognizes that discussion must occur regarding a new “cut-off date” for considering what existing contractual obligations constitute Pre-RA Commitments under the Available Import Capability Assignment Process for potential new entrants in an expanded balancing area. The ISO envisions that this discussion should set the Pre-RA Commitment cut-off date for all entities in a potential new PTO system that joins the ISO. This process should set the cut-off date at a date prior to the RA process for the upcoming year in which a new PTO would join the ISO balancing authority area. The ISO clarifies that it considers this determination to be an implementation detail, and additional discussion among the interested parties will be necessary at a future date.

5.3.1. MIC Calculation Proposal

The ISO will adjust the MIC calculation methodology to address situations where the peak load of a new region in an expanded balancing area occurs seasonally non-coincidental with the peak load of the rest of the system and when there are no simultaneous constraints between certain areas of an expanded balancing area. The change is intended to be used in limited circumstances and address situations where the peak load of a PTO that joins the ISO occurs seasonally non-coincidental with the peak load of the rest of the system and when there are no simultaneous constraints between certain areas of an expanded ISO balancing area. Using the current MIC methodology without the proposed adjustment to the MIC calculation would unduly restrict the MW amount that can actually be reliably achieved for certain branch groups. The affected branch groups are mainly those used to serve the peak load in new areas where peak is not simultaneous with the rest of the system and have no simultaneous constraints with the rest of the system. The ISO demonstrates how this change would not undermine the reliability of the system in the following section. The ISO also provides details on the proposed MIC calculation methodology enhancement and clarifies how it would implement the proposal.

Non-simultaneous analysis of historic import observations shows this proposal does not cause reliability issues because once the MIC levels are determined, they will be used as input assumptions in the generation interconnection and annual transmission planning

processes. This will ensure that MIC levels are deliverable to the aggregate of load and there are no simultaneous import constraints.

The ISO has also determined that there currently are no simultaneous import constraints between the existing ISO system and the PacifiCorp system. Therefore, the ISO can determine the MIC into the existing ISO system and into PacifiCorp on a non-simultaneous basis without causing reliability issues. The ISO intends to evaluate simultaneous constraints for any expanded areas of the ISO balancing area using the following methodology.

Simultaneous deliverability constraints can be identified among imports and/or internal generation. Those constraints are resolved by a least squares algorithm where the internal generation and/or imports with the highest impact on the constraint is curtailed more than those with a smaller impact, as described in the generation interconnection BPM. If over the course of time the ISO identifies simultaneous constraints between MIC intertie points, then a similar approach could be utilized.

If the ISO finds simultaneous import constraints during planning and/or operating studies, then the ISO will calculate the MIC for the new system (or part thereof) simultaneously with the existing part of the ISO that has the same simultaneous constraint. Based on previous planning and/or operating studies, if there are no identified simultaneous import constraints between the new system joining the ISO and the existing ISO, then the ISO will determine the MIC for the new system on a non-simultaneous basis.

The ISO's planning and operational studies show that the following areas have non-simultaneous constraints: California, PacifiCorp East and PacifiCorp West.

Stakeholders have noted that the ISO's current proposal is to only assess whether new PTOs that join the ISO have a peak load that occurs non-simultaneously with the peak load of the rest of the system and whether there are no simultaneous constraints between the PTO and the rest of the system. They argue that the ISO should modify its proposal to assess all PTOs consistently, so that existing PTOs whose peak load occurs non-simultaneously and has no simultaneous constraints can benefit from this change. The ISO understands this request for equivalent treatment. In response, the ISO notes that because all current PTO areas are summer peaking, this seasonally non-simultaneous approach does not apply to any PTOs in the current balancing area. The ISO will continue to check to make sure this is true in the future to ensure equal treatment.

Stakeholders have also indicated that using the term "non-simultaneously" regarding the coincidence of peak load and the relevant constraints has not been well-defined and recommend that when the ISO is referring to "non-simultaneous peak load", instead should use the term "seasonally non-coincidental". They also suggest that the ISO

should define “seasonally non-coincidental peak load” to be when a PTO’s peak load occurs more than three months from the peak load of the rest of the ISO System (*i.e.*, simultaneous peak of all other PTOs). The ISO concurs with stakeholder comments on this issue; the ISOs intention was to use “seasonally non-coincident peak load” and definition of terms should be used as described above. The terms in this proposal have been modified accordingly.

Some stakeholders have also expressed concern that the relevant constraints related to the proposal are not well defined. These stakeholders have requested that the ISO further clarify how it will identify relevant constraints within the ISO, and they state that the system conditions under which the ISO will assess the constraints and the load levels the ISO will use in any constraint assessment should be transparent and consistent with the seasonally non-coincidental PTO peak load. To address these requests for clarification, the ISO will study the relevant constraints (or the lack of) as part of the annual Transmission Planning Process (“TPP”). The ISO will assess them under multiple load scenarios (summer, winter, fall and spring) and sensitivities to flow pattern and scheduling practices. Results will be public and transparent, with the ISO informing stakeholders through the annual TPP process.

Some stakeholders requested that the ISO provide additional detail on the potential impact of seasonally adjusted MIC levels on the NQC of internal resources. Stakeholders have also requested that the ISO conduct a regional deliverability study to assess the impact of the change in the MIC calculation methodology based on multiple PTOs joining the ISO. At this time, the ISO expects little to no impact to the current or queued internal resources NQC values as a result of this proposed modification to the MIC calculations. The ISO will run deliverability studies to confirm before each new PTO joins.

5.3.2. MIC Allocation Proposal

To revise the MIC allocation methodology, the ISO proposes to limit the initial allocations of MIC capability only to those ISO sub-regions that are defined by the Regional TAC sub-regions based on a load ratio share of the LSEs serving load within those sub-regional TAC areas.

Modifying the MIC allocation process to reflect the ISO’s proposed Regional TAC policy splits the MIC allocation based upon TAC sub-regions that are paying for the underlying transmission of the overall system. This will ensure that LSEs in the current balancing area will continue to receive allocations of MIC capability similar to that made available by the current balancing area interties today. Excluding sales and transfers, the same LSEs (based on their load in the current balancing area) would only be able to nominate RIC (“Remaining Import Capability”) on those interties into the current balancing area

(identified as one of the sub-regional TAC areas). LSEs serving load within new areas of the expanded balancing area (identified as one of the sub-regional TAC areas) will receive all of the RIC capability that is provided by its current system's capability, with the ability for entities in that sub-region to nominate only on interties into that TAC sub-region area.

This proposed modification to the MIC allocation process to reflect the Regional TAC policy direction will ensure that LSEs in the current balancing area maintain access to current MIC allocations, and new TAC sub-regions areas in an expanded balancing area receive the MIC that TAC sub-region of the system brings to an expanded BAA. This is appropriate given the underlying cost causation and payment structure that is being envisioned under the Regional TAC policy.

The ISO's proposal to split these MIC allocations to each TAC sub-region will still allow LSEs to utilize MIC in other sub-regions of the ISO through the bilateral trading under Step 8 (Transfer of Import Capability) of the MIC allocation process. This will allow for LSEs to bring system RA resources into the footprint if they have transferred/purchased some MIC capability into different TAC sub-regions. The ISO also notes that under Step 13 (Requests for Balance of Year Unassigned Available Import Capability) of the MIC allocation process, all of the remaining MIC capability that has yet to be assigned on all interties would be open for nomination by all LSEs in all areas of the entire expanded ISO BAA.

The ISO believes that splitting the initial allocations, combined with the ability to bilaterally transfer MIC between the Regional TAC sub-regions, and the final Step 13 of the MIC allocation process that allows any entity to nominate remaining MIC anywhere in the footprint will balance the need to maintain fair initial MIC allocations to sub-regions. The proposal also provides LSEs flexibility to utilize system RA imports brought into to the system across all interties in an expanded balancing area to realize the benefits of a larger geographic footprint.

Some stakeholders continue to express concerns about this aspect of the MIC proposal and believe that the proposed process of giving certain PTOs first access to particular interties will limit the efficiency of the RA market. They also disagree that the proposed modification will ensure that LSEs in the current balancing area maintain access to current MIC allocations. The current proposal better aligns MIC allocation with the payment of the sub-regional TAC. For example, the ISO believes that LSEs paying "sub-region A" TAC should be allocated the MIC resulting from the actual transmission capability in the "sub-region A". Furthermore, the proposal continues to give Pre-RA Import Commitment protection at any intertie scheduling point even if it is located in a different sub-regional TAC than the LSE's native load.

Another stakeholder concern was that as more PTOs join the ISO, the LSEs within the current footprint will potentially lose import allocation rights as former intertie capacity becomes internal transfers within the ISO. The ISO agrees that this is a potential outcome as more and more PTOs potentially join the ISO: however, the current LSEs will receive far more benefits in return. One of the benefits associated with the disappearance of certain existing intertie scheduling points is an expansion of the available capacity to the actual path rating (which is always higher, or worst-case, equal with current MIC rating for the intertie). Additionally, the amount of MIC that is currently allocated to LSEs in the current footprint has been mostly unutilized, so these concerns over small magnitudes of MIC going away on those interties potentially becoming internal paths is not material. To demonstrate that much of the MIC capability currently goes unused by LSEs, the ISO Department of Market Monitoring (“DMM”) reports that utilities only used imports to meet around 2,600 MWs, or about 5 percent, of the system resource adequacy requirements during the 210 highest load hours in 2015.¹⁹

Describing the Proposed Changes to MIC Process

The ISO provides the following details describing how the ISO plans to design and implement changes to the MIC process under this proposal. The following MIC process modification will allow the ISO to track and validate the different sub-area allocations during the process in order to accomplish the proposed split of the MIC allocation among sub-regions to align with the Regional TAC proposal.

1. The ISO will establish MIC by intertie based on the existing methodology updated to accommodate non-simultaneous peaking areas that have non-simultaneous constraints with the rest of the system.
2. On an Intertie basis: After subtracting the ETC and TOR held by outside the BAA LSEs from MIC, the ISO assigns the resulting Available Import Capability to “TAC sub-regions” in the same percentage as the transmission assets are paid for by LSE in different TAC sub-regions. The ISO will use the Total Import Capability from all sub-regions to determine the Load Share Quantity for each Load Serving Entity that serves Load within the CAISO Balancing Authority Area. The ISO will use the Total Import Capability within each TAC sub-region to determine the Load Share Quantity for each Load Serving Entity that serves Load within each TAC sub-region of the CAISO Balancing Authority Area.
3. Continue to protect ETC and TOR for inside the BAA LSEs regardless of TAC sub-regions.
4. Continue to protect Pre-RA Import Commitment for inside the BAA LSEs regardless of TAC sub-regions.

¹⁹ ISO DMM 2016 Annual Report on Market Issues and Performance, May 2016 at p. 219:

5. The ISO allocates the RIC on a Load Share Ratio to LSEs within each sub-region if they have not exceeded their Load Share Quantity within the same TAC sub-region.
6. The ISO posts the Assigned and Unassigned Capability within each TAC sub-region by Intertie.
7. ISO notification of LSE Assignment Information – done by each TAC sub-region.
8. Transfer of RIC among market participants, open to all LSE and all interties however tracked by TAC sub-region for correct allocations in steps 9-12.
9. First LSE/Market Participant request of assignment of RIC within each TAC sub-region by Intertie.
10. ISO notification to LSEs of initial RIC Assignments and Unassigned Capability within each TAC sub-region by Intertie.
11. Secondary LSE/Market Participant request of assignment of RIC within each TAC sub-region by Intertie.
12. ISO notification to LSEs of secondary RIC Assignments and Unassigned Capability within each TAC sub-region by Intertie.
13. Requests for Balance of Year Unassigned Available Import Capability, open to all and not locked in by TAC sub-region.

The ISO has previously provided a detailed MIC example to illustrate how it would implement the proposed modifications in the third revised straw proposal. The ISO also provided a table that details the proposed modifications to existing MIC process. Please refer to the third revised straw proposal for the detailed MIC example and the table describing the proposed modifications to the existing MIC process.²⁰

Allocation of MIC Capability Created by New Regionally Cost-Shared Transmission Projects

In the future, if there are new regionally cost-shared transmission projects²¹ that create additional MIC capability, the ISO would allocate the shared transmission capability proportionally to each sub-regional TAC area based on the relative shares of the costs of the project that was included in that sub-regional TAC areas rate. The ISO proposes to allocate new and/or additional MIC capability created by new cost-shared transmission projects based on the associated allocation of the cost of the new lines to TAC sub-

²⁰ Regional Resource Adequacy Third Revised Straw Proposal, September 29, 2016, p. 33-37:

<http://www.caiso.com/Documents/RevisedStrawProposal-RegionalResourceAdequacy.pdf>.

²¹ TAC Options Revised Straw Proposal: “New regional facilities” are defined here to mean facilities that are planned and approved under an integrated transmission planning process that would be established for planning transmission for the entire expanded ISO BAA, and that meet certain criteria specified in this proposal. The costs of new regional facilities would be allocated to multiple sub-regions of the expanded ISO in accordance with the decisions of a new body of state regulators to be formed as part of a new ISO regional governance structure in conjunction with the integration of the new PTO.

<http://www.caiso.com/Documents/RevisedStrawProposal-TransmissionAccessChargeOptions.pdf>

regions. Specifically, the ISO would make the MIC allocation on an intertie basis for any new cost shared projects creating a new intertie.

For each new intertie, the ISO would make the allocation after subtracting the ETC and TOR held by outside the balancing area LSEs from the available MIC, with the resulting Available Import Capability assigned to each of the TAC sub-regions in same percentage as the new transmission assets are paid for by LSEs in the different TAC sub-regions. The ISO will calculate the MIC created by these new cost shared projects using the forward looking MIC calculation process that is already established for evaluating MIC for public policy needs.

Some stakeholders believe this proposal would create a complex system of tracking and validating the incremental benefits of the branch groups and does not offer market participants with any certainty for future contracting. These stakeholders recommend that the ISO use a study based methodology for all MIC determinations for new regionally cost shared projects. In response, the ISO clarifies that the proposal is limited to future transmission projects where the costs are shared by two-or more sub- regions, and the number of these projects is expected to be limited. A forward-looking study-based methodology would require speculation between generation development internal and external to the ISO balancing area, and then this speculation would tend to administratively predetermine the allocation and influence the ultimate development of generation internal and external to the ISO balancing area generation development. The ISO may reconsider major changes to all of the MIC processes in the future, as necessary, but maintains that the current proposal is appropriate at this time.

5.4. Requirements for RA Imports

This section contains significant changes to the prior proposal. The ISO has previously indicated that it would be beneficial to clarify requirements for import resources qualifying for resource adequacy purposes for numerous reasons.²² The requirements and expectations regarding the physical availability of imports used to meet system resource adequacy requirements are important to ensure those resources are made available to the ISO when needed and to maintain the integrity of the resource adequacy program that is based upon resources being physically available. As noted in prior proposals, current tariff provisions allow LSEs to meet system resource adequacy capacity requirements using imports, and these imports do not have to be tied to a specific physical resource. For example, LSEs can use imported resource adequacy capacity from a non-resource specific import resource to meet system resource adequacy

²² Regional RA Second Revised Straw Proposal, May 26, 2016, p. 10:
<http://www.caiso.com/Documents/SecondRevisedStrawProposal-RegionalResourceAdequacy.pdf>

requirements. Stakeholders and the ISO DMM have provided input indicating that these provisions should be clarified to provide more clearly enforceable provisions and proper guidance to stakeholders on this topic.²³

In addition to these requests for increased clarity, the ISO has stated in prior proposals that RA showings designating import MWs to meet resource adequacy obligations across interties using either Non-Resource-Specific System Resources, Pseudo-ties or Dynamically Scheduled System Resources must have a MIC allocation and are considered to be a firm monthly commitment to deliver those MWs to the ISO at the specified interconnection point with the ISO system.²⁴

Given the ISO's expectation that resources shown on resource adequacy showings are considered firm monthly commitments and the fact that the current ISO tariff does not specify requirements for imports to qualify as system RA, the ISO believes it is appropriate to clarify these provisions in this initiative. Additionally, the ISO has previously discussed related issues with stakeholders, and one of the key issues under consideration is the potential role for transactions such as bilateral spot market purchases or short-term firm market purchases procured at market hubs outside of the balancing area to meet a portion of an LSE's system RA requirements. The ISO believes the revised proposal set forth effectively clarifies how these import resources can qualify as RA.

The ISO has expressed its concerns in prior proposals. One concern is that tariff ambiguity could be interpreted as allowing LSEs to demonstrate through RA showings that they have met their RA requirements and move into the operating month without securing contractual obligations prior the month-ahead timeframe. The ISO has also expressed concern that LSEs could rely on unsecured resources that may be double counted as available for use by other balancing areas. In response to these concerns, in the third revised straw proposal, the ISO proposed that it would no longer allow intra-month short-term spot market energy purchases or other intra-month contractual arrangements to qualify for resource adequacy. The ISO's proposal would have allowed only those contractual arrangements for imports secured prior to RA showing deadlines for the month-ahead time frame.²⁵ The prior proposal to restrict short-term (intra-month)

²³ DMM has submitted written comments in the stakeholder process explaining that RA imports are only required to be bid into the day-ahead market. These imports can be bid at any price and do not have any further obligation if not scheduled in the day-ahead energy or residual unit commitment process. DMM has expressed concern that these rules could allow a significant portion of resource adequacy requirements to be met by imports that may have limited availability and value during critical system and market conditions.

²⁴ Regional Resource Adequacy Revised Straw Proposal, April 13, 2016, p. 19:

<http://www.caiso.com/Documents/RevisedStrawProposal-RegionalResourceAdequacy.pdf>.

²⁵ Regional Resource Adequacy Third Revised Straw Proposal, September 29, 2016, p. 39-40:

<http://www.caiso.com/Documents/RevisedStrawProposal-RegionalResourceAdequacy.pdf>.

arrangements addressed the potential concerns described above and expressed by the ISO DMM and some stakeholders. However, the ISO has received strong stakeholder feedback indicating a need to further reconsider this aspect of the proposal. Accordingly, the ISO proposes to revise this previously proposed short-term RA import restriction in this draft regional framework proposal.

Because many entities external to the current ISO balancing area indicate that they have managed reliable systems and maintained resource adequacy while relying on some short-term arrangements, the ISO has reevaluated this aspect of the proposal. The ISO believes it is appropriate to strike some balance between the ISO's robust resource adequacy provisions and current commercial practices of many entities in the West, while adopting measures to mitigate against any potential adverse reliability impacts.

After significant consideration of this issue, the ISO proposes to permit short term capacity arrangements (which can be executed after the resource adequacy showings due date) to qualify towards meeting up to 10 percent (%) of the total system resource adequacy requirement for an individual LSE's system RA requirements. This change recognizes the current practices of certain entities and the desire for some flexibility to use short-term arrangements, while reducing the potential exposure to adverse effects by setting a reasonable 10% limit on total short term capacity purchases.

This impact of this proposal is described in the following example: Assume an individual LSE has a system RA requirement of 10,000 MW and a total MIC allocation of 3,000 MW. Under the proposal this LSE would be permitted to show short term import arrangements up to 1,000 MW (10% of individual LSE requirement). This LSE can also use its remaining MIC allocation, up to 2,000 additional MW, for any other qualifying import resources that have been secured ahead of the monthly showings due date. In other words, this LSE would be allowed to show up to 3,000 MW total imports, comprised of up to 1,000 MW of short-term arrangements (secured intra-month) and 2,000 MW of long-term arrangements (secured ahead of the month).

In order for the ISO to validate that LSEs are meeting this proposed limitation, the ISO will develop an additional indicator in the CIRA tool. LSEs will be required to use this tool to designate the portion of their resource adequacy showings that are short-term arrangements and that remain unsecured/unexecuted prior to the month ahead resource adequacy showings due-date. The ISO would validate the indicated amount to confirm that the amount shown does not exceed 10% of each LSE's individual system resource adequacy requirements.

To ensure these short-term resource adequacy arrangements are made available to the ISO markets, the ISO proposes additional protections in the form of enhanced incentives, or penalties for non-performance. The ISO believes these additional protections are necessary to mitigate potential added risks the ISO has previously identified. The ISO describes below three incentive and enforcement mechanisms to provide these protections. The ISO is proposing the following modifications to incent the availability of short-term, non-resource specific import arrangements:

- 1) Adjust the cost allocation provisions for intra-month exceptional dispatch CPMs to allocate some costs to LSEs that showed short-term import arrangements but failed to perform when system conditions required an exceptional dispatch CPM.
- 2) Enhance penalties for non-performance during system emergencies or other significant events triggering adverse system conditions.
- 3) Require LSEs to provide data and documentation to demonstrate compliance with the ISO's proposed 10% limit on short-term import arrangements on each monthly resource adequacy showing.

The ISO provides some additional details on the potential incentive and penalty options below. The ISO seeks stakeholder feedback on these proposed modifications in order to better clarify how these provisions would be implemented.

For the revised cost allocation for exceptional dispatch CPM option, the ISO would perform an after-the-fact review of each CPM to identify entities that failed to deliver short term import arrangements when there is a system-wide deficiency requiring an intra-month exceptional dispatch CPM. The ISO would adjust the cost allocation for this CPM category to incentivize delivery of short term import arrangements by allocating some amount of the CPM costs to those entities that had shown short-term arrangements that were dispatched during the event but failed to deliver. The amount of CPM costs allocated to such entities would need to correspond to the magnitude of the non-performance of these entities' short-term import arrangements during the period of system need that led the ISO to issue an exceptional dispatch CPM.

To enhance the penalty for non-performance further, the ISO proposes to explore potential changes to the provisions for non-performance in system emergencies or other significant events. The ISO will potentially suspend the Resource Adequacy Availability Incentive Mechanism ("RAAIM") assessment during identified situations of system emergencies or other significant events and instead apply a more forceful non-performance penalty to all non-performing resource adequacy resources during those situations, including both internal and external resources. The ISO would need to identify the specific situations that would trigger this enhanced non-performance penalty

and seeks feedback on the appropriate triggering circumstances for such a non-performance penalty. Additionally, the ISO would need to identify the magnitude of charge or penalty that it would apply on a per-MW basis to create an appropriate but forceful penalty that would sufficiently incent resource performance during the most critical periods of system needs. The ISO seeks feedback from stakeholders on these options and, in particular, the specific conditions that should trigger the penalty and the appropriate magnitude of the penalty per-MW of non-performance.

The ISO also proposes to require that LSEs provide documentation and data to the ISO to demonstrate that their utilization of short-term import arrangements to meet their system resource adequacy requirements does not exceed the proposed 10% limit. Each LSE will be required to provide data and documentation that would allow the ISO to confirm that short-term import arrangements did not constitute more than 10% of their individual monthly system resource adequacy requirements. The ISO is still considering what type of data and documentation would be necessary to accomplish this verification, but initially, the ISO believes that each LSE should provide documentation of all non-resource specific import resources that were shown on their monthly showings with corresponding MW values, the duration of the arrangements, and execution dates for contracts or market purchases. This after-the-fact review would provide an additional layer of protection to ensure LSEs are meeting the proposed requirements limiting use of short-term import arrangements.

The above incentive, penalty, and reporting options pose some important questions and all have related pros and cons. The ISO seeks stakeholder feedback on these potential enhanced incentives and penalties options and the overall proposal to accommodate non-resource specific imports as RA capacity.

5.5. Resource Substitution Issues

5.5.1. Treating Forced Outages Comparable to Planned Outages

This section contains a new proposal. The ISO has received significant stakeholder feedback indicating, in their opinion, that the current substitution rules for forced outages and the ISO's availability incentive, RAAIM, potentially can reduce entities' flexibility to meet RA requirements without incurring unreasonable additional costs to comply. The ISO has explored what adjustments to its substitution and RAAIM provisions may be possible, with the goal of mitigating the potential for unreasonable costs impacts, as well as providing entities additional procurement flexibility. Some stakeholders have indicated that these issues are important in considering the ISO's regionalization efforts. To accomplish these goals, the ISO proposes to modify the treatment of forced outages

to better align with the treatment of planned outages relative to the ISO substitution and RAIM assessment provisions. The following section describes the ISO's initial proposal on this topic.

The ISO proposes to modify the treatment of forced outages to align with the treatment of planned outages for substitution and RAIM assessment. The ISO is addressing this matter because there is significant concern among some stakeholders that the current provisions regarding substitution and the ISO's availability incentive mechanism, RAIM, might cause entities to hold additional reserves beyond their immediate load and reserve needs to mitigate the potential to be assessed RAIM penalties. Current provisions exclude planned outages approved by the ISO from the metrics for assessing RAIM availability.

The ISO proposes to change its processes and study forced outages in a similar manner as it studies planned outages and will not assess availability for RAIM on resources experiencing forced outages that the ISO determines do not necessitate substitution for that day due to more immediate forecasted system needs. The ISO proposes to call this a "forced outage assessment."

The ISO will perform the proposed forced outage assessment for all forced outages each day. This forced outage assessment will determine if the resource experiencing forced outage should be assessed for availability under the ISO's RAIM metric, or be exempt from RAIM assessment for that day. The ISO will monitor the overall system-wide resource adequacy needs for the period of each forced outage event and determine each day if individual resources on forced outage should be assessed for availability under the RAIM metric, or not, depending on the total system needs and available resources. If the ISO determines there are sufficient resources available and the resource on forced outage is not needed for that day, based upon the day ahead forecasted needs, then the ISO will inform the resource owner that the unit will not be assessed under the RAIM availability metric and it will not need to provide a substitute resource to avoid the RAIM assessment for that day.

The ISO will utilize the most current forecasted needs in this forced outage assessment. The ISO proposes that the forecasted needs it will utilize under this forced outage assessment will be based upon the ISO's day ahead load forecast plus the system-wide PRM requirement. Thus, each day, the ISO will review the day ahead ISO load forecast and total amount of available resources for the forced outage assessment. The ISO will assess forced outages using an ordering protocol similar to the one it uses for planned outages, *i.e.*, last in, first out method ("LIFO"). The ISO believes that this change will mitigate concerns regarding the potential for over procurement or overly burdensome RAIM availability charges being assessed on resources that are not needed for reliable operation of the system.

The ISO notes that the major difference between the proposed forced outage assessment compared and the current planned outage assessment is that it will perform the forced outage assessment daily, and if forecasted needs change from one day to the next, then the ISO may not continue exempting a resource on forced outage for more than one day if system needs increase to a point that the ISO requires substitution of the resource on outage given the changed forecasted needs each day. This proposed treatment is different than the current approach to planned outages whereby once the ISO approves a planned outage, that resource is exempt for RAIM assessment for the entirety of the approved planned outage.

5.5.2. External Resource Substitution for Internal Resources

This section contains significant changes from the previous proposal. In previous proposals, the ISO introduced this topic to examine the potential for adjusting the current substitution rules to allow external resource to substitute for internal resource experiencing a forced or planned outage. Currently, the ISO tariff does not allow an internal, non-local resource providing RA capacity that goes on a forced outage to provide substitute capacity from an external resource. The ISO has previously examined this substitution restriction because some stakeholders believe that this rule creates barriers for regional expansion by limiting the pool of replacement resources. Under the second revised straw proposal, the ISO proposed to remove this restriction and developed some of the details that would be required. Subsequently, in the third revised straw proposal, the ISO reconsidered removing this restriction due to implementation complexities. Stakeholders provided feedback on deferring this item and indicated that this issue was important and should not be delayed due to implementation complexity. The ISO has decided to reconsider this aspect of the proposal in response to stakeholder concerns.

The ISO proposes to reinstate consideration of changes to allow external resources to substitute for internal system resources experiencing outages. The ISO previously explored what changes would be needed to allow an external resource to substitute for an internal resource experiencing an outage. The ISO previously indicated that to make this change at least two conditions would have to be met by external resources.²⁶ The first condition was to require the external resource/supplier to have sufficient MIC allocation to be used as the substitute resource. The ISO still believes that this MIC condition is necessary and describes additional details below. The second condition was requiring the external resource to fulfill the same must-offer obligation of the outage resource (for example, if the internal resource has a 24x7 must-offer obligation, then the substitute resource allocation on the required Interties would be required to fulfill a 24x7

²⁶ Regional Resource Adequacy Third Revised Straw Proposal, September 29, 2016, p. 40-41:
<http://www.caiso.com/Documents/RevisedStrawProposal-RegionalResourceAdequacy.pdf>.

must-offer obligation). After further consideration, the ISO now believes the second condition is not essential, as discussed below.

As described above, it is necessary to require that sufficient MIC be designated to use the external import resource for substitution. In order to accommodate this condition, the ISO will modify its CIRA system to allow for the transfers and tracking of transfer/designations of MIC allocations intra-month (the CIRA system currently provides capability to accommodate MIC transfers before the start of the month). This process to transfer MIC intra-month would require that LSEs, suppliers, and SCs coordinate and bilaterally trade MIC intra-year to ensure that sufficient MIC is made available and designated for use by that import resource.

Previously, the ISO proposed that this substitution rule change would require a similar must-offer obligation condition for the substitute resource. The ISO no longer believes this is an essential condition, primarily because the ISO currently allows contracts of a subset of hours to qualify as resource adequacy import resources, and the prior proposal potentially could have resulted in similarly situated resources being treated differently. The ISO notes that non resource specific import resource contracts are currently shown on many resource adequacy showings and supply plans. These imports often represent power sales contracts for terms such as 5x16 or 5x8 contracts (days of the week and hours per day) and are only effectively required to meet must-offer obligations during those specified hours.

The ISO believes that it would be inconsistent to allow imports of subset of hours resources to qualify for resource adequacy, but require external resources being used for substitution to meet a 24/7 must-offer obligation. Removing this must offer obligation condition would align the proposed changes with the ISO's provisions currently allowing subset of hours import contracts. Eliminating that condition would also simplify the potential implementation complexity, including removing the potential need to change the must-offer obligation master file information associated with particular import resource IDs.

The ISO seeks stakeholder feedback on these proposed changes to this aspect of the proposal.

5.6. Allocating RA Requirements to LRAs and LSEs

The ISO is not proposing any significant changes to its prior proposal on this topic. This aspect of the proposal addresses two potential issues regarding allocating RA requirements to potential new ISO participants. The first issue is the need to allocate RA requirements directly to LSEs when an LSE's state or local regulatory agency does not wish to receive RA requirements from the ISO and allocate them to its respective LSEs.

The second issue is the possibility that more than one regulatory entity oversees and/or approves a multi-jurisdictional LSE's procurement decisions.

To address these issues, the ISO proposes two related changes to the current RA allocation process. With respect to the first issue, the ISO proposes to create a new mechanism to allow LRAs and state agencies to elect to defer allocation of RA requirements to the ISO so the ISO can allocate RA requirements directly to the LSEs under the deferring LRA's jurisdiction. Regarding the second issue, the ISO proposes to allocate resource adequacy requirements directly to all multi-jurisdictional LSEs.

This element of the proposal is not intended to change how LSEs and LRAs in the current ISO balancing area receive and/or allocate RA requirements. It is only intended to (1) address any potential barriers or issues related to multi-jurisdictional LSEs and (2) allow the ISO to directly allocate RA requirements to LSEs to accommodate those utilities whose state commissions/LRAs prefer for the ISO allocate RA requirements. Stakeholder comments have sought further clarity on this issue and the ISO provides the following additional details to address this issue.

The first aspect of the proposal is to create a mechanism that would allow LRAs to defer the allocation of resource adequacy requirements to the ISO. If an LRA exercises this option, the ISO will allocate the resource adequacy requirements directly to the LSEs under the jurisdiction of the deferring LRA using the ISO's default allocation methodologies. The ISO continues to propose this mechanism to accommodate LRAs that prefer that the ISO allocate resource adequacy requirements to individual LSEs.

The second proposal addresses the needs of multi-state, and thus multi-jurisdictional, LSEs and how they would receive their allocations of resource adequacy requirements. The ISO previously proposed allocating directly to multi-jurisdictional LSEs all system, local, and flexibility RA requirements to avoid any allocation issues that could arise from splitting up LSE requirements based upon the various LRAs/jurisdictional entities that oversee the multi-jurisdictional LSE. The ISO proposed a direct allocation to create a more streamlined and administrable RA program.

Some stakeholders raised concerns with this approach based on local and state regulatory agencies potentially losing some control over allocation of RA requirements to multi-jurisdictional LSEs. Recognizing those concerns, the ISO considered potential alternative approaches. One option was for the ISO to always defer allocation to multi-jurisdictional LSEs to each LRA, and to provide those regulatory agencies the option either to: (a) receive the RA requirements for all of their jurisdictional LSEs and then allocate them; or (b) defer to the ISO to provide all LSEs under that LRA's jurisdiction with their respective allocations of RA requirements.

Due to the complexity of the calculations and LRA-specific need determinations that would be required for each individual LRA area of a multi-jurisdictional LSE, the ISO determined it is more appropriate to allocate all RA requirements directly to multi-jurisdictional LSEs. Allocating resource adequacy requirements directly to multi-jurisdictional LSEs is a more straightforward approach for calculating and allocating the overall resource adequacy requirements of such LSEs.

This approach is also consistent with the practice in other regional transmission organizations that have had to deal with multi-jurisdictional LSEs.²⁷ Additionally, the ISO believes that this approach is appropriate given the vastly increased complexity and necessary changes associated with the ISO calculating requirements for subsets of multi-jurisdictional LSEs in order to provide each individual LRA its share of the multi-jurisdictional LSE's resource adequacy requirements, only to have those LRAs reallocate the requirements to the multi-jurisdictional LSE. This proposal removes unnecessary complexity and streamlines the allocation process in an appropriate manner.

The ISO notes that multi-jurisdictional LSEs and relevant LRAs would still be responsible for determining how any associated costs would be assigned to individual jurisdictions and the LSE's customers. The ISO believes it is appropriate to leave those retail level cost allocation details to be worked out amongst the multi-jurisdictional LSE and its LRAs.

5.7. Monitoring Locational RA Needs and Procurement

The ISO is not proposing any significant changes to its prior proposal on this topic, but it provides some additional clarifications and responses to stakeholder concerns in the following section. The ISO believes it is appropriate to continue monitoring the zonal resource adequacy needs across an expanded footprint, similar the ISO's current practices. The ISO also will continue to monitor any internal constraints using the current ISO study processes in place today. The ISO will accomplish this aspect of the proposal for locational needs through its current technical study processes.

Some stakeholders raised concerns that this aspect of the proposal would cause potential uncertainty because the ISO would not impose additional zonal restrictions. The ISO maintains its proposal to forego imposing the zonal RA requirements the ISO previously contemplated, but understands that some stakeholders believe additional

²⁷ The ISO notes that in other regions, such as MISO and PJM, those ISOs/RTOs directly allocate the RA requirements to all LSEs, which avoids these potential issues, and the multi-jurisdictional LSEs and their retail regulators work out how to allocate the associated costs between their customers.

clarification is required regarding locational constraint issues. The ISO will recognize and analyze these constraints as done today; the LCR report includes a section called “Summary of Zonal needs” (page 25 of the 2017 report) and ISO plans to update this section for PacifiCorp West and PacifiCorp East and in itself constitutes a guidance for LSE procurement. An example of the type of information that is currently reviewed annually through the annual ISO Local Capacity Technical Report (“LCR”).²⁸

Zone	Load Forecast (MW)	15% reserves (MW)	(-) Allocated imports (MW)	(-) Allocated Path 26 Flow (MW)	Total Zonal Resource Need (MW)
SP26	28401	4260	-7792	-3750	21119
NP26=NP15+ZP26	22199	3330	-4346	-2902	18281

The zonal boundaries the ISO will study will be determined by known major transmission constraints such as WECC Paths that limit power transfers between the regions. For example, if PacifiCorp were to become part of the balancing area there would be three WECC paths that would create four candidate zones: PACE, PACW, Northern California and Southern California.

- Path 26 between Northern California and Southern California
- Path 66 (COI) between PACW and Northern California
- Path 17 (Borah West) between PACE and PACW

For procedural reasons, mainly due to complications of LSE showings and substitution rules, the ISO believes that there is no need to enforce zonal constraint in the year ahead and month ahead RA showings at this time. The ISO will monitor the discrepancy of aggregate zonal needs versus aggregate LSE procurement as well as day-ahead and real-time constraints in order to determine if and when any additional requirements should be pursued. The ISO will still provide stakeholders with information on locational resource needs needed number of megawatts in respective locational constrained areas/potential zones prior to the annual procurement period so that entities have the necessary information to be able to mitigate the risks of over or under-procurement in respective locational/zonal areas.

The ISO also performs Deliverability studies which will assume that any transmission constrained zones have an adequate amount of generation within each zone. The base cases will be initially dispatched so that the zonal constraints will not become binding during the automated creation of stressed generation dispatch scenarios. This is similar

²⁸ 2016 Local Capacity Technical Report Apr 30, 2015:
<http://www.caiso.com/Documents/Final2016LocalCapacityTechnicalReportApr302015.pdf>

to what the ISO does for Local Capacity Requirements (“LCR”) constraints. Additionally, the ISO believes that its current LCR requirements will provide some additional certainty that potential constraints will be respected and local resource procurement will avoid excessive reliance on reliability measures such as exceptional dispatches, which is one of the major concerns stakeholders have expressed.

5.8. Updating ISO Tariff Language to be More Generic

This element of the ISO’s Regional RA proposal addresses the need to make the tariff provisions regarding resource adequacy more generic. The current tariff utilizes California-centric language that may not be applicable to entities in an expanded balancing area. The ISO believes this is necessary to avoid any unintended barriers associated with the current tariff language as the ISO balancing area potentially expands. The ISO described this intended tariff clean up in previous proposals and does not have additional clarification or details to provide in this iteration of the initiative. The ISO continues to believe that this element of the proposal is complete and will provide the details on specific changes to the tariff language to accomplish this proposal during the tariff stakeholder process.²⁹

6. Next Steps

The ISO will discuss this Regional RA framework proposal with stakeholders during a meeting on December 8, 2016. Stakeholders are asked to submit written comments by January 4, 2017 to initiativecomments@caiso.com. Please use the template at the following link to submit your comments:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalResourceAdequacy.aspx>

²⁹ The ISO’s tariff stakeholder process is conducted after the policy stakeholder process is complete but before the tariff language is filed with FERC.

Appendix A – Summary of Stakeholder Comments on Regional RA Issues

The following section provides summaries of stakeholder comments received on the various topics under this initiative. The summary sections cover the major themes and concerns provided through stakeholder comments. Some comments and concerns have been addressed directly in the proposal sections above and any other outstanding issues are included in the comment summaries and ISO responses below. The ISO has posted each set of stakeholder comments received on the ISO website. The full sets of comments are available on the Regional RA webpage here:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalResourceAdequacy.aspx>

The table below shows the acronyms the names of the stakeholders that submitted written comments and are used in the stakeholder comments summary sections below. Some stakeholders are referred to in the summaries simply by the full company or organization's full name.

