



Stakeholder Comments Template

Resource Adequacy Enhancements

This template has been created for submission of stakeholder comments on the Resource Adequacy Enhancements working group on June 10, 2020. The stakeholder call 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 **June 24, 2020**.

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

Additional comments

Please offer any other feedback your organization would like to provide on the Resource Adequacy Enhancements working group discussion.

***NRG Response:** Because NRG is more concerned about the policy-level issues related to UCAP, as opposed to the details of implementing UCAP, NRG has moved the "Additional comments" section of the template from the bottom to the top of this document.*

In principle, NRG is not conceptually opposed to a UCAP construct. In fact, UCAP has been successfully deployed in other parts of the country. However, the primary feature that exists where successful deployment has occurred is the existence of a centralized capacity market. California does not have such a market structure. Without that market structure, the variability that is an inherent feature of UCAP makes it difficult to introduce UCAP in California.

In the absence of a well organized centralized capacity market, generators, including NRG, have long advocated for a multi-year forward capacity compliance regime to provide generators adequate longer-term revenue certainty to make informed operational decisions about their maintenance practices. Recent steps in that

direction have helped generators and reliability generally. However, the uncertainty of UCAP makes contracting multi-year ahead inefficient. With individual unit UCAP values subject to likely variation on a year-to-year basis, the implementation of UCAP will force generators to add incremental pricing to capacity to account for uncertainty in the out-years of a capacity contract. In other markets, a robust, multi-stage, centralized capacity auction can alleviate such uncertainty, allowing efficient outcomes; in California, the inefficient bilateral market cannot provide such comfort.

Finally, as discussed in its April 14, 2020 comments in this stakeholder proceeding, NRG remains gravely concerned that the introduction of UCAP will create a parallel capacity compliance framework to that which is already deployed by the CPUC. The potential for contracting around and complying with both UCAP and NQC standards is unwieldy, inefficient and should be avoided. Until there is general agreement between the CAISO and the CPUC about how to incorporate UCAP into both their resource adequacy frameworks, the CAISO should delay implementing UCAP into its own resource adequacy framework.

1. Production Simulation: Determining UCAP Needs and Portfolio Assessment

Please provide your organization's feedback on the Production simulation: Determining UCAP needs and portfolio assessment topic as described in slides 4-15. Please explain your rationale and include examples if applicable.

NRG Response: NRG agrees with the proposed modeling changes discussed in slide 8. Modeling assumptions based on a CAISO system in 2004 to determine the LOLE associated with the 15% Planning Reserve Margin over forecasted peak demand are unlikely to be suitable for CAISO's current needs. The modeling modifications to specifically include regulation, load following, and operating reserves are welcome improvements.

2. Transitioning to UCAP Paradigm

Please provide your organization's feedback on the transitioning to UCAP paradigm topic as described in slides 16-19. Please explain your rationale and include examples if applicable.

NRG Response: Of the two options specified for potential transition to a UCAP framework, NRG strongly supports Option 2. Option 1 would exacerbate the already concerning outcome under which the CAISO and the CPUC have separate capacity metrics; applying different meanings to the same term, "NQC," will prove confusing and difficult to administer.

That said, NRG is concerned by the terms, "clean transition," and "may require reworking existing contracts" put forward in the slides addressing the transition to

UCAP. As discussed above, forward-contracting is an essential component for generators to make operational decisions about maintenance. Suggesting that contracts may have to be reworked without any detail about how such a complicated process between parties with unequal bargaining position will occur implies the CAISO has not given much thought to this important element of any significant change to a compliance framework. As part of any plan to deploy UCAP, the CAISO should honor any forward capacity contracts for a period of five years from implementation based on the volume of capacity reflected in those contracts.

3. Unforced Capacity Evaluations

Please provide your organization's feedback on the unforced capacity evaluations topic as described in slides 20-59. Please explain your rationale and include examples if applicable.

NRG Response: Slide 23 indicates that UCAP will be calculated annually for the Summer and Winter seasons. Setting aside the issues this raises with multi-year contracts, another concern is that the UCAP values must be finalized sufficiently far in advance to allow parties to contract for the following year. Under the current framework, year-ahead showings are due by the end of October each year. Accordingly, the annual UCAP figures must be finalized no later than the end of June, and preferably earlier, each year to accommodate contracting (other capacity markets that have deployed UCAP provide resources as much as six months advance notice of their UCAP values prior to the start of the upcoming compliance year).

Slide 24 identifies several of the outages specified in RC0630. However, NRG notes the slide does not identify "Operational Outages" or "Informational Outages," which are forms of outages specified in RC0630. The absence of these outages on the slide prompts the question whether the exclusion of such outages was intentional or merely an oversight. Stated more generally, is the CAISO proposing to account for all outages identified in RC0630 as part of its proposed UCAP methodology? NRG contends that any outage beyond a resource's control should not factor into the UCAP calculation.

