

Stakeholder Comments

Contingency Modeling Enhancements Straw Paper

Submitted by	Company	Date Submitted
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The following are Southern California Edison’s (SCE) comments on the California Independent System Operator’s (CAISO) Straw Paper¹. SCE supports the CAISO’s procurement of tools to research and analyze this problem to improve current process such as ED and MOC’s. However, before implementing solutions, SCE feels it imperative that the CAISO and PTOs have a common understanding of what the relevant NERC and WECC standards require and allow. Moreover, this problem represents fraction of a percent of the total transactions in the CAISO’s electricity market. As a result, SCE believes the CAISO should refine existing practices through enhanced situational awareness and enhanced planning tools. At this time, SCE is far from persuaded that the correct solution is to make major, unproven changes to the entire market as proposed by the CAISO.

I. Common understanding of the NERC and the WECC standards must be reached among PTOs and the CAISO as a precondition to moving forward. Technical details of the NERC TOP-007 and TOP-007-WECC-1 standards must be properly understood by PTOs before initiating any implementation changes.

Based on the assumptions displayed in the Straw Paper analysis of attributes² in conjunction with internal discussion, the proposal may have been drafted without first reaching a common understanding of transmission operations and standards as interpreted by the PTOs and the CAISO. Vetting this proposal by experts, and gaining understanding, and hopefully agreement, on the proper implementation of these standards should be a prerequisite to any further determination of a proper solution.

SCE suggests the CAISO coordinate with PTOs to obtain technical agreement on the interpretation of the NERC and WECC requirements. SCE suggests the CAISO hold a technical forum to discuss these issues with the PTOs and reach a common understanding of the standards. For example, there may not be common agreement on if the WECC standards apply to pre or post contingency SOLs. Moreover, SOLs may have been created to addresses unique operating issues, and thus a “one-size-fits-all” approach may not be warranted. However, based on the CAISO’s proposal, the CAISO seems to believe the standard should apply to post-contingency SOLs in all cases. To clarify and reach common understanding on

¹ <http://www.caiso.com/Documents/StrawProposal-ContingencyModelingEnhancements.pdf>

² Including path ratings, SOLs, the nature of contingencies and available options, time dimensions allowed to address contingencies, etc.

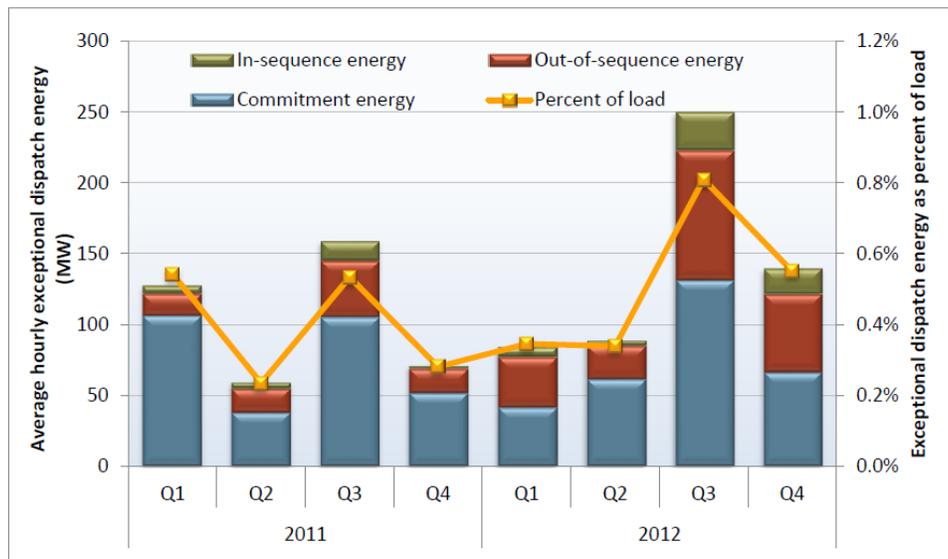
this, it is essential for the CAISO and PTOs discuss such details. Other technical aspects which need to be clarified in order to obtain a common understanding, include:

- (1) What are the limits pertaining to the NERC and WECC requirements? When are 4 hour or 1 hour emergency limits (rather than 30 minutes) applicable?
- (2) What are the definitions of the pre-contingency SOLs and the definitions of the post-contingency SOLs?
- (3) What is allowed and what is not allowed after an N-1 event within 30 minutes, to comply with the NERC and WECC requirements?
- (4) Under what conditions is load-shedding an allowed response? Does this vary depending on the SOL and the N-1 event?
- (5) What is the role of the Demand Response Programs³?
- (6) What are the roles of RAS or other relief schemes in this process?
- (7) What are the roles of ancillary services, and other flexibility (e.g., Flexi-ramp) services procured by the CAISO?

II. Recent Exceptional Dispatches comprise less than 0.32% of Energy in the current market⁴. The stability and integrity of the current market design should not be jeopardized over an issue impacting a de minimis fraction of the electricity market.

As DMM noted, the total Exceptional Dispatches (EDs) fall below 1% in all quarters in 2012, with most quarters below 0.6% (see chart below from 2012 DMM Annual Report)

Figure E.7 Average hourly energy from exceptional dispatches



Further, the EDs due to the TOP-007-WECC-1 standard only account for 40% of all EDs, as the CAISO states:

³ Demand Response Programs are part of LTPP and the subject of on-going workshops for developing a roadmap for its implementation. It's not clear whether the CAISO proposal would be in conflict and derail this effort.

⁴ Figure E.7. Page 12. <http://www.caiso.com/Documents/2012AnnualReport-MarketIssue-Performance.pdf> shows Exceptional Dispatches (ED) peaking at 0.8% of Energy. The CAISO's proposal addