



Stakeholder Comments Template

Resource Adequacy Enhancements

This template has been created for submission of stakeholder comments on the Resource Adequacy Enhancements third revised straw proposal that was published on December 20, 2019. The proposal, stakeholder meeting presentation, and other information related to this initiative may be found on the initiative webpage at: <http://www.caiso.com/StakeholderProcesses/Resource-Adequacy-Enhancements>

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on **January 27, 2020**.

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

1. System Resource Adequacy

Please provide your organization’s feedback on the System Resource Adequacy topic as described in section 5.1. Please explain your rationale and include examples if applicable.

CalCCA is primarily concerned with ensuring that the Resource Adequacy (RA) rules correctly quantify the reliability contribution of capacity based on its actual expected availability when needed. CalCCA believes this can be achieved through the CAISO’s proposed UCAP methodology, though it is critical that the correct data are used to accurately derive such demonstrably predictive values, and properly differentiate among resource technologies, vintages, locations, environments, operating restrictions, fuel sources, and other relevant and potentially unique factors.

¹ California Community Choice Association represents local government Community Choice Aggregation electricity providers in California members, including Apple Valley Choice Energy, CleanPowerSF, Clean Power Alliance, East Bay Community Energy, King City Community Power, Lancaster Choice Energy, MCE, Monterey Bay Community Power, Peninsula Clean Energy, Pico Rivera Innovative Municipal Energy, Pioneer Community Energy, Rancho Mirage Energy Authority, Redwood Coast Energy Authority, San Jacinto Power, San Jose Clean Energy, Silicon Valley Clean Energy, Solana Energy Alliance, Sonoma Clean Power, Valley Clean Energy.

CalCCA maintains its concern regarding UCAP calculations based on daily outage data. If a resource has a very brief outage anytime during the operating day, this would count as a full day of outage (for the portion of the capacity that is out) in the current proposal. Since some outages last less than a full day, the data reviewed to-date may overstate the actual frequency of forced outages. The CAISO must ensure that the data used to set the UCAP requirements accurately represents actual forced outages for individual resources and each class of resources.

If the CAISO moves forward with a UCAP methodology, CalCCA believes that it is important for the CAISO to conduct analysis on circumstances that created the dataset of forced outage and derate events, in order to identify patterns and ensure that the calculation is the best possible reflection of expected future performance. If an historical dataset of forced outages and derates demonstrates that these events occur according to identifiable patterns, then such patterns should inform the implied weight each event is given to ensure UCAP is, to the greatest degree possible, an unbiased predictor of future events. CalCCA therefore strongly urges the CAISO to continually revisit the UCAP calculation inputs and assumptions as it gains experience with the new market structure.

CalCCA is also concerned with the arbitrary selection of only 100 hours in each of two seasons for use in UCAP calculations. An unintended consequence is that a resource's UCAP could be disproportionately impacted by unfortunate random chance with little predictive value for future performance. Parties may then be motivated to show RA resources with artificially high UCAP values and avoid resources with artificially low UCAP values, thereby unnecessarily skewing the pool of RA resources. CalCCA encourages the CAISO to use a larger selection of hours, and identify in a compelling manner with supporting analysis why an all-hour (8,760) dataset is not appropriate.

On the topic of outages, CalCCA appreciates the CAISO's objective to minimize cancellation of planned outages, and to minimize the need for substitution of capacity. In the present proposal, the CAISO notes:

"In comments, CalCCA expressed concerns that the CAISO's proposal would result in incentives to withhold capacity instead of making the capacity readily available to the market. The CAISO notes that the shift to UCAP counting rules, above, will significantly mitigate the incentive to withhold capacity from the bilateral capacity market. This aspect of the CAISO proposal may result in an LSE holding capacity for replacement purposes. Any opportunity or requirement for replacement capacity will create some level of withholding incentive. Here the CAISO attempts to balance this incentive with allowing some flexibility to resource SC to plan outages as needed. However, given the other incentives and information provided in the CAISO's proposal, this risk is likely reduced to the lowest point possible." (emphasis added)

CalCCA encourages the CAISO to eliminate entirely the potential for capacity withholding under the auspices of an LSE's attempts to manage risks related to substitution requirements for planned outages. Capacity shortfalls due to changed circumstances after an outage has been scheduled should be a risk that is pooled.

