California ISO

Stakeholder Comments Template

Resource Adequacy Enhancements

This template has been created for submission of stakeholder comments on the RA Enhancements stakeholder working group held on April 8 & 9. The stakeholder meeting presentation and other information related to this initiative may be found on the initiative webpage at:
http://www.caiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on April 22.

Submitted by	Organization	Date Submitted
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Please provide your organization's comments on the following issues and questions.

1. **Unforced capacity concepts: Inclusion of forced outage rates in capacity counting/valuation**

Please provide your organization's feedback on the capacity counting and forced outage rate/unforced capacity topic. Please explain your rationale and include examples if applicable.

While Calpine does not necessarily object to a transition to UCAP, Calpine is not convinced that it will differentiate meaningfully between more and less reliable resources for at least two reasons: First, if forced outage rates are measured over very long time windows, they may not capture a resource's ability to perform in critical hours when it is most needed. Second, as indicated by the CPUC during the working group meeting, a resource's historical forced outage rate may be a poor proxy for its prospective performance. For example, a resource that experiences a major outage may be significantly more reliable after it is repaired and returns to service. Consequently, Calpine believes that a transition to UCAP should be complemented by other mechanisms that reward and ensure the performance of capacity resources, such as New England's Pay-for-Performance or PJM's Capacity Performance, which reward the actual provision of energy and AS in critical hours. Another benefit of such mechanisms, in

addition to encouraging performance of resources with well-defined forced outage rates, such as gas-fired generating plants, is that they might provide uniform incentives for other resources as well, such as imports.

Further, Calpine notes that if one objective of the transition to UCAP is to avoid the need for ex post substitution through greater ex ante procurement, the same result could be effected through higher ex ante procurement requirements based on ICAP/NQC (in combination with financial penalties to ensure that the capacity participates in CAISO markets when it is not forced out).

In addition, Calpine is concerned about an approach that would continue to rely on NQC for local showings but UCAP for system showings. If the CAISO believes that UCAP appropriately favors more reliable resources, then it should encourage the procurement of higher UCAP/more reliable resources for local requirements as well. Calpine understands that the CAISO prefers not to modify the LCR study methodology, which yields results in NQC terms. Perhaps those results could be converted to UCAP by modifying them downwards to account for the average forced outage rate of the resources that could be used to meet each LCR. Resources could then be counted towards these modified requirements according to their UCAP values.

2. Flexible RA concepts

Please provide your organization's feedback on the Flexible RA topic. Please explain your rationale and include examples if applicable.

As Calpine has expressed previously,[1] Calpine is not convinced that flexible RA requirements are the best way to encourage operational flexibility or whether the CAISO will ever be unable to meet operational flexibility challenges if it has sufficient generic capacity to meet properly-defined requirements for generic capacity, particularly as more supply-side solar, which generally causes the ramps that drive flexible capacity requirements, becomes dispatchable. Consequently, Calpine does not favor refinements of flexible RA requirements, particularly if they are not tied explicitly to clear reliability needs.

Slide 36 notes that one approach to refining flexible RA requirements would be to tie them to explicit operational requirements developed through the Day-Ahead Market Enhancements (DAME) initiative, such as the need for a day-ahead Flexible Ramping product. This is the approach that the CAISO seemed to be following when it suspended the FRACMOO2 initiative. In fact, it was Calpine's understanding that refinements to flexible RA were put on hold so that they could be linked directly to operational requirements identified through DAME and/or wait for additional evidence on how the changes implemented through DAME, such as more granular scheduling of imports, impact operational flexibility requirements. The CAISO's latest proposal seems to abandon this general approach by proposing a new 1-hour product that is not tied to any clear and binding reliability requirement, i.e., the fact that 1-hour ramping requirements are growing does not establish a need for more or different RA resources.

[1] For example, here: http://www.caiso.com/Documents/CalpineComments-RevisedDraftFlexibleCapacityFrameworkProposal.pdf.

Calpine encourages the CAISO to return to the more thoughtful approach that it was pursuing before suspending FRACMOO2. Calpine also would welcome an affirmative showing that CAISO is unable to manage operational flexibility issues with the resources that are currently available to it as RA resources before further changes to flexible RA are contemplated. For example, the CAISO might use some of the same "portfolio assessment" tools that it is proposing to use to test the sufficiency of system RA procurement to test operational flexibility.

Slide 37 requests feedback on how wind and solar might count towards flexible RA requirements, how to ensure compliance with flexible RA MOO, and Pmin burden. With respect to how wind and solar might count towards flexible RA requirements, presumably the resources should count to the extent that they can mitigate through curtailment the ramps that they cause.[2] Calpine has no specific suggestions right now on how to ensure compliance with the flexible RA MOO beyond the status quo incetives/penalties. How reliance on a relatively slow starting resource with significant Pmin might impact the CAISO's ability to meet ramps might depend on context. For example, in the summer when more resources are needed to meet load, even resources with significant Pmins may generally operate economically at or above their Pmins. Further, in assessing Pmin issues, the CAISO may want to revisit start time qualifications in order for Pmin capacity to be considered flexible. The current cutoff is 90 minutes, but many resources with significantly longer start times are capable of cycling off in the middle of the day and starting to meet evening ramps without imposing a "Pmin burden" in the middle of the day and exacerbating ramps.

3. RA showings and assessments

Please provide your organization's feedback on the RA showings and assessment topic. Please explain your rationale and include examples if applicable.

a. Portfolio assessment

Please provide your organization's feedback on the portfolio assessment sub-topic. Please explain your rationale and include examples if applicable.

Calpine generally supports the idea of a portfolio assessment. Of the potential tools described on slides 49-52, only the version of Plexos that CAISO currently uses for its summer assessments could be used to perform a full stochastic analysis and determine whether the RA portfolio meets objective reliability criteria. Calpine supports the use of the summer assessment tool or a similar tool but notes that such a tool is unlikely to show reliability shortfalls if each LSE meets its own individual requirements unless resource counting rules are inappropriate, e.g., ELCCs for renewables are too high or 4-hour storage has insufficient energy to address certain reliability problems, or the PRM to which LSEs are required to procure is too low. Consequently, to the extent that the

[2] PG&E and First Solar previously put forward reasonable approaches to this issue. For example, see Appendix A of http://www.caiso.com/Documents/FirstSolarComments-SecondRevisedDraftFlexibleCapacityFramework.pdf and Figure 7 of http://www.caiso.com/Documents/SecondRevisedFlexibleCapacityFrameworkProposal-FlexibleResourceAdequacyCriteriaMustOfferObligationPhase2.pdf.

CAISO's portfolio assessment identifies deficiencies, there should be a clear feedback to resource counting rules and the PRMs used to set LSE-specific procurement requirements.

4. Planned Outage Substitution

Please provide your organization's feedback on the Planned Outage Substitution topic. Please explain your rationale and include examples if applicable.

Calpine believes that capacity should be as fungible as possible with respect to both showings/compliance and planned outage substitution. If the CAISO is really concerned that a gas plant, for example, cannot be replaced with renewables or storage in a planned outage substitution context, then the same concerns should apply to showings/compliance. For example, the ELCC methodology is intended to calculate the firm capacity equivalent of renewables. If the CAISO does not believe that a MW of renewable ELCC is equivalent to a MW of gas generation, then the ELCC methodology should be revisited.

5. CPM and Backstop authority

Please provide your organization's feedback on the CPM and Backstop Authority topic. Please explain your rationale and include examples if applicable.

In the event that CAISO transitions to validating LSE showings of system RA based on UCAP, Calpine generally supports CAISO authority to cure UCAP deficiencies using CPM. As indicated above, Calpine believes that potential *collective* deficiencies of UCAP that might be identified by a portfolio assessment should be minimized through accurate resource counting rules and clear reliability-based ex ante procurement requirements.

6. Import RA provisions

Please provide your organization's feedback on the import RA provisions topic. Please explain your rationale and include examples if applicable.

Calpine generally supports more stringent requirements for import RA. Calpine offers the following observations on the treatment of import RA in the CAISO's April 9 presentation.

