

***California Public Utilities Commission***  
**Contingency Model Expansion**  
**Second Revised Draft Proposal March 13, 2014**

<b>Submitted By</b>	<b>Company or Entity</b>	<b>Date Submitted</b>
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**Summary:**

In this initiative the CAISO seeks to replace the existing methods used to address the NERC and WECC reliability standards to reposition the system within 30 minutes after a contingency<sup>1</sup>. The Contingency Model Expansion (CME) proposes to incorporate market based capacity constraints in the Day Ahead and Real Time Markets to set aside generation capacity in the event of a contingency on specific WECC transmission paths within CAISO's Balancing Authority Area (BAA). CPUC Staff reiterates their support for the CAISO efforts to improve its modeling of the inputs into the CAISO market. However, CPUC Staff is concerned that the complexity of the proposed change will create an opportunity for sophisticated market participants to take advantage of implementation imperfections and increases the likelihood of market abuse.

**Background:**

The purpose of the Contingency Modeling Enhancements (CME) is to address the concerns of market participants who believe that the current use of Exceptional Dispatch (ExD) and using minimum online commitment (MOC) constraints in the Day Ahead market (DAM) depress Locational Marginal Prices (LMPs) and reduce revenue opportunity to market participants. This proposal is an attempt by the CAISO to maintain the grid reliability it requires by creating a market based preventative/corrective constraint that will replace the Exceptional Dispatch and minimum online constraints used today by the ISO to respond to this type of contingency risk. This initiative was tabled last year due to the need for the CAISO to concentrate its resources on other higher priority initiatives.

With the CME initiative, by reserving the capacity that clears the Day Ahead Market (DAM), the ISO will need to go deeper into the supply stack to clear the market which in theory will drive

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<sup>1</sup> According to North American Electric Reliability Corporation (NERC)<sup>1</sup> and Western Electricity Coordinating Council (WECC)<sup>2</sup> standards, the ISO is required to return flows on critical transmission paths to its system operating limit (SOL) within 30 minutes when a real-time contingency leads to the system being in an insecure state.

up the LMP. Because load procures over ninety percent of its energy in the DAM, a small increase in the LMP could significantly increase the cost to load over time. Due to the history<sup>2</sup> of unintended consequences following the ISO's implementation of certain market products and features, CPUC staff is concerned that the purported benefits from this initiative may not be realized.

The Second Revised Draft CME Proposal which is the subject of these comments remains relatively unchanged from where it left off last summer. In this version of the proposal, the Department of Market Monitoring (DMM) has provided more clarity on its recommendations to modify the dynamic competitive path assessment (CPA) and residual supplier index (RSI) that will be used for local market power mitigation (LMPPM) in conjunction with the CME constraint. In addition, the ISO has expanded and clarified the resources eligible to provide corrective capacity, dispatch, pricing, commitment, settlement, bid cost recovery, economic buy-back and no pay provisions for corrective capacity.

**CPUC Staff Concerns:**

CPUC Staff is concerned that the complexity of the proposed change will create an opportunity for sophisticated market participants to take advantage of implementation imperfections and increase the likelihood of market abuse. The CAISO has not addressed the cost/benefit analysis of the proposal in comparison to the existing costs of the current paradigm. In 2014, the CAISOs market optimization will be radically changed with the implementation of 15 minute market (FMM) (per FERC Order 764) and the Full Network Model Expansion. The potential for FMM to increase scheduling flexibility may provide an opportunity for imports to provide contingency ramping response that reduces the contingency risks. Additionally, the impact of modeling loop and unscheduled flows on major paths through the FNME may change the contingency risk profile. If these features reduce the contingency risks the cost of implementing CME modifications may outweigh the purported benefits.

**The Complex design of the CME could create significant unintended consequences unless properly analyzed:**

- a. Significant increase in complexity of the IFM commitment and related Residual Unit Commitment (RUC) will likely have a negative impact on the headroom needed by CAISO to run the market optimization in Real Time (RT). The impact needs to be understood to ensure feasible schedules and redispatch of resources in RT.

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<sup>2</sup> The historical examples of market products and features which had purported benefits that created significant costs to load before being removed from the market or fixed include convergence bidding at the interties and bid cost recovery.

