



Comments of Pacific Gas & Electric Company
Contingency Modeling Enhancements Revised Straw Proposal

Submitted by		Company	Date Submitted
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Pacific Gas & Electric (PG&E) offers these comments on the California Independent System Operator’s (CAISO) Contingency Modeling Enhancements (CME) Initiative Revised Straw Proposal (“Proposal”).

The CAISO’s stated objective of the CME initiative is to develop an in-market mechanism to meet the Western Electricity Coordinating Council (WECC) standard for the CAISO to return flows on critical transmission paths to a reduced system operating limit (SOL) within 30 minutes after a real-time contingency leads to an insecure state. Today, the standard is met by deploying Exceptional Dispatches (EDs), or through Minimum Online Commitment constraints (MOCs). The CAISO proposes to replace current practices by enforcing new “preventative-corrective” constraints in the market’s optimization and to reflect the marginal cost of meeting these new constraints in a Locational Marginal Capacity Price (LMCP).

PG&E is not convinced that the corrective capacity approach is the right solution to satisfy the 30-minute SOL requirement. The CAISO and key stakeholders appear at loggerheads on this fundamental point. To help move the initiative forward, PG&E recommends two key recommendations:

- WECC Working Group or CAISO/PTO Dialogue – we recommend that the CAISO open a dialogue with the transmission engineering staff of the Participating Transmission Owners (PTO) to create a shared understanding of the 30-minute reliability requirements and alternatives to satisfy. This might be done in coordination with WECC staff or separately;
- Robust Simulations – the CAISO should expand its planned simulation to provide a robust testing of the corrective capacity design.

PG&E also provides specific comments on the corrective capacity design, but believe the steps recommended above need to be completed before committing to a specific approach and vetting the details of the design.

In summary PG&E offers four recommendations:

1. The CAISO should meet with Participating Transmission Owners to create a common understanding of the 30-minute reliability requirements and all alternatives;
2. Robust “sandbox” simulations are needed prior to Board approval;
3. The corrective capacity design should not include bidding; and
4. Cost for corrective capacity should be allocated on a constraint-by-constraint basis

1. The CAISO Should Meet with Participating Transmission Owners to Create a Common Understanding of the Reliability Requirements and Alternatives

There is still a fundamental lack of knowledge about the contingencies that the corrective capacity is designed to protect against and how this mechanism will work with the other protection schemes employed by Participating Transmission Owner (PTO) to assure reliability. This is partly a result of the CAISO not wanting to release information on the specific contingencies, as it may contain sensitive or critical data¹. It is also likely a result of a missing dialogue between the CAISO and the PTO transmission engineers on this issue, and, as a result, a lack of common understanding of the 30-minute reliability requirements and the best way to satisfy the requirements. Without a detailed technical discussion with the PTOs including a discussion of other alternatives, the efficacy of the proposed solution is in question.

PG&E recommends the CAISO arrange a dialogue among its grid operators, operational staff from the PTOs, and WECC representatives to seek a common understanding of the alternatives available to meet the 30-minute SOL. This approach should alleviate the CAISO’s concern regarding the disclosure of sensitive data, yet also allows for the identification of operational mechanisms that could assist in meeting the SOL requirement.

This dialogue should take place before moving forward on the initiative. Without it, PG&E cannot ascertain whether any proposed solution by itself is appropriate and effective. For instance, when responding to a specific contingency, a PTO may evoke system operation procedures such as remedial action schemes. Or, a PTO, in conjunction with CAISO, may employ transmission switching to position the system to handle the contingency or to reduce power flow on a critical transmission path. Without knowing the nature of the contingencies

¹ <http://www.caiso.com/Documents/StakeholderCommentsMatrix-ContingencyModelingEnhancementsStrawProposal.pdf> (page 16)

modeled for the SOL requirement, PG&E cannot evaluate whether such operational mechanisms may be useful and complementary to the proposed preventative-corrective constraints approach.

2. Robust “Sandbox” Simulations are Needed Prior to Board Approval

PG&E appreciates the CAISO’s plan to develop a prototype that would demonstrate the market effect of the proposed corrective constraints. However, we are concerned with the proposed scope and timing of this simulation. Based on our understanding, this prototype will only cover a single saved case², and will take two months to accomplish, leaving little, if any, time before the proposed September Board meeting for stakeholders to fully understand the effect on market operations of the proposed approach as shown by the simulation results.

In general, PG&E will be seeking “sandbox” type simulations of major CAISO initiatives to understand their impact on the market. We believe having this capability is a hallmark of a best-in-class ISO or RTO and this type of analysis is often provided by other RTOs and ISOs as a part of their market design process. The simulations should be done as an organic part of the design process before completion of the stakeholder process and allowed stakeholders to better understand the impact of the proposals and to propose and evaluate possible modifications. The CAISO needs this type of capability which should enhance the outcomes of its design proposals and stakeholder processes.

For example, MISO in its stakeholder process covering the development of a flexible ramping product created a “sandbox” prototype and simulated market results over a range of days and using actual market data.³ MISO has also developed software and performed similar simulations using actual market to demonstrate the effects on market outcomes of Extended Locational Marginal Pricing and Look-Ahead Commitment, among other design initiatives.

Regarding the proposed simulation for CME, PG&E makes two recommendations to make the simulations worthwhile.