Acronym	Name of Stakeholder
AWEA	American Wind Energy Association
BPA	Bonneville Power Administration
CDWR	California Department of Water Resources
CLECA	California Large Energy Consumers Association
CPUC	California Public Utilities Commission
ICNU	Industrial Customers of Northwest Utilities
LADWP	Los Angeles Department of Water and Power
LSA	Large Scale Solar Association
MCE	Marin Clean Energy
NCPA	Northern California Power Agency
NIPPC	Northwest & Intermountain Power Producers Coalition
ORA	Office of Ratepayer Advocates
PG&E	Pacific Gas & Electric
PPC	Public Power Council
SCE	Southern California Edison
SCL	Seattle City Light
SDG&E	San Diego Gas & Electric
SMUD	Sacramento Municipal Utility District
SVP	Silicon Valley Power
UAMPS	Utah Associated Municipal Power Systems

UOCS	Utah Office of Consumer Services
UTC	Washington Utilities & Transportation Commission
WPTF	Western Power Trading Forum
WRA-NRDC- NEC-WGG- UCE	Western Resource Advocates, Natural Resource Defense Council, Northwest Energy Coalition, Western Grid Group, & Utah Clean Energy

Stakeholder comments on Load Forecasting

CLECA believes it is not clear if there is sufficient time allowed in the compliance and verification process for communication and coordination and there should be a real opportunity for cure. CPUC Staff believes that the process would be duplicative and undermine the CPUC's current load forecasting process, because the CPUC already has a process to check the accuracy of the load forecast submitted by CPUC-jurisdictional LSEs. ICNU supports the current monthly forecasting approach but ICNU believes that the ISO should include stronger protections in regional ISO governance principles and governing documents to ensure that LSE ratepayers will not ultimately be forced to pay higher costs as an eventual consequence of any potential variance between RA determinations of a regional ISO and an LRA, including load forecasting.

LADWP believes the ISO should publish the historic load modifiers provided in LSE forecast submittals. ORA and CPUC call for additional oversight and authority for the WSC in the load forecasting proposal. PacifiCorp believes that the ISO should develop the expertise to be able to provide a coincidence factor for determination of the coincident load to each LSE. SDG&E requested the ISO provide a detailed timeline for this proposed load forecasting process. SDG&E asks about how the ISO will ensure that the same load growth, weather and economic forecasts will be used across all requirements and believes that it would not be consistent to have Local requirements be based on a forecast of 3% economic growth while the System requirements are based on a forecast of 2% economic growth. Six Cities supports the ISO load forecasting proposal. UAMPS requested clarification about how the ISO will treat transmission losses, stating how will an ISO-wide transmission loss factor be determined and does this estimated loss factor cover all transmission, or just the 200 kV and above facilities that will be under the ISO operation?

WAPA comments that in order for LSEs to provide monthly peak demand to the ISO, at what time granularity is the ISO expecting to provide historic system peak data? WAPA also asks if the ISO intends to provide historic system peak data for LSEs in California to calculate their own coincident peak or expect LSEs in California to rely on CEC to calculate the coincident monthly peak. WAPA asked if the ISO will give non CEC

jurisdictional LSEs in California the choice of determining monthly peak by themselves. WAPA suggests that this ambiguity be clarified by the ISO so that market participants will know whether the ISO will use annual coincident Peak Demand or monthly coincident Peak Demand to determine the system, local and flexible RA requirements. WRA requests the ISO provide detailed information regarding how ISO will move forward with the probabilistic studies without hourly forecast submittals. WRA stated that as the footprint grows, historic monthly peak demand will not be a good guide for assessing future peak demands and requests the ISO explain in detail how it proposes to provide LSEs with historic system peak data that is representative of the expanding footprint and address whether adaptations to the historical data should be considered through an open, transparent, stakeholder process.

ISO responses to stakeholder comments on Load Forecasting

The ISO will ensure that there is sufficient time allowed for communication of any potential deficiency and provided time for LSEs to cure potential deficiencies by working with stakeholders to work out the needed details as these proposal are implemented.

Since the ISO is expanding and providing significant flexibility for different approaches it is appropriate for the ISO to have the authority to perform a review of all submittals which provides for a level playing field for all load forecast submittals, and some duplicative review may occur, but the ISO must have this review capability for all forecast submittals. The ISO believes that this does not undermine the current forecasting processes or LRA ability to review load forecasts.

The ISO understands ICNU requests and concerns for stronger protections against variance in LRA and ISO determinations and believes that any related issues are best dealt with under the governance proceedings.

The ISO believes that level of detail of publishing load forecast modifiers for individual forecasts is not necessary and proposes to publish the forecast error for individual LSEs to provide transparency to the accuracy of individual LSE submittals.

The potential role and oversight of the WSC, while relevant to the subject matter of this proposal, is now under further consideration in other forums and is not going to be discussed as a topic of this initiative at this time.

The ISO understands that some stakeholders would still prefer the ISO propose a uniform coincidence factor method but believes that the current flexible approach that has been proposed is necessary to allow for LRAs and LSEs to continue their current processes with minimal modification.

The ISO understand stakeholder requests for a more detailed timeline for the proposed load forecasting process and has provided a high level milestone process description but will work out further details on the timing of various load forecasting process and other related processes with stakeholders as an element of the implementation of the proposal.

The ISO believes that it is not necessary to ensure that the assumptions used for different RA requirements are consistent because this is a one-year forecast and slight variation in the assumptions will have minimal impacts. The ISO notes that it uses different types of load forecasts for these processes currently.

The ISO can provide the historical EMS load data that includes the transmission losses to the LSEs that we can define by the transmission system topology. For areas that the EMS data cannot be defined for a particular LSE that needs to provide a forecast the ISO may have to define transmission losses on a case by case basis using our transmission models.

The ISO can provide the historical EMS load data on an hourly basis to each LSE that includes the transmission losses to the LSEs that we can define by the transmission system topology. The ISO would provide the expected hour of the day for each future month's peak. Each LSE (or the CEC for the appropriate LSEs) would be required to determine the hour of their non-coincident peak. The ISO does not intend to cause material modifications to the CEC load forecasting practice and believes that individual LSEs under the jurisdiction of the CEC forecasting process would need to request the CEC allow them the ability to perform their own coincidence forecasting. It is not up to the ISO if individual LSEs have this ability as this is currently a CEC authority that is not envisioned to be adjusted.

The ISO will use the monthly coincident peaks to set the System RA requirements and is not proposing changes to the Local process which sets the Local requirements using the August monthly coincident peak.

The ISO utilizes the PLEXOS hourly production cost simulation model for its Annual Assessment (formerly Summer Assessment) for the year-ahead. The ISO has a process for developing the hourly load profiles using historical weather patterns and load profiles. Currently the ISO develops 2,000 scenarios of 8,760 hour load levels and patterns. The ISO will use the same methodology to develop the load profiles for the LOLE assessment to recommend the PRM. The ISO believes that historical peak data is sufficient to determine a RA forecast system coincident peak and will be accurate enough to represent the potential coincident peak in an expanded footprint. The ISO will monitor the accuracy and perform the top down benchmarking forecast for transparency,

if any issues arise the ISO will make modifications through an open and transparent stakeholder process.

Stakeholder comments on Reliability Assessment: Planning Reserve Margin

AWEA, CLECA, CPUC, LADWP, PPC, ORA, and WRA support providing the WSC with primary authority over the system-wide PRM. SDG&E and WPTF do not support providing the WSC with primary authority over the system-wide PRM. WPTF supports the ISO being more specific as to what aspects of RA the WSC has authority over. CPUC Staff encourage the ISO to consider a system such as this that defers to the states by allowing them to evaluate their own needs in establishing the PRM, and to allow the WSC to determine whether to set a uniform system-wide PRM. BPA does not support the system wide PRM proposal and believes the ISO should defer to LRAs to set PRM levels and this proposal is an attempt by the ISO to assert jurisdiction over equity issues. ICNU disagrees that a system wide PRM is necessary in order to perform future reliability assessments. NCPA reiterates its objection to any ISO proposal to set a system-wide PRM and believes that it should be the authority of LRAs to determine the planning reserve margins and the resource counting methodologies for their jurisdictional LSEs. WAPA does not agree with ISO's proposal to impose the default PRM on LRAs such as WAPA. WAPA is concerned that the ISO would adopt a one-size-fit-all PRM methodology through its stakeholder process that does not appropriately consider or address the operating and regulatory considerations under which WAPA operates.

LADWP supports the use of a 1-in-10 LOLE criteria but requests annual updates to the PRM. PacifiCorp is supportive of and understands the need to establish a minimum PRM for an expanded BAA as a means to ensure reliable operation. PacifiCorp further supports developing a minimum PRM through a transparent stakeholder process; however, PacifiCorp continues to recommend that the ISO consider adopting basic principles that will define the scope of this effort. One of these principles should be a commitment to establish a PRM that considers the incremental cost of achieving incremental improvements in reliability. A cost criterion has not yet been proposed or discussed in the ISO's discussion of a PRM methodology. PacifiCorp would like further clarification from the ISO on how it will take into consideration the cost aspect of reliability in its PRM methodology. SCL encourages the ISO to include consideration of incremental costs and benefits to each market participant as a criteria when developing the PRM. SCL requests the ISO explain how it will proceed in the interim, and provide a timeline for when it anticipates the PRM will be set. Six Cities specifically supports development of a system-wide PRM target with input from the WSC subject to input from the Western Electricity Coordinating Council ("WECC"). Six Cities urge the ISO to supplement the Regional RA principles to provide specifically for coordination and consultation with WECC.

ISO responses to stakeholder comments on PRM

The ISO believes that system-wide PRM target is appropriate to meet its objective of avoiding the potential for capacity leaning by some areas of an expanded footprint. The ISO understands the stakeholder positions in opposition but continues to believe that is in no longer appropriate to rely on LRA specific PRMs in the ISO system-wide reliability assessment. The potential role and oversight of the WSC, while relevant to the subject matter of this proposal, is now under further consideration in other forums and is not going to be detailed as a topic of this initiative at this time.

The ISO believes that only a periodic update of the system-wide PRM is appropriate to balance the need for updates for accuracy with the need for certainty for bilateral contracting.