- b. It is not clear that situational risks and the probabilistic nature of contingencies can be adequately considered in the optimization which could lead to an overly conservative approach that results in significant over procurement and uplift costs.
- c. The complexity of the locational marginal capacity price (LMCP) formation when included in the locational marginal price (LMP) is not well understood, neither are the interrelated impacts on congestion, bid cost recovery, virtual bidding, reserve pricing (Ancillary Services – Spin, Non-Spin, Reg Up/Down), RUC payment for commitment of RA resources, and Flexible Ramping Product. The CAISO should develop a prototype and simulate the market using real market data (e.g. from August 2013) to see how the proposed changes impact these areas before going forward with the CME initiative.

**2. A cost analysis should be performed to ascertain the cost benefit ratio of the proposal compared to the status quo:**

- a. There is a risk of over procurement of contingent capacity given that ancillary services reserve products already exist, and yet to be designed changes in flexible ramping products may also play a large role in providing a resource capacity buffer. The interplay and synergies between reserve products, flexible ramping products and contingency capacity have not been simulated or prototyped.
- b. The cost analysis should consider using a 25 minute recovery period which may reduce the costs by allowing a greater number of resources to provide the contingency capacity. It is not clear why the proposal cannot use a 25 minute recovery period instead of using the 20 minute time frame. It would seem that using a 25 minute time frame would be feasible given the five minute Real Time market runs and could potentially include more resources for consideration in the optimization. A greater number of resources to alleviate the constraint should provide the liquidity necessary to minimize costs and reduce potential market power.

**3. Market Power Mitigation schemes are very important for effective implementation:**

- a. The Local Market Power Mitigation (LMPM) scheme may not work as intended given the roll out of new market changes that impact congestion on major transmission paths. Even though CPA and RSI mechanisms used in current LMPM works relatively well with a few exceptions<sup>3</sup> and as noted in the Department of Market Monitoring (DMM) 2013 third quarter report could be

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<sup>3</sup> 2013 Third Quarter Report - Market Issues and Performance - November 201311/14/2013 12:38, page 7

problematic after FERC Order 764 changes are implemented in the spring of 2014, it is not clear that the modifications to LMPM proposed for CME will work effectively in Real Time (RT) to mitigate all the forms of market power created by CME.

- b. There is much unknown about how much this will cost ratepayers and whether it is too complex to be any more efficacious than the current method. An overly conservative implementation and parameter setting could result in significant cost to load without much corollary benefit. In light of other less complex and radical options for improving the CAISOs contingency prevention and correction, CPUC Staff recommend delaying the CME initiative until the CAISO can share more evidence that explicitly shows the full impact on the CAISO markets, that the benefits exceed the costs, and that the market power mitigation schemes are effective before making the radical changes required by the CME.

**Conclusion:**

Because the potential for unintended consequences increases with the complexity of the market, CPUC Staff recommend that the CAISO delay this initiative until the CAISO performs a more thorough vetting of all the cost impacts of contingent capacity on BCR uplifts, operating reserves, flexible ramping capacity, and congestion rents as well as the impact on bidding behavior by market participants who will take advantage of the new congestion price prior to committing to this new CME paradigm. The analysis should include an analysis of a 25 minute recovery period as well as the efficacy of the local market power mitigation. The results of the analysis should be shared with stakeholders and understood prior to investing a significant amount of CAISO resources to develop and implement this market change, by doing so stakeholders and the CAISO will be able to make an informed decision on this initiative.

Though ultimately the addition of the preventative/corrective constraint *may* be deemed the most efficacious in addressing the WECC and NERC contingency requirements, at this point there is much unknown about how much this will cost ratepayers and whether it is too complex to be any more efficacious than the current method. In concept the CME appears like a plausible solution to the WECC/NERC contingency requirements, however too much depends on the implementation details which have not been fully analyzed. Southern California Edison (SCE) offered a less expansive alternative to the CME which could provide the additional risk mitigation that the CAISO desires. The rule changes that SCE proposes should be explored in more depth as part of the current stakeholder process to give the CAISO more time to do due diligence on the proposed market changes that CME will bring.