Slide 75 addresses the "firmness" of different types of bilateral wholesale energy or capacity purchases. Calpine notes that when capacity or energy to support an RA capacity import is purchased may be as important as the firmness of the purchase itself. For example, capacity purchased day-ahead may be firm, but presumably it is not the CAISO's intent for LSEs to wait until the day-ahead time frame to secure capacity that is supporting an RA showing.[3]

Slide 77 identifies potential additional analyses of non-delivery of energy import RA resources. It might also be interesting to analyze the extent to which imports are offered

[3] The CAISO previously grappled with this issue in its Regional RA proposal. For example, see section 5.4 of http://www.caiso.com/Documents/RegionalFrameworkProposal-RegionalResourceAdequacy.pdf.

at prices above the prices of internal resources and hence are not dispatched and more generally where imports generally fall in the energy offer stack.

In response to the specific questions on slide 78, Calpine agrees that a requirement for import RA to be backed by a specific resource designated in the showing time frame that is not committed to meet reliability requirements outside of CAISO would assure firmness. Calpine notes that if the CAISO implements such a requirement, it will be important for CAISO unit commitment and dispatch to respect the operating characteristics of the underlying resources, e.g., if import RA is backed by an external CCGT, the CAISO should not be able to dispatch the CCGT in a manner that is inconsistent with its start time, ramp rate, etc. Absent backing by a specific resource, it might also be helpful to place other constraints on the contractual arrangements required to support import RA. For example, Calpine believes that it is important for capacity to be procured in the showing time frame or earlier, i.e., firm capacity purchased in the day-ahead time frame does not meet the objectives of the RA program of securing sufficient capacity on a month- and year- (and multi-year-) ahead basis. In addition, Calpine notes that what is typically traded as "firm" is recallable by the host BA in an emergency so may not provide the CAISO adequate forward assurance of availability. To the extent that the CAISO wishes to allow suppliers flexibility to line up capacity within the month, it may need some combination of strong attestations in the month-ahead time frame that the supplier will secure capacity by the operational time frame and stringent ex post penalties for capacity that is unavailable when it is needed. (As indicated above, Calpine generally favors strong ex post incentives/penalties for all RA resources, including imports.)

With respect to the questions on slide 79, Calpine supports a real-time must-offer for RA imports (with the possible exception of import RA that is clearly tied to a specific long-start resource?). Calpine is not convinced that is necessary to impose a 7x24 MOO on any RA resource including imports but supports comparable treatment for all RA resources. A requirement to secure transmission to the border with CAISO might significantly increase the assurance that import RA will be available but also might increase its cost and limit suppliers ability to optimize how they meet their RA commitments within the delivery month.

7. Maximum Import Capability and Import Capability Allocation provisions

Please provide your organization's feedback on the Maximum Import Capability and Import Capability Allocation provisions topic. Please explain your rationale and include examples if applicable.

Calpine has no comments on this topic at this time.

8. Must Offer Obligations concepts

Please provide your organization's feedback on the Must Offer Obligation concepts topic. Please explain your rationale and include examples if applicable.

Calpine has no comments on this topic at this time.

9. Local capacity assessments with availability-limited resources

Please provide your organization's feedback on the Local capacity assessments with availability-limited resources topic. Please explain your rationale and include examples if applicable.

Calpine generally supports the provision of additional information on energy/capacity duration requirements in local areas. As proposed on slide 115, it would be useful for the CAISO's requirements to be translated into clear procurement requirements but Calpine recognizes that any such requirements are likely to be highly location and portfolio specific. Absent clear ex ante procurement requirements, it will be critical for the CAISO to maintain its authority to use backstop procurement to address emergent reliability issues.

10. Slow demand response

Please provide your organization's feedback on the slow demand response topic. Please explain your rationale and include examples if applicable.

Calpine believes that the CAISO is working on reasonable approaches to dispatching slow DR in a manner that would allow some reliance on slow DR for to meet local capacity requirements, while minimizing the pre-contingency dispatch of slow DR.

Additional comments

Please offer any other feedback your organization would like to provide on the April 8-9 RA Enhancements stakeholder working groups.