The ISO understands that some stakeholders request the ISO use some cost criterion in development of a PRM target. The ISO recognizes the need for cost considerations but believes that using a cost criterion for PRM development would require complex and controversial assumptions to be made, such as the Value of Lost Load (“VOLL”) and believes that inclusion of some VOLL criterion is not necessary in the proposed LOLE study. The ISO notes that the WSC authority over RA issues is still under development under different forums but believes that the WSC will ultimately have significant input into the consideration of the PRM target and the need to appropriately balance costs and reliability associated with a system-wide PRM.

The ISO believes that there will be sufficient time to develop the proposed LOLE study in advance of any integration of new PTO and will conduct the proposed study through an open and transparent stakeholder process with anticipated milestones and completion described once that process commences. The ISO plans to utilize available WECC resource assessments and other available data and expertise that WECC has developed in this PRM study development and will work with stakeholders through that process to ensure this sort of information is considered.

Stakeholder comments on Reliability Assessment: Uniform counting rules

There is a diversity of opinions on the ISO’s role in determining uniform counting rules. While many stakeholders appear to agree with the goals of establishing uniform counting rules, there is not a strong consensus on how the rules should be developed or administered. For example, NIPPC and Six Cities have expressed general support for the ISO’s proposed counting rules, while CLECA, CPUC staff and ORA believe the WSC should have significant oversight and authority over determining uniform counting rules and their administration. Further, PacifiCorp and WAPA seek flexibility in uniform counting rules such they could account for differences between LRAs.

While most stakeholder support the ISO's proposed use of ELCC for determining the uniform counting rules for wind and solar resources, some stakeholders either objected or sought additional clarity about specific aspects of the ISO proposal. AWEA, CPUC staff, LSA, SDG&E oppose the ISO's proposal to rely on the exceedance methodology as a fall back methodology for determining the uniform counting value for wind and solar resources. Most stakeholders are concerned that reverting to such an approach would result in wildly different results relative to the results identified by an LRA utilizing an ELCC methodology. Calpine and CLECA both raise concerns regarding reliance on ELCC counting rules for local capacity counting purposes, although Calpine explicitly states this is not a reason to not use ELCC.

CLECA, the Joint DR Parties, the CPUC staff, and SCE raise a variety of objections to the ISO proposed registered capacity value option. Specifically, CLECA and the Joint DR Parties, and CPUC staff assert that the ISO's testing requirements are overly onerous and not consistent with CPUC program policy. SCE asserts that the ISO's one size fits all approach may not be appropriate for all DR resources. However, the Joint DR Parties refer to the need to "treat resources comparably" with other resources in the RA framework. The Joint DR Parties also question the need for a four hour test dispatch. SDG&E proposes that the ISO utilize two testing seasons instead of three, while LADWP supports the ISO's proposed three seasons.

ISO responses to stakeholder comments on uniform counting rules

The ISO is the entity best suited to understand the needs of broad and diverse footprint with varying needs. As such, the ISO continues to assert that it is the only entity capable of assessing resources' impact on the entire system, not simply those resources' impact on a single local regulatory authority. Therefore, the ISO should oversee the development of uniform counting rules. The ISO also notes that many stakeholders have commented on the role of the WSC related to the uniform counting rules. The ISO is currently considering of the role of the WSC in other forums.

The ISO agrees with stakeholders that reversion to the exceedance methodology in the absence of a completed ELCC study risks causing significant confusion for market participants. As such, the ISO is no longer proposing to utilize the exceedance methodology as a fall back approach to wind and solar resource counting rules. Further, while the ISO also agrees with Calpine and CLECA that there is a need to address the impact ELCC may have on local capacity assessments, the ISO does not believe it appropriate to propose a specific treatment for local capacity at this time. Instead, the ISO believes that these items are best addressed holistically in the context of the ELCC study process development. Further, the ISO does not believe it appropriate establish a firm ELCC completion date at this time.

Based on review stakeholder comments, the ISO has elected to reduce the number test dispatches from three seasonal dispatches to two. This provide greater alignment with many underlying utility programs, but still provides the ISO with sufficient opportunity to verify the capabilities of resources utilizing the registered capacity values. However, the ISO does not believe that resources should be exempt from testing simply because of an underlying retail program. The ISO relies of reliability demand response resources to address reliability concerns when the system is most stressed. The ISO should have the ability to verify the resources can provide the capacity for which they are registered. Additional detail is provided in the body of the proposal.

Stakeholder comments on Reliability Assessment: RA showings and validation process

CPUC his concerned the proposed process would diverge from the existing CPUC validation process and may result in conflicting determinations between the CPUC's and ISO's assessment of whether an LSE has met its CPUC-allocated RA requirements, particularly if the process does not account for CAM credits. The process makes no mention of the role the LRA would have in determining the RA requirements associated with the validation process. The concern here is that the CPUC needs to be included in the allocation and validation of CAM capacity benefit allocations.

LSA believes that the ISO should not care whether some LSEs are "leaning" on others (based on its own RA rules) if it has sufficient RA capacity overall and believes there is no particular reason why the RSO cannot let LRAs continue to set their own RA procurement rules for jurisdictional LSEs as long as the RISO needs are met and LSA believes there is no need for the ISO to interfere with or undermine that authority under those conditions.

ORA believes that the WSC representing states and stakeholder concerns should be granted oversight over the RA showings and validation as this moves from state to regional ISO authority. States joining a multi-state ISO will want to be assured of adequate LSE procurement to prevent potential capacity leaning by LSEs which fail to meet requirements. The CPUC will see a major change with state authority for validation and enforcement shifting to the new ISO. As current state authority for maintaining reliability shifts to a regional ISO, WSC oversight is essential to ensure that costs are considered along with grid reliability.

ISO responses to stakeholder comments on RA showings and validation process

The ISO believes that the CPUC CAM accounting process can be accommodated under this proposal. The ISO will use the RA allocations determined by the LRA where applicable in the reliability assessment. However, the ISO will utilize the proposed system-wide PRM and uniform counting rules in order to assess the system-wide needs

and establish the NQC values for individual resources. Entities will have the information related to these determinations available when making procurement decisions, so the ISO believes that any conflicting determinations could be avoided. The ISO currently believes that the CPUC CAM process and other similar LRA accounting programs can continue with little modification or adjustment, but the ISO believes that there is not sufficient detail provided at this point on what the ISO would need to change or adjust in order to do so. If it is demonstrated that there are some changes needed, the ISO believes those type of details are implementation issues that can be addressed with LRAs as needed in the future.

The ISO believes that it is important to both avoid the potential for capacity leaning, and ensure that overall RA requirements are met system-wide. The ISO understands the LSA comments that the ISO should only use LRA rules to assess if an LSE is providing sufficient capacity, but the ISO continues to believe that the proposed reliability assessment process is necessary. The ISO also appreciates ORA's comments in support of providing the WSC authority over these processes and notes that these considerations are still under development in other forums.

Stakeholder comments on Reliability Assessment: Backstop procurement

Bonneville understands the need for the ISO itself to have the authority to procure backstop capacity on behalf of its Balancing Authority Area in the event of forecasted reliability concerns. However, CAISO should only use its backstop acquisition authority for reliability purposes and not attempt to expand that authority to solve equity issues that are the jurisdiction of other entities. Leaning, or any other type of equity concern, should be dealt with using other means, and not with backstop procurement.

CLECA is concerned with the time provided for LSEs to have an opportunity to cure any deficiency, and how discrepancies between counting methods would be resolved. CLECA request an explanation of the process that would be used in the event of such a counting discrepancy, including a timeline for resolution that would fit within the proposed RA showings and validation timeline in the Regional RA proposal. Environmental Justice Parties request that CAISO revise its backstop procurement proposal to make it only advisory to LRAs and allow LRAs to retain their procurement authority. ICNU emphasizes the need for stronger ratepayer protections in proposed regional ISO governing principles. PacifiCorp believes that backstop procurement, based on the ISO's PRM or resource counting methodology, may be inconsistent with the PRM or resource counting methodology of LSEs as determined in a resource planning process.

PG&E continues to believe that modifications to the ISO's use of the CPM should be considered in this initiative because the existing process is too opaque. PG&E asks the ISO to commit in its tariff to provide more information to market participants on the

results of the ISO's Reliability Assessments and whether the ISO chooses to take action as a result of these assessments. WPTF comments that the ISO should review the local backstop tariff sections, 43a.2.1.2 and 43a.2.2, in order to clarify the process in a regional context and take the opportunity to clarify and strongly affirm the backstop rules.

SDG&E supports the ISO's proposal to issue CPM backstop based on the ISO established system-wide PRM value when there is a system deficiency SDG&E also supports the cost allocation proposal which allocates costs to LSEs which did not provide sufficient capacity to meet the LSE's forecast plus the ISO's system-wide PRM. SDG&E reiterates that the ISO should acknowledge the LRA established PRM first prior to calculating a deficiency for an individual LSE before using the ISO system-wide PRM for total system capacity deficiency. Six Cities supports provisions relating to implementation of backstop procurement authority to address collective deficiencies and allocation of costs in the first instance to any deficient LSEs. WRA supports this aspect of the ISO proposal.

ISO responses to stakeholder comments on backstop procurement

The ISO understands BPA's concerns over the ISO using its backstop authority to address leaning issues. The ISO agrees and believes that its proposal is only to utilize backstop in instances that present a reliability issue.

The ISO understands the CLECA concerns about providing sufficient time for opportunity to cure and will consider if adjustments to the currently approved timelines may need adjustment, but believe the current process will be workable. The ISO will continue to work with stakeholders to address issues that may arise. The ISO will publish the resulting NQCs for resources using the proposed uniform counting rules in advance of the monthly RA process so the potential for discrepancies that CLECA is concerned with are minimized. The ISO believes there will be sufficient time provided for vetting NQC values with stakeholders but will work with entities to ensure implementation of these proposal is acceptable.