- 1. Scope of Simulations:** To really understand the impact a broader range of simulations should be conducted. Several days for which Exceptional Dispatches (ED) were deployed should be simulated. It would also be helpful to simulate several days when no EDs were needed to understand how much of the new capacity is procured under “normal” conditions and impacts on other parts of the market. Ideally, the simulations would also cover each of the eight critical transmission paths that are subject to the SOL

² It’s unclear what exactly is meant by “a saved case”, but PG&E assumes that the CAISO means a single hour or day.

³<https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/Workshops%20and%20Special%20Meetings/2013/20130610%20Ramp%20Enhancement%20Technical%20Workshop/20130610%20Ramp%20Enhancement%20Technical%20Workshop%20Presentation.pdf> (slide 48)

requirement. Information that should be analyzed and reported from the simulations includes changes in procurement quantities and prices.

- 2. Timing of Simulations:** Stakeholders and the CAISO need time to review the simulation results before finalizing the design. In fact, good simulations often result in design modifications. Therefore, the timing of this initiative should be adjusted for the CAISO to complete the simulations, report the simulation results to the stakeholders and give stakeholders an opportunity to provide comments before issuing the draft final proposal.

Although these recommendations may push back the date when the CAISO completes the stakeholder process, these recommendations are the type of reasonable due diligence any effective stakeholder process deserves and there is no artificial external deadline for completion that could argue for a rushed and potentially inferior design.

3. The Corrective Capacity Design Should Not Include Bidding

PG&E agrees that the proposed LMCP fully captures and compensates for the corrective capacity to meet the post-contingency 30 minute WECC SOL requirement. As noted in the Department of Market Monitoring's (DMM) comments, because there is no identifiable cost associated with providing the corrective capacity, under competitive conditions the market would expect to see price-taking offers if bidding were allowed, thus there is no need for bidding.⁴ Moreover, by excluding a bidding feature, the CAISO simplifies its design and reduces the changes stakeholders need to implement in their systems. The inclusion of bids also necessitates bid and market power mitigation tools, aggravating the complexity issues.

It is important to understand how a resource providing LMCP capacity under the proposed design (with no LMCP bidding) already fully recovers its in-market opportunity costs for corrective capacity. The LMCP clearing price is a direct function of the energy and ancillary opportunity cost, even for the marginal unit. Such costs are completely represented through the energy and ancillary services bids. Energy bids reflect the marginal cost of providing energy. Regulation bids reflect the costs of holding and actively using capacity to provide regulation, inclusive of real-time price risks and of foregone energy sales. Spin and non-spin capacity bids reflect costs for holding capacity for the CAISO market and of maintaining readiness to dispatch energy. Cost recovery for a unit that bids its true costs are thus guaranteed by the market's price formation structure. Since costs for providing LMCP capacity is already accounted for through the suite of spot market products, no bidding is needed for LMCP.

In-market opportunity costs are clearly included in the LMCP. There are no out-of-market opportunity costs in Real Time since there is no time to arrange a trade outside CAISO after the Real Time market is run. In Day Ahead, other instruments such as export bids exist to cover

⁴ <http://www.caiso.com/Documents/DMM-Comments-ContingencyModelingEnhancementsStrawProposal.pdf>

opportunity costs that a resource may experience if its capacity is selected to provide reserve in CME rather than energy.

Stakeholders who argue that bidding is appropriate for LMCP simply because bidding is available for existing ancillary services should justify this need in a clearing price market. Rigorous debate on substantive arguments for bidding must underwrite any decision, especially in light of complexity concerns. Absent logical arguments, requests for bidding capability for LMCP may amount to a request for an unjustifiable additional revenue stream.

For these reasons, PG&E believes the no bid proposal is the right approach and sees no need for an alternative to incorporate bidding, such as a two phase approach discussed in the proposal.⁵

4. Cost for Corrective Capacity Should be Allocated On a Constraint-by-Constraint Basis

Cost allocation based on causation is a core principle for efficient markets. Accordingly, costs for managing post contingency flow limits on some of the paths should likely be targeted to the entities that drive the need and receive the benefit. Costs for constraints which clearly serve more narrow local issues should accrue to that local area, similar to cost-allocation approach used for Capacity Procurement Mechanism (CPM) related to Exceptional Dispatches.⁶ Other constraints which equally and obviously serve system-wide reliability likely warrant system-wide cost allocation.

The CAISO should first provide an analysis to show whether applying the corrective mechanism for a specific transmission path (one of the eight) will yield predominantly system or local reliability benefits. Based on this analysis, PG&E recommends the CAISO adopt a cost-allocation methodology based on causation. For instance, LMCP costs to meet the Southern California Import Transmission (SCIT) nomogram, which specifically deals with Southern California reliability, should flow to that area.⁷

⁵ In the proposal, the CAISO presented an alternative two phase approach: in phase 1, following the initial implementation of the CME design, bids would be excluded; in phase 2, after the market gains experience, the CAISO would re-consider whether bidding should be allowed.

⁶ Capacity Procurement Mechanism (CPM) designation associated with EDs are allocated to the specific Transmission Access Charge (TAC) areas in need of such capacity (see CAISO Tariff section 43.8.6 "Allocation Of Exceptional Dispatch CPMs")

⁷ Unlike other bi-directional transmission paths, SCIT is a nomogram that limits the amount of imports into the Southern California region. The main objective of SCIT is to ensure local reliability in this region.