Any potential obligation to provide substitute capacity provides an opportunity for withholding. The CAISO is best-suited to both i) minimize the chance of such a situation occurring (through improved outage planning processes and potentially incorporating an expectation of planned outages into the RA requirements setting process), and ii) backstop procurement in case such rare events do occur. Leaving the CAISO with the responsibility for coordinating replacement/substitute capacity is also better aligned with the Central Buyer framework proposed by settling parties in the CPUC proceeding R.17-09-020.

CalCCA appreciates the CAISO's treatment in the Third Revised Straw Proposal of factors to use to appropriately set the System Resource Adequacy UCAP requirement, accounting for peak demand, reserves, forced outages, and potentially forecast error. CalCCA is generally supportive of the approach described by the CAISO. As mentioned above, CalCCA also encourages the CAISO and stakeholders to consider inclusion of expected planned outages in the RA requirements setting process, in parallel with efforts to improve the outage planning process. Together, these changes could eliminate circumstances that today contribute to declined planned outages, which CalCCA would like to see eliminated. CalCCA above all encourages the CAISO to continually monitor performance of the new rules post-implementation, and to seek to involve stakeholders where improvements are identified, in order to ensure that the rules are achieving the clearly stated program objectives. Issues for continuous evaluation could include:

- The number of hours in the year used for UCAP calculation (the optimal number is unknown, but CalCCA believes 100 hours for each of two seasons is too low).
- Rules for collection of more detail data to support analysis of patterns in outages (planned and forced).
- Consideration of an intermediate category of scheduled outage 7 days or fewer before the outage itself, one which cannot be cancelled, and which impacts UCAP at less than unity (a "mandatory scheduled outage"); a short-term scheduled but necessary outage should be proportionately incorporated into the UCAP calculations, acknowledging the reduction in reliability impacts resulting from any advance notice at all compared with a post-contingency or post-emergency forced outage.
- Alignment of the RA rule treatment across technology types, including especially hybrid resources as their presence in the supply fleet grows.

Please provide your organization's position on the System Resource Adequacy topic as described in section 5.1. (Please indicate Support, Support with caveats, Oppose, or Oppose with caveats)

CalCCA supports the CAISO's proposal with caveats described above and calls the CAISO's attention to the fact that the proposal is not the only solution to the issues identified in this stakeholder process, but that these issues have been discussed

extensively in forums including the Central Buyer settlement proposal crafted among a diverse set of stakeholders in R.17-09-020.

2. Flexible Resource Adequacy

Please provide your organization's feedback on the Flexible Resource Adequacy topic as described in section 5.2. Please explain your rationale and include examples if applicable.

CalCCA agrees that the flexibility needed to meet the unpredictable flexible capacity needs should align with the proposed Imbalance Reserves market mechanism as proposed and that the predictable flexible capacity needs² will be achieved through the resource planning efforts of LSEs. CalCCA agrees with the CAISO's expressed reasoning in Section 5.2.1 that LSE's procurement of capacity with the capability to meet the CAISO's predictable net ramps should, and will, be conducted by such LSE considering trade-offs among cost, ramp rate, and portfolio content obligations and targets.

Please provide your organization's position on the Flexible Resource Adequacy topic as described in section 5.2. (Please indicate Support, Support with caveats, Oppose, or Oppose with caveats)

In the near term, CalCCA supports the CAISO's efforts to align Flexible Resource Adequacy rules with the proposed Imbalance Reserves market mechanism and to eliminate the 3 hour net ramp method of calculation.

In the long-run, however, the CAISO should consider eliminating the Flexible Resource Adequacy rules entirely. Doing so could reduce the complexity of the RA requirements greatly without having a material impact on the characteristics of the fleet of resources being procured by market participants. If the resource fleet systemwide evolves to a state of surplus flexibility and the Imbalance Reserves market mechanism demonstrates that such a spot market solution for covering unpredictable flexible capacity needs is sufficient to support system reliability, this would suggest a Flexible Resource Adequacy product is unnecessary.

3. Local Resource Adequacy

Please provide your organization's feedback on the Local Resource Adequacy topic as described in section 5.3. Please explain your rationale and include examples if applicable.

CalCCA appreciates the CAISO's responsiveness to stakeholder comments as it further refines the Local RA rules and continues to support the UCAP method for Local Resource Adequacy. Any approach to local RA (whether NQC or UCAP) will be complex, and this is an artifact of the generally complex nature of local capacity

² Section 5.2.1 of Resource Adequacy Enhancements – Third Revised Straw Proposal at page 70.

evaluation (treatment of effectiveness factors in other forums demonstrate this to be true). Applying the UCAP approach to local RA will address the resource substitution-related issues described above in the system RA discussion (with CalCCA's proposed modifications to the maintenance outage process). It is important to recognize that the current pool of available local resources is limited and already constrained both by resources' effectiveness factors and their forced outage rates. As new resources are added, incorporating forced outage rates into the local RA evaluation will incentivize increased reliability.

CalCCA encourages the CAISO to consider how its rules will facilitate the evolution of the resource fleet and count the reliability contribution of locally developed storage and supply resources in import-constrained areas, especially in light of the growing interest and implementation of microgrids and distributed energy resiliency systems. CalCCA strongly encourages CAISO to continually monitor RA rules to ensure that resources' contribution to reliability are properly and appropriately quantified, accounting for scale, location, technology, operating parameters, and other factors.

Please provide your organization's position on the Local Resource Adequacy topic as described in section 5.3. (Please indicate Support, Support with caveats, Oppose, or Oppose with caveats)

CalCCA supports the CAISO's proposal, subject to its proposal to eliminate maintenance outage substitution requirements as described in Section 1.

4. Backstop Capacity Procurement Provisions

Please provide your organization's feedback on the Backstop Capacity Procurement Provisions topic as described in section 5.4. Please explain your rationale and include examples if applicable.

CalCCA supports CAISO's proposed new authority to make CPM designations to address deficiencies identified by the proposed portfolio analysis. As CAISO has shown, considering only the single peak hour each month may not result in CAISO having access to sufficient RA resources to serve load, particularly during the hours immediately following the peak hour. It is reasonable for CAISO to have backstop procurement authority to address the identified deficiencies. CalCCA encourages CAISO to provide market participants detailed information about the backstop studies it intends to run, including key study assumptions and potentially access to study tools, and to perform similar studies as it participates in the CPUC IRP proceedings, to inform parties' procurement decisions and to reduce the likelihood that CAISO will have to exercise its expanded backstop authority.

CalCCA opposes CAISO's proposed new tool to encourage load to procure resources up to full UCAP requirements and dis-incentivize entities from leaning on other LSEs. As stated in CalCCA's comments on the second revised straw proposal:

CalCCA opposes the proposed LSE RA showing incentive, in which CAISO would charge short LSEs a penalty and distribute collected proceeds to long LSEs. We are concerned that such penalties could distort the bilateral RA markets, particularly in cases where suppliers have market power. Parties that fail to meet their RA requirements will be at risk of being allocated CAISO backstop procurement costs resulting from their deficiencies, in addition to being exposed to potentially high energy market prices. CalCCA also notes that if the RA-CPE proposal supported by CalCCA is implemented, all of the CPUC jurisdictional LSE RA requirements would be met on a three year forward basis by individual LSEs and the RA-CPE without any penalty structure.

Please provide your organization's position on the Backstop Capacity Procurement Provisions topic as described in section 5.4. (Please indicate Support, Support with caveats, Oppose, or Oppose with caveats)

CalCCA supports and opposes elements of the Backstop Capacity Procurement proposal as described above.

Additional comments

Please offer any other feedback your organization would like to provide on the Resource Adequacy Enhancements third revised straw proposal.

CalCCA appreciates CAISO's attention to the issue of integrating storage resources into the resource fleet to facilitate a smooth transition to a clean energy future while maintaining reliability and potentially resolving local transmission issues.³ CalCCA additionally understands and appreciates the unique risk posed by heavy reliance on storage resources; this strategy could potentially leave the CAISO with insufficient energy available to meet net peak demand, which is expected to occur late in each operating day. The task for the CAISO and stakeholders is to improve overall system efficiency *and* reliability by striking the proper balance between i) providing the CAISO confidence that storage resources will have enough energy stored when needed to maintain reliability, and ii) allowing enough real-time flexibility to capture the unique advantages of storage resources to shift energy from low-value periods to high-value periods and to respond quickly to changing conditions.