The ISO disagrees with the position of the Environmental Justice Parties that the ISO should make its backstop authority provisions advisory only. The ISO requires this backstop authority to maintain reliable operation of the grid. The ISO understands PacifiCorp's concerns that the backstop procurement, based on the ISO's PRM or resource counting methodology, may be inconsistent with the PRM or resource counting methodology of LSEs. The ISO will make the uniform counting rules NQC values for resource public in advance of procurement and when showings are required, so the ISO believes that LSEs will have the necessary information in order to avoid the potential inconsistency and any related backstop concerns if LSEs rely on the ISO uniform counting rules NQC values for procurement and showings.

The ISO understands the comments of PG&E related to the clarification and transparency of CPM rules and related ISO actions. The ISO does not believe that it is essential to address these type of clarifying changes under this initiative, but appreciates the comments and will consider in the future the potential need for the suggested clarifications. The ISO also understands the comments of WPTF related to the local RA backstop authority. The ISO does not believe that it is essential to address these type of clarifying changes under this initiative but appreciates the comments and will consider in the future the potential need for the suggested clarifications.

The ISO believes that it is not appropriate to use LRA PRMs under the proposed Reliability Assessment as suggested by SDG&E. The ISO continues to believe that it is appropriate to use a system-wide PRM target and assess overall system sufficiency before investigating if individual LSEs have met the system-wide PRM. Continuing to use LRA PRMs for this assessment would create the potential for inconsistent levels of reliability across an expanded balancing area and cause the ability for certain entities to lean on other areas of the system.

Stakeholder comments on Maximum Import Capability

Bonneville recommends that the cutoff date for Pre-RA Commitments should be specific to each new PTO. It is logical that this would be the date each PTO officially joined the ISO. Bonneville supports the ISO's proposal to modify the MIC process, limiting the initial allocations of MIC to the LSEs serving load within new sub-regional TAC areas. ICNU agrees with the ISO's decision not to develop a transition period or transition mechanism for MIC refinements, for reasons previously stated. Otherwise, ICNU continues to support ISO proposals on MIC calculation and allocation changes.

NIPPC supports the proposed changes to the MIC calculation which address situations where the peak load of a new region in an expanded balancing area occurs non-coincidentally with the peak load of the rest of the system and when there are no simultaneous constraints between certain areas of an expanded balancing area. NIPPC also supports the proposed modifications to the allocation of MIC to reflect the ISO's proposed TAC policy. NIPPC also agrees with the ISO's proposal to monitor internal paths instead of imposing zonal resource adequacy requirements. NIPPC also supports the proposal to allocate MIC resulting from new regional transmission facilities to sub-regions based upon the share of costs allocated to the sub-region through the regional planning process.

PPC object to the application of the current MIC methodology and tariff provisions to new balancing authority areas in the ISO footprint. The current MIC allocation process, with the proposed modifications, does not support or acknowledge the transmission capacity rights that support existing long-term power contracts needed to serve loads within

PacifiCorp's territory. As a result, application of the current process will not allocate sufficient import capability to LSEs to meet their loads' needs with existing resources.

PacifiCorp supports the ISO's proposal to allocate MIC based on different peak time periods and align the MIC calculation by sub-region consistent with the TAC proposal. However, PacifiCorp is concerned with the lack of clarity on the potential for internal transfer constraints that have been identified by the ISO. PacifiCorp believes that it is appropriate for the ISO to ensure that any constraints that may potentially limit the transfers of RA resources between major internal areas of an expanded BAA need to be identified and respected in the RA process.

PG&E, SDG&E, and Powerex provide numerous comments seeking clarity and expressing concern with the proposed MIC modifications that have been addressed by the ISO in the MIC section of the proposal above. WRA continues to disagree with the use of historical data in determining MIC and urges the ISO to develop a robust stochastic approach. WRA is concerned that the use of historical data may artificially limit import capacity, particularly as import patterns change with the expansion of the RSO and depending upon a variety of economic and weather-related factors. WRA again recommends the ISO propose a plan to develop a probabilistic assessment of MIC and to provide timelines.

WRA continues to support CAISO's proposal to determine MIC by sub-region and to allocate it based on a load-ratio share of the LSEs serving load within each sub-region. This approach provides equity and aligns import capability with the cost responsibility envisioned through the TAC initiative.

ISO responses to stakeholder comments on MIC

The ISO agrees with BPA that it would make sense for a Pre-RA commitments cut-off date to be established with any new PTO entrants joining the ISO. The ISO will develop the details of this issue with the appropriate entities prior to any PTO joining the ISO balancing area.

PPC expressed significant concern that the ISO MIC process would harm potential new entrants. The ISO believes its process is flexible and already addresses these concerns by providing protections for all of the concerns that PPC has expressed. The ISO describes these issues further in the MIC section of the proposal.

The ISO understands the concerns expressed by PacifiCorp related to the locational capacity transfer constraints and the need for zonal requirements. The ISO has provided additional clarity and explanation of the proposed process to monitor locational needs in the MIC section of the proposal above.

The ISO has also included responses to many concerns expressed by SDG&E, Powerex, and PG&E in the MIC section above. The ISO also understands the concerns and comments of WRA. In response to these suggestions and requests, the ISO declines to make wholesale modification to the entire MIC process at this time. The current process was developed to balance the many interests involved and the ISO believes this process can work well in an expanded ISO balancing area with the proposed modifications. The ISO will monitor the performance of the MIC process and evaluate the need to make additional modification on an ongoing basis.

Stakeholder comments on Import Resources for RA

Calpine supports the CAISO's efforts to introduce more stringent requirements for what resources can be used to support import RA. It is unclear that requiring non-resource- or non-system-specific import RA to be contracted month-ahead would address the CAISO's concerns about the availability/double-counting of resources used to support import RA. For example, a firm energy sale, even from a specific resource, may still allow another BAA to rely on the capacity of the resource in an emergency. In addition, to the extent that the contracting requirement would encourage contracting for significant volumes of import *energy*, it may contribute to over-generation/flexibility problems in CAISO. NIPPC supports the proposal to clarify the Tariff language to provide that imports used to meet Resource Adequacy must be secured in the month ahead timeframe. NIPPC remains concerned about the reliability of non-resource specific contracts to meet resource adequacy — even when those resources are acquired in time to meet the monthly resource adequacy showing. WRA supports requiring LSEs to have contracts in place month-ahead to demonstrate imports are firm. This supports reliability by avoiding potential double counting; it supports a functional market by avoiding potential gaming, manipulation and capacity leaning. Six Cities specifically support requiring month-ahead (prior to the T-45 showing date) procurement for import resources, subject to allowing procurement of import resources during the RA "cure" period.

Powerex supports CAISO's efforts to modify the criteria for import RA contracts to ensure that only secured resources are relied upon to satisfy RA requirements. As Powerex has previously articulated, allowing purchases that are not backed by physical capacity to count towards meeting an LSE's RA obligation is inconsistent with the primary purpose of an RA program – to ensure the forward procurement of sufficient physical resources to meet peak load plus a planning reserve margin – and has the potential to undermine reliability within the context of an expanded RTO footprint. Powerex believes that additional requirements are necessary to achieve CAISO's stated objective.

ICNU does not support the ISO's proposal on the types of resources that will qualify as RA imports. ICNU believes that such restriction on bilateral spot market purchases may create pressure on LSEs to engage in hedging practices which could harm ratepayers. Nevertheless, recognizing the ISO's concern in ensuring system reliability, ICNU suggests that a compromise position could be pursued, in the form of some limitation or cap on the volume of short-term transactions that individual LSEs could use for regional RA purposes. SDG&E does not support the ISO's proposal to require physical energy contracts to be secured prior to the T-45 showing for non-resource specific resources. SDG&E is concerned that the ISO's proposal is overly prescriptive and creates a situation that does not allow suppliers to provide subset-of-hours contracts as allowed by the Tariff.

PacifiCorp understands the ISO's point of view in clarifying this issue, however, in tandem with not changing any of its additional RA requirements, resource substitution requirements, availability penalties and ambiguous local requirements, the ISO has made the RA construct less flexible for potential new entrants. The ISO's clarification on this issue, without changing other pieces of the RA construct, would potentially impose significant cost without fully investigating or understanding the reliability implications of its proposal.

PG&E requests that the CAISO clarify how it plans to enforce this contractual obligation without reviewing an LSE's import contracts. WPTF requests additional details on the CAISO proposal to clarify RA import requirements and requests that the ISO state its position on the relative reliability of imports compared to internal or dynamic resources. WPTF does not object to the premise of the proposed clarifications to clearly state that all import resources on RA showings must be secured at the time of showing.

WAPA is concerned with the ISO's proposal requiring non-resource specific systems (such as CVP hydro) to show RA at specified interconnection point by T-45 days. WAPA understands the ISO's desire to have certainty regarding delivery point and import MWs in the monthly RA showing before T-45.

ISO responses to stakeholder comments on Import Resources for RA

The ISO appreciates the support of the previous proposal by Calpine, NIPPC, WRA, Six Cities, and Powerex. The ISO understands the positions and concerns of WAPA, Pacificorp, SDG&E and ICNU, PG&E and WPTF. The ISO has changed the proposal for this issue significantly in response to stakeholders concerns and suggestions. Please see this section of the proposal above for the latest proposed direction on this issue.

Stakeholder comments on RA Unit Substitution Rules for Internal and External Resources

ICNU does not support the ISO's present reconsideration of its previous proposal to remove external resource substitution restrictions. While the ISO now "proposes not to remove the restriction due to the complexities associated with implementation," the election to avoid any "complexities" may be considerably detrimental to potential new PTO customers, and especially to PacifiCorp ratepayers, prompting possible opposition to regional ISO integration in future state regulatory approval proceedings. LADWP supports the ISO developing a mechanism to perform external resource substitution. NIPPC supported the ISO's earlier proposal to allow external resources to substitute for internal resources when specified criteria were met. NIPPC is disappointed that the ISO will defer development of mechanisms that would allow an external resource to substitute for an internal resource. But NIPPC also accepts the ISO's description of the complexities involved in implementing more flexible substitution rules. NIPPC anticipates that the ISO will consider revisiting this decision in the future.