Speaking to Slide 24 more generally, and with reliability as the paramount concern, the CAISO should explain how the RC0630 outage types are mapped to the NERC outage types. As part of its implementation of UCAP, the CAISO should include in its derate factor (i.e., EFORD) the impact of outage types defined by NERC to be forced outage hours or equivalent forced derate hours in its availability determination (U1, U2, U3, D1, D2, D3). For reference to NERC standards in this area, see: https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2020.pdf pages 21-22 and pages 25-26.

- a. Please provide your organization's feedback on the UCAP methodology: Seasonal availability factors topic as described in slides 27-46. Please explain your rationale and include examples if applicable.

NRG Response: The CAISO has proposed its own methodology for derating resources for purposes of establishing UCAP, electing not to follow the EFORD methodology followed in other capacity markets (e.g., PJM and NYISO) which have deployed UCAP principles. NRG opposes this determination and recommends that the CAISO deploy the EFORD methodology.

At its most basic level, Unforced Capacity is understood to be ICAP – (1-EFORD) in those markets where UCAP is used. From NRG's perspective, EFORD is preferred, because EFORD factors in duration of outages and includes the demand for the asset by the market. As a result, the higher the service hours without the derate, then the smaller the impact of forced outages or forced derates will be on a unit's UCAP, and vice versa.

If the CAISO nonetheless insists on employing its own derate approach to the ICAP (NQC), then the CAISO should use a dataset with as large a sample size as possible. CAISO's proposal to only look at a top 20% of specified hours results in arbitrary outcomes for resources. The approach suggests that a forced outage in a prior year during a constrained period is likely to occur in following years during a constrained period. NRG has not seen data to prove such a conclusion.

Even more troubling, the CAISO's proposed methodology assumes that forced outages are random and independent across hours anyway. Therefore, without a sample size from which one could get a reliably stable distribution, the CAISO's methodology will be assuming that the 20% of hours in each peak/offpeak "month cluster" will be the same with no statistically valid basis for that claim.

With reliability in mind, a larger sample size is more likely to identify resources prone to forced outages and lead to more predictable availability determinations. Furthermore, if the CAISO insists on pursuing its own methodology, then the CAISO should rebrand its effort away from UCAP and call it something else so as not to confuse the industry (e.g., "DCAP" for Derated Capacity).

For new generation resources, NRG recommends paralleling the process followed by PJM. Specifically, over a three-year period, the CAISO should provide a weighted average for historical operations and make up the balance using class average forced outage rate for the particular resource. This approach more closely resembles Option 1 on Slide 45, albeit with some modification..

- b. Please provide your organization's feedback on the UCAP methodologies for non-conventional generators topic as described in slides 47-59. Please explain your rationale and include examples if applicable.

NRG Response: With respect to storage resources, NRG opposes including the hourly state of charge (SOC) bid parameter in the availability factor (ideally, the CAISO would moot this issue by adopting the EFORd methodology, as discussed above). To NRG's knowledge, no other capacity market has implemented such an approach, and it imposes overly punitive rules for a new/emerging asset type. Instead, the CAISO should maintain consistency with NERC standards to derate capacity. Changes to the SOC are a function of a battery being used to meet demand. The CAISO's approach could punish a battery that was needed during ramp hours to meet load that is discharged as it provides that energy to support reliability and dynamically adjusts the SOC bid parameter so that its dispatches continue to be feasible based on charge. This is not the same as a forced derate as it's a part of the technical configuration of these assets that they have to charge. Future enhancements to the CAISO's framework could be undertaken to consider whether ELCC would be more appropriate to identify batteries' capacity value to account for whether it is likely to be able to mitigate LOLE, which seems to be more of an issue than the battery functioning as designed.

At Slides 58-59, the CAISO proposes to eliminate the RAIM mechanism. Although NRG disagrees with the CAISO's statement that RAIM was intended to incentivize the procurement of substitution capacity, it is true that RAIM has not led to resource owners broadly procuring substitution capacity (this has more to do with the inefficiencies of the bilateral capacity market in California). That all said, there may be a role for RAIM to play in the CAISO's capacity framework. Specifically, the CAISO should retain RAIM for assessment of actual performance if CAISO operators identify emergency conditions. The ability for CAISO to identify hours where there is a need for Resource Adequacy resources is already embedded in CAISO Operating Procedure 4420 (OP 4420), System Emergency where the CAISO operators identify instances of system emergency. In OP4420, CAISO operators have tools to mitigate system emergency concerns once flagged by the operator, including flagging reliability demand response resources (RDRR), which releases these RDRR into the stack in real-time only when OP4420 allows it. RAIM should be enhanced to assess penalties if the performance contracted isn't provided during the system emergency condition. Today, operators trigger this condition when there is a Transmission Emergency notice (Section 3.4) and when they issue a Warning Notice (Section 3.5.2). This procedure could be enhanced to notice an emergency event that would trigger RAIM penalties for actual performance. There still needs to be penalties for non-performance if there's a real reliability condition to ensure that the market is situated correctly and that when emergencies occur that units respond accordingly. This proposal is conceptually similar to what PJM does today and creates a performance

obligation under which Resource Adequacy resources are assessed for compliance comparing their output during such emergencies to their derated capacity under contract (i.e. CAISO's proposed UCAP using EFORD or NRG's proposed DCAP using CAISO unavailability factors).