The CAISO's primary concern is that a storage resource that clears the Day-Ahead Market with a charge and discharge schedule may be unable to meet this schedule in real-time. The concern arises because a storage resource must first charge (withdraw energy from the grid) in order to store energy for discharge (injection of energy to the grid) at a later time. This could happen if the 5-minute Real-Time Dispatch economically dispatches the resource to forego charging or to discharge in a way that deviates from the DAM schedule, or if the resource operator self-schedules the resource to the same effect. The CAISO's proposed solution -- a minimum state of

³ Section 5.1.7 of Resource Adequacy Enhancements – Third Revised Straw Proposal at page 60.

charge (SOC) constraint on storage resources – could ensure that the resources begin a discharge period of their daily cycle with enough energy stored to meet the full energy needed for the scheduled discharge in the DAM schedule.

Alternatives also proposed and dismissed were to mandate that storage resources adhere to their DAM schedules, or to extend the look-ahead horizon for the Real-Time Market in order to generate feasible dispatch schedules that ensured sufficient energy is stored to meet the energy needs during the anticipated discharge periods (generally beginning in the early evening when solar generation is ramping down).

CalCCA appreciates that the straw proposal is still in draft form and substantive details are yet to be fleshed out, but nonetheless has several concerns regarding the storage proposal:

1. The proposal language is ambiguous and suggests that the minimum SOC constraint could be enforced early in the day, perhaps as early as the start of the day (12:01 AM), to guarantee that the DAM discharge schedule can be met.
 - a. CalCCA Concern: Enforcing the constraint in this way would disallow multiple full or partial charge-discharge cycles in a day, and would preclude storage resources from responding to real-time market signals of surplus and scarcity.
2. The proposal does not address the disincentives that result from limiting storage resources with a DAM schedule from realizing potential real-time value.
 - a. First CalCCA Concern: Storage resource operators may be incentivized to submit offers in order to avoid clearing the DAM, and avoid the constraint otherwise imposed on them, that is not imposed on other types of resources. This unintentional side effect could thwart the described intent of the constraint, and result in a less efficient outcome than if no constraint were implemented at all.
 - b. Second CalCCA Concern: Inadvertently limiting participation in the DAM (by incentivizing storage resources to only participate in real-time) may force the CAISO to guess if and how storage resources will participate in the Real-Time Market, increasing uncertainty.
 - c. Third CalCCA Concern: Behavior to avoid a DAM schedule (which could be a predictable and even understandable result of this proposal) may be difficult to discern from behavior considered to be unjustified withholding under market power rules, and may complicate efforts to assess and mitigate exercises of market power.
3. The proposal is not clear on the enforcement mechanism for the minimum SOC constraint. Without a specific incentive structure beyond positive uninstructed imbalance energy settlements, the constraint would have no impact.

CalCCA proposes the following list of items for consideration:

1. Reconsider a variation of the CAISO's third proposal (extension of the RTM horizon beyond 65 minutes) in this or a separate stakeholder process in order to optimize storage resources' real-time schedules several hours into the future.

Such a market run could be performed in advance of, and then in parallel with, the 5-minute Real-Time Dispatch optimization, but less frequently than every 5 minutes, considering the non-linear growth in problem complexity with a longer look-ahead. The results of this market run, which would optimize storage resources over a much longer horizon (several hours) could help optimize dispatch schedules to meet real-time conditions more efficiently than the current proposal, while maintaining the CAISO's need for reliable late-day energy supply.

2. If a minimum SOC is instituted, enforce the constraint only at the beginning of any discharge event (single or multiple hour) in the resource's DAM schedule. Note that this would support multiple cycles in a day and allow resources to provide real-time flexibility and value that aligns with the storage resource's full capabilities.
3. Consider postponing any proposal specifying disparate treatment of storage resources in the real-time markets and waiting to reevaluate such a proposal as the CAISO gains greater experience with storage resources reaching commercial operation over the next several years.
4. Finally, CalCCA encourages the CAISO to consider enforcing a minimum SOC (or other mechanism) only on a subset of storage resources. These could be selected by merit order based on minimized expected foregone real-time net revenues. For example, storage resources could supplement their DAM bids with an expectation of foregone real-time revenues (\$/MW-day) that would result from being subject to such a constraint. The CAISO would enforce the constraint on resources in merit order (lowest foregone revenue to highest) until enough⁴ MWh were selected.

All elements of the new RA rules should be continually evaluated to ensure that they are effectively solving a clearly identified set of problems in line with clearly expressed principles.

⁴ Based on CAISO experience and analysis, much like the analytical mechanism that will be used to derive the Imbalance Reserve quantity.