SDG&E's Comments on the
Contingency Modeling Enhancement (CME) Initiative
Discussed at the CAISO's May 22, 2013 Stakeholder Meeting

The Market Surveillance Committee's December 5, 2012 *Opinion on Mitigation Measures for Exceptional Dispatch in Real-Time* expressed the following concerns:

> "In particular, one consequence of the use of exceptional dispatch to solve constraints is that market prices in the constrained region will not reflect the impact of the constraint. On the one hand, this may necessitate bid-cost recovery (BCR) payments to resources that are dispatched out-of-merit to solve the constraint. At the same time, this also means that LMPs for other resources that contribute to relieving the constraint may be lower than would be the case if the constraint were fully modeled (while LMPs may be inflated for resources that increase congestion on the constraint).
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> A second consequence that is important in the context of the California ISO's proposed mitigation design is that, because the CAISO's dispatch software is not used to determine the dispatch, the resources selected for exceptional dispatch may not provide the least-cost means of resolving the constraint. A third consequence which we note, but which is not important to the present discussion, is that because the CAISO's dispatch software is not used to determine the dispatch, there may be a potential for adverse cost or reliability impacts if the operators fail to recognize that the output of the exceptionally dispatched resource adversely impacts other constraints."

The CAISO's March 11, 2013 *Contingency Modeling Enhancements Issue Paper* proposes to address these concerns as follows:

> "With the contingency model enhancement (CME), the market optimization advances from a pure preventive mode to a preventive-corrective mode, where both pre contingency dispatches and post contingency re-dispatches are co-optimized to meet the reliability standards. With the mandatory standards incorporated into the market optimization, the need for operators to exceptionally dispatch resources to their dispatchable Pmin or utilize MOCs to comply with the SOL standards is expected to significantly decrease."

The CAISO is proposing a market-based approach to restore the system to a secure state within thirty minutes following an N-1 contingency and to prepare the system such that the system will be within emergency limits following a subsequent contingency (an N-1-1 contingency condition). [1] The market-based approach will benefit generators that are most effective in

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[1] Currently, the CAISO's market software prepares the system to be within emergency limits immediately following an N-1 contingency condition. The CAISO uses minimum on-line commitment constraints (MOC) and out-of-market exceptional dispatches (ED) to restore the system to a secure state within thirty minutes of an N-1

mitigating the contingency conditions at issue. The market-based approach will benefit loads by reducing the uplift costs associated with out-of-market dispatches and by ensuring that the least-cost mix of generators is selected to mitigate the contingency conditions at issue. In this sense the CAISO proposal represents the use of a scalpel rather than what might now be considered an axe.[2] The CAISO's as-yet untested solution will change market dynamics and CAISO believes it will save money.

Naturally, stakeholders—including the CPUC—want comfort that the CAISO's proposal will be cost effective and several stakeholders have requested that the CAISO perform a cost-benefit analysis. There has been no full scale study or market simulation that supports the CAISO's belief that its proposal will save money. Cost-benefit analysis is difficult to conduct for proposed changes in market design because a principle purpose of the proposal is to change market participant behavior in ways that support the CAISO's efforts to meet applicable reliability requirements. Changes in behavior are often subtle and can play out over long periods of time. Market simulation of the proposal is unlikely to reveal much about the magnitude of the potential benefits. In large measure, it is necessary to accept as an article of faith that where the amounts of money in play are significant, market solutions provide better overall results than command and control solutions.

In these comments, SDG&E reaffirms its support for the theory behind the CAISO proposal. However SDG&E continues to believe that prior to implementation, the CAISO needs to do more studies that consider how the CAISO's proposal may be affected by other initiatives including Energy Imbalance Markets and the Must Offer Obligations associated with flexible Resource Adequacy capacity. Market simulations should be run with actual market data. It is SDG&E's understanding that the CAISO agrees with SDG&E on the need for this additional analysis.

Upon further consideration SDG&E recommends that only resources exhibiting a lost opportunity should be compensated at the LMCP. If it can be demonstrated that the LMCP is a market signal that creates benefits beyond its cost, then SDG&E could support paying the LMCP to all resources contributing to meeting the corrective action. If the LMCP is a price signal that the market is unlikely to respond to it has the potential of creating e a windfall for free riders at the expense of others. SDG&E is open to expanding compensation to all contributing resources at LMCP if it can be demonstrated that the market response would create net savings.

SDG&E also notes that the CAISO proposed solution is far from a complete answer for the relatively high costs associated with MOC and ED. The CAISO's proposal does not address the problems that unscheduled flows in real-time create on critical paths. The day-ahead solution proposed by the CAISO would still need some MOC and ED to cover for actual real-time flow

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contingency and to prepare the system such that emergency limits will not be violated were a subsequent contingency to occur (an N-1-1 contingency condition).

[2] It should be noted that the CAISO is obligated to comply with reliability standards as they apply to N-1 contingency conditions. This means that--regardless of whether the next contingency actually occurs and regardless of the probability of the next contingency--within thirty minutes following the first contingency, the CAISO must get the system to a condition that can withstand the next contingency.

uncertainty. Perhaps an expansion of the CAISO's Full Network Model to other Balancing Authorities would be as effective as this proposal in reducing MOC and ED.