

## PG&E's Comments

### Contingency Modeling Enhancements

Submitted by	Company	Date Submitted
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PG&E appreciates the opportunity to comment on CAISO's Third Revised Straw Proposal on "Contingency Modeling Enhancements," dated November 20, 2015 and the technical meeting presentation, dated December 10, 2015. PG&E supports the initiative provided that the test results show that the initiative will provide benefits to the market. Changes introduced by the CAISO in the "Third Revised Straw Proposal" addressed many of PG&E's concerns with the previous drafts.

Two areas in particular have been improved:

- Settlement rules related to the corrective capacity:

Energy transactions pay for the corrective capacity procured through their energy LMPs. Metered loads will not be charged on a per MWh basis for the revenue CAISO needs to pay corrective capacity procured in the market.

- Methods to ensure that corrective capacity does not result in CRR underfunding:

As a consequence, the CRRs will be revenue adequate assuming the same transmission model is used in the CRR allocation and the Day-Ahead Market.

In response, PG&E offers the following comments:

- PG&E supports removing the language that indicated that CAISO would charge the metered load on a per MWh basis for the corrective capacity, since the energy transactions already pay for corrective capacity through the energy LMPs.
- PG&E supports the proposed modification addressing the problem of allocating a revenue adequate set of CRRs. CAISO proposes to allocate Contingency CRRs (CCRRs)

after the CRR allocation to ensure that the resulting set of CRR and CCRRs is simultaneously feasible.

- PG&E strongly believes that the virtual bids and offers in the Day-Ahead Market should not be eligible to receive corrective capacity awards.
- CAISO proposes to allocate CCRRs after a CRR auction that does not incorporate CCRRs to achieve a simultaneously feasible set of CRRs and CCRRs. This is the same process that it will use to allocate CCRRs after the CRR allocation. While this approach is reasonable in our view, we would recommend that CAISO track the congestion components of the Locational Marginal Capacity Prices (LMCPs) against which the CCRRs will settle to evaluate the potential magnitude of the cost of CCRRs allocated post auction that participants would take into account in their bids for CRRs in an auction that does not incorporate CCRRs directly. If supported by this evaluation, CAISO could decide to incorporate CCRRs as well as CRRs and the enhanced Simultaneous Feasibility Test in the auction process as a post CME implementation enhancement. This would allow market participants to indicate the values they assign to CRRs and CCRRs when they bid to buy and sell CRRs and CCRRs in an auction that takes into account both preventative and corrective transmission constraints.
- PG&E seeks test case results from the CAISO to evaluate the possible benefits of implementing CME and assurance that the system performance will not degrade as a result.

**A. PG&E supports the modification of the settlement rules for the corrective capacity.**

As in the previous proposals, CAISO will pay providers of corrective capacity at the LMCP for corrective capacity at the location. However, the third draft proposal makes it clear that energy transactions pay for the corrective capacity procured through their energy LMPs. There is no need to charge metered loads for the corrective capacity on a per MWh basis. This avoids the potential for charging loads twice for corrective capacity – once through the LMPs for energy and a second time via a per MWh charge to metered load.

**B. PG&E supports the proposed modification addressing the problem of allocating a revenue adequate set of CRRs.**

CAISO has addressed the problem of allocating a revenue adequate set of CRRs. CAISO has developed a process to ensure that the CRRs that it allocates will be simultaneously feasible, so that it will collect adequate congestion rents in the Day-Ahead market to pay the CRRs, assuming that no changes occur to the transmission system between the CRR allocation and the Day-Ahead market. This means that CAISO will not allocate an infeasible set of CRRs for which loads will bear the cost of covering resulting revenue inadequacy. In the proposed process, CAISO will allocate CRRs as it does today taking into account only the preventative constraints. The CRRs will be settled as today using

the congestion components of the DA LMPs. For each corrective contingency, it will then allocate Contingency CRRs that bring the transmission allocated to revenue rights on the corrective transmission constraint under the available limit. The Corrective CRRs will settle against the congestion component of the relevant LMCP for the corrective contingency. This ensures that the allocated CRRs and CCRRs are simultaneously feasible and so revenue adequate. PG&E believes that this is a cost effective and efficient way to allocate revenue rights that will be revenue adequate without unduly restricting the amount of CRRs allocated.