PacifiCorp is opposed to the ISO proposal to defer this issue and expressed numerous concerns related to the need to substitute external resources for internal resources. PacifiCorp is also concerned that the ISO's current requirement for LSEs to contract for 115% of its expected contribution to the system coincident peak as well as have additional resources be able to substitute in the case of a forced outage, results in an obligation that is effectively higher than 115%. The ISO's availability penalties coupled with its resource adequacy requirements would require an LSE to maintain available capacity on its system for each hour of every month at greater than 115% of its actual expected load.

SCL does not support the reduction in flexibility to LRAs and LSEs in the 3rd straw proposal. The inability to substitute external resources for internal resources will limit a participants' ability to make the most cost-effective decisions. CAISO has not demonstrated that substitution is infeasible, so it is unnecessarily adding costs to participants. SDG&E believes the ISO should consider allowing external resource substitution for internal resources for planned outages to simplify the scope of the process. Six Cities do not oppose deferral of this topic for the time being given the implementation challenges identified by the ISO. However, the Six Cities request that the ISO revisit the possibility of allowing external resources to provide substitute RA capacity if the implementation issues can be resolved. SMUD previously supported the ISO's proposal to allow external resources to substitute for internal resources. While SMUD is disappointed the ISO has removed this from the proposal, SMUD looks forward to a future initiative that addresses this issue. WRA is concerned with this proposal and would like to better understand the decision to defer the issue.

ISO responses to stakeholder comments on RA Unit Substitution Rules for Internal and External Resources

The ISO appreciates the concerns that have been expressed by stakeholders on this topic. This issue has been reconsidered in light of the significant support to continue the development of this issue. The ISO has reinstated development of this proposal to allow for external resource substitution and has described the latest revisions to this issue in the proposal section on resource substitution. The ISO has added a new aspect to the proposal to treat forced outages more comparably to how planned outages are currently treated and believes that modification will also help address the issues that have been raised by stakeholders as well.

Stakeholder comments on Allocation of RA Requirements to LRAs/LSEs

ICNU supports the proposal to allocate all RA requirements directly to multi-jurisdictional LSEs (e.g., PacifiCorp), but ICNU believes that a regional ISO should also directly allocate RA requirements to *all* LSEs. As the ISO acknowledges, ISOs/RTOs in other regions follow this simple and uniform direct allocation approach, regardless of whether an LSE is multi-jurisdictional or not. Moreover, by allocating RA requirements directly to all LSEs, the regional ISO could eliminate potential preemption controversies.

SDG&E believes the ISO should respect the requirements and allocation methodologies of LRAs. The ISO should have authority to ensure all LSEs meet the total Local, System and Flexible requirements. If a LRA wishes for the ISO to allocate requirements to the LRA's LSEs, the ISO should respect the LRA's allocation methodology and not the ISO's default allocation methodology. If a cumulative deficiency occurs, the ISO has the authority to procure backstop capacity to meet the system-wide PRM.

ISO responses to stakeholder comments on Allocation of RA Requirements to LRAs/LSEs

The ISO understands the comments of ICNU but believes that it remains necessary to allow for LRAs the flexibility to allocate requirements to their LSEs if there is not a multi-state or multi-jurisdictional LSE in question. The ISO appreciates SDG&E's comments as well and believes that this process still allows for LRAs to allocate to their LSEs, for single-jurisdictional LSEs and respects those decisions because the proposed reliability assessment would examine if the system-wide needs are met cumulatively before looking into individual LSE deficiencies. Combined with the load forecasting proposal and the uniform counting rules and system-wide load forecast, the ISO believes that the LSEs and LRAs will have the necessary information available in sufficient time to allocate RA requirements in a way that avoids conflicting outcomes.

Stakeholder comments on other Regional RA issues

As Bonneville has commented before and reiterates here, the CAISO should finalize and implement the governance structure for a regional ISO before moving ahead on any of the stakeholder initiatives regarding regional expansion that are currently in process (e.g. RA, TAC, GHG). Bonneville recognizes that progress has been made on regional ISO governance, but a final governance proposal is at least months away and will likely come after this Regional RA Initiative is finalized and accepted by the existing CAISO Board and filed at FERC. Bonneville believes that both the Regional RA and TAC proposals would look materially different from their current forms if they were being developed and submitted through a regional governance process and then finalized. The regional RA and TAC processes should be put on hold until the ISO governance structure is determined and the governing bodies are fully established. The current Regional RA proposal removes a great deal of the flexibility and autonomy afforded to the Local Regulatory Authority (LRA) that is currently in the ISO Tariff, and has been in place for at least 10 years. Specifically, under the current proposal, LRAs will no longer have the ability to plan for and meet load service obligations within the policy guidelines and statutory frameworks of their jurisdictions. This means jurisdictions will no longer set their own Planning Reserve Margins, set their own rules for counting the capacity from their own resources, or to decide whether and how to count Firm LD contracts for RA. Maintaining the flexibility provided to LRAs currently in the Tariff is very important because it allows recognition and accounting for policy and statutory differences among the group of entities that are LRAs now, or could be LRAs within the broader region. Those specific flexibilities mentioned above in the current ISO Tariff are of critical importance to Bonneville in its obligation to provide load service within the bounds of its statutory and contractual construct. Bonneville urges the CAISO not to restrict the LRA flexibility in any way.

CLECA has several concerns related to timing. First, the current CAISO Board should not adopt a final Regional RA policy; rather, that decision should be left to the Western States Committee (WSC) (or its equivalent). A draft proposal on Regional RA can be “finalized” to enable PacifiCorp to discuss the intended general direction of Regional RA, but the adoption of the final policy, including approval of corresponding tariff changes to be filed with FERC, should be left to the WSC. CLECA also has a concern with the current schedule for Regional RA; a draft final proposal will be posted in early December, followed by a stakeholder workshop in mid-December and stakeholder comments in late December. This seems rushed, particularly given the need for the WSC to consider the final proposal, once it is created.

The CPUC Staff is not taking a position on the ISO’s Second Revised Proposal on Principles for Governance of a Regional ISO, including whether establishment of a WSC

will be sufficient and effective to ensure the preservation of state authority over matters regulated by the states, including procurement policy and resource planning. But assuming *arguendo* that the governance proposal continues to include a WSC as it evolves, the CPUC Staff observe that the ISO's initial proposal to grant "primary authority" to a Western States Committee over "certain aspects of the resource adequacy and TAC cost allocation issues," would only grant the WSC primary authority over "determining the PRM."

ORA recognizes that regional Resource Adequacy (RA) as currently proposed will likely require shifting a significant amount of the current state authority exercised by the California Public Utilities Commission (CPUC) over resource adequacy to a federally regulated regional entity. In the initial straw proposal, the CAISO noted that it "recognizes the states' traditional role with respect to RA" and included "avoid[ing] changes to the ISO's RA rules that would misalign the ISO's rules with the California Public Utility Commission's and other LRA's current programs" as a guiding principle in the Issue Paper. The shift of authority away from the states to the new regional ISO should be carefully thought out to ensure that states retain their ability to plan for resources [...].

PG&E would like the CAISO to clarify whether it is considering operating multiple balancing areas that have different reliability criteria as part of regional expansion. PG&E believes that consistent minimum reliability criteria must apply across the regional ISO in order for regionalization to be successful. PG&E's request for clarification is based on a comment CAISO staff made during the October 6th stakeholder meeting in response to a statement made by the Industrial Customers of Northwest Utilities (ICNU) that "PacifiCorp's reliability profile is different than the CAISO's reliability profile".

SCL does not support the reduction in the role accorded to LRAs in the 3rd straw proposal. LRA's were given a much broader/larger/more robust role in the 2nd straw proposal. The 3rd straw proposal removes decision making from LRAs in several instances: setting local resource adequacy and reserve levels, and choosing the capacity counting method. It is important that LRA's retain more control because they are presently performing these functions and will have continuing responsibility for ensuring proper use of customer dollars.

The Six Cities also request confirmation of several points discussed in the October 6, 2016 meeting on the 3rd Revised Straw Proposal. Specifically, the Six Cities request that the ISO confirm the following:

- MIC will no longer be required for interties that become internal to an expanded BAA footprint;
- The ISO will preserve LSEs' ability to count existing RA resources; and

- Must-offer requirements, Resource Adequacy Availability Incentive Mechanism (“RAAIM”) provisions, and substitution rules all will be applied consistently throughout an expanded BAA footprint.

ISO responses to stakeholder comments on other Regional RA issues

The ISO appreciates the comments by stakeholders on the timing and proposed process related to this Regional RA initiative and other regionalization and governance efforts. The ISO has described the plans for the process moving forward in some detail in the plan for stakeholder engagement section in this proposal. The ISO will provide stakeholders with additional details and clarity about the proposed path forward on these important regionalization efforts as they become available.

The ISO understands the concerns of BPA, SCL, and others, related to their desire for the ISO maintaining flexibility for LRAs to determine RA rules. The ISO maintains that it is not appropriate to continue the status quo because as the ISO expands it will become necessary to maintain consistent rules for PRM and counting methodologies for resource valuations across an expanded footprint. This is necessary because continuing to allow varying rules and levels of PRM will create the potential for capacity leaning and could incentivize undesirable procurement behaviors.

PG&E questions whether the ISO is considering operating multiple balancing areas that have different reliability criteria as part of regional expansion. The ISO is not proposing to operate multiple balancing areas as part of regional expansion and the statements that may have been made should not be misconstrued as such.

In response to Six Cities request, that the ISO confirms that MIC will no longer be required for interties that become internal to an expanded BAA footprint. The ISO confirms that it will preserve LSEs’ ability to count existing RA resources, to the extent they are measured under the ISO’s proposed uniform counting rules and the resources qualify for resource adequacy under the other proposed modifications to the RA provisions. The ISO confirms that all must-offer requirements, Resource Adequacy Availability Incentive Mechanism (“RAAIM”) provisions, and substitution rules will be applied consistently throughout an expanded BAA footprint.