



Comments of Pacific Gas & Electric Company *Contingency Modeling Enhancements Issue Paper*

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Pacific Gas & Electric (PG&E) appreciates the opportunity to participate in the stakeholder process for the California Independent System Operator’s (CAISO) Contingency Modeling Enhancements Initiative and to submit comments regarding the March 11, 2013 Issue Paper.

The objective of this CAISO initiative is to develop a potentially more efficient solution to meet the post-contingency 30-minute System Operating Limit (SOL) requirement (“SOL Requirement”)¹. This requirement is successfully met today by deploying Exceptional Dispatches (EDs) and enforcing Minimum Online Commitment constraints (MOCs).

Through this initiative, the CAISO seeks to replace the current process with an alternate mechanism. Specifically, the CAISO proposes to add new corrective constraints to its market optimization model, and to reflect the cost of meeting these new constraints with a Locational Marginal Capacity Price (LMCP).

PG&E suggests that the CAISO take a step back from its proposed modeling enhancement solution and identify the full range of options. It seems the CAISO has jumped from the identification of a “potential issue” to a specific recommendation without examining alternatives. We refer to it as a “potential issue” because the CAISO is successfully managing post-contingency requirements today without the proposed modeling enhancements. The CAISO should identify additional candidate approaches from which stakeholders and the CAISO can choose.

PG&E offers three specific recommendations:

¹ North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) standards require the CAISO to return flows on critical transmission paths to its system operating limit (SOL) within 30 minutes after a real-time contingency occurs.

1. The CAISO should survey how other RTOs are addressing the NERC/WECC requirements and consider these approaches in addressing the corrective requirement;
2. Any design change should incorporate flexible elements to prevent overpayment; and
3. The CAISO should prepare a cost-benefit analysis to justify a change from the status quo.

1) The CAISO Should Survey How Other RTOs Are Addressing the NERC/WECC Requirements

PG&E understands the importance of the NERC and WECC post-contingency 30-minute reliability standard, but we are not yet convinced that a complex software solution, as described in the technical paper, is the solution. The CAISO market currently employs six ancillary products.² The addition of a seventh AS capacity type (i.e., 30-minute capacity) strikes us as possibly excessive. At some point additional market complexity has diminishing returns, and, in fact, can have detrimental impacts on the performance and understanding of the market.

PG&E understands that at least one RTO deploys its operating reserves as part of the post-contingency corrective re-dispatch process. After a contingency occurs this RTO, like the CAISO, may deploy some of its operating reserves to maintain system reliability. However, if contingency reserves remain post contingency deployment, these reserves are available to address the 30-minute SOL requirement. Use of the contingency reserve along with adjustments to the Real-Time Unit Commitment (RTUC) and Security Constrained Economic Dispatch (SCED) appear sufficient to address the SOL requirement.

This approach can be especially cost-effective if an RTO relaxes its contingency reserve requirement for a short period of time. After a contingency, RTUC and SCED must address two competing needs: re-dispatch to meet the SOL requirement within 30 minutes, and replenishment of any operating reserves deployed to address the contingency. Relaxing the need to immediately replenish the reserves, allows resources to address the 30-minute SOL requirement first. It has a secondary advantage of minimizing the potential of price spikes stemming from an immediate need to procure additional reserves.³

The CAISO should explore this alternative approach or other approaches used by the eastern RTOs before pursuing a particular design, especially a complex design that adds another reserve capacity type. The burden is on the CAISO to demonstrate that the proposed modeling enhancements are superior to the status quo and that the approaches used by other RTOs are either inferior or more expensive than the CAISO's proposal.

² The current ancillary products are regulation up, regulation down, regulation energy management, 10-minute spin, 10-minute non-spin, and flexible ramping.

³ Price spikes can occur when attempting to replenish reserves immediately after a contingency, due to the likely tighter system conditions

Finally, the CAISO should clarify for stakeholders if there are specific NERC requirements, CAISO rules or practices that prevent the use of operating reserves to meet the SOL requirement and when it is required to replenish operating reserves following a contingency.

2) **Any Design Change Should Incorporate Flexible Elements To Prevent Overpayment**

The issue paper introduces a new mechanism to procure additional capacity to address the SOL requirement (“SOL Capacity”) that would be used independently from operating reserves⁴. This approach seems overly restrictive and may unnecessarily drive up costs by over-procuring all reserves. If the enhancements proposed in the technical paper are the best solution (PG&E is not yet convinced it is), the design should incorporate flexible elements such as:

a. The ability to commit off-line resources to meet the 30-minute requirement

So long as there are off-line resources that could be committed within the time frame required, the CAISO should be able to commit them *after* a contingency occurs. This is consistent with current market rules for the 10-minute non-spin products, which can be committed in response to a contingency.

Not allowing this flexibility restricts the CAISO to deploying only on-line resources in the corrective dispatch process to meet the SOL requirement. This drives up costs to California consumers by requiring potentially costly adjustments to dispatch on-line resources or the unnecessary commitment of resources in anticipation of a contingency (through the contingency modeling enhancement process).

b. All AS capacity should be accessible to the CAISO to satisfy any type of contingency

Instead of creating separate capacity types to address preventative and corrective requirements, products procured to address contingencies should be allowed to be used for corrective actions as well. The CAISO should be able to use operating reserves to address the SOL requirement, so long as they satisfy the performance requirements and are cost effective. Conversely, the CAISO should consider whether this SOL capacity can offset the procurement of traditional operating reserves. Without this flexibility, the CAISO may be forced to either over-procure reserves in total or overpay for the reserves it needs.

c. Substitution of other superior AS products should be allowed to meet the 30-minute requirement

This new mechanism should be designed to be compatible with substitution rules of the existing AS design. When less expensive, superior AS products should be

⁴ As stated by CAISO staff during the March 26 CAISO stakeholder teleconference.

substituted for SOL capacity to meet the SOL requirement. If the outcome of the stakeholder process results in the use of clearing prices for SOL capacity, the price of SOL capacity would should not exceed those of the “superior” AS products.⁵

3) **The CAISO Should Perform a Cost Benefit Analysis**

The 30-minute SOL requirement is being successfully addressed today by both market processes (MOCs) and out-of-market actions (EDs) at some cost which can be estimated by the CAISO. Because the NERC/WECC requirements are being satisfied today, the current processes do not need to change. An important consideration in the decision to use a different process is whether the proposed mechanism is more cost-effective than the business-as-usual approach. PG&E asks the CAISO to compare the cost of procurement under any proposed mechanism to the today’s business as usual case.

Assessing the costs and benefits of a major new initiative is good practice, and PG&E recommends including a cost-benefit analysis as a standard part of any stakeholder process when the CAISO is considering a new major initiative.

⁵ This is consistent with the substitution concept in the current AS design (<http://www.caiso.com/Documents/FinalProposal-ScarcityPricing04-Nov-2009.pdf>)