**C. PG&E believes that the virtual bids and offers in the Day-Ahead Market should not be eligible to receive corrective capacity awards.**

At the technical meeting, the question arose as to whether virtual bids and offers in the Day-Ahead Market should be eligible to receive corrective capacity awards. PG&E does not support allowing virtual bids and offers to receive such awards. Corrective capacity is capacity that is anticipated to be available in the real-time market for CAISO to utilize in case a defined corrective contingency occurs. Such awards of corrective capacity to virtual supplies and demands will be removed from the real-time market and so will be replaced in real-time. Virtual supplies and demands that do not clear in the Day-Ahead market may be able to provide all corrective capacity needed at no opportunity cost and so supply most of the corrective capacity scheduled in the Day-Ahead. Such awards will have to be replaced in real-time which could increase costs and affect reliability.

Energy awards to virtual bids and offers only change at the start of an hour. Contingency capacity is capacity that can be called upon in a 30-minute period. By definition, a virtual bid or offer cannot change within a 30-minute period.

**D. PG&E suggests CAISO track the congestion components of the LMCPs against which CCRRs will settle to gain data to evaluate any potential benefit from adding CCRRs directly in the auction process.**

The allocation of CCRRs to ensure that the set of CRRs and CCRRs is simultaneously feasible occurs after the CRR allocation. The Third Draft Proposal anticipates applying the same technique after a CRR auction to achieve a simultaneously feasible set of CRRs and CCRRs. Some participants and the Market Surveillance Committee asked whether such an approach is acceptable for a CRR auction.

If CAISO uses today's CRR auction process that only considers preventative contingencies, the CRRs from the auction may not be revenue adequate once the corrective contingencies are considered. Under the proposed design, CAISO would allocate CCRRs after a CRR auction that does not include CCRRs to ensure the simultaneous feasibility of the resulting set of CRRs and CCRRs. Participants in the CRR auction could gather historic data on the amount of CCRRs they would likely be allocated after the auction and the congestion components of the LMCPs against which the CCRRs would settle. Participants could develop bids in the CRR auction taking this into account. This approach seems reasonable.

To address concerns expressed by some stakeholders, we would suggest that, after incorporating CME in the market, CAISO track the congestion components of the LMCPs against which CCRRs will settle to evaluate the revenue impact of the post-auction CCRR allocation. If supported by such an evaluation, CAISO could consider expanding the auction as a post implementation enhancement; this would allow participants to bid to buy and sell CCRRs as well as CRRs and enforce the simultaneous feasibility test in the auction, taking into account both preventative and corrective transmission constraints. Participants could express their willingness to pay (or be paid to accept) CRRs and CCRRs. The auction would allocate the most valuable set of rights taking into account available transmission capacity in the modeled contingencies based on participant preferences. We would recommend that if this were undertaken that it be done after CME has been implemented and experience with it has been gained.

**E. PG&E seeks test case results and assurance for the system performance.**

The CAISO should provide test cases that show results of implementing CME using system data. This is needed to demonstrate that CAISO can reliably solve the more complex commitment and dispatch problems when contingency transmission constraints are added. Also, this data will indicate the value that CME can be expected to provide in actual operations. While PG&E supports the design, this information will be necessary for PG&E to support proceeding with the implementation.

Furthermore, the test cases should demonstrate that there will not be major performance issues raised by this enhancement and that the market functions can be executed within the available time for running the various market processes.

PG&E wants to thank CAISO staff for their work in developing the revised draft proposal that addresses the concerns that PG&E expressed previously. We look forward to working with CAISO to review the results of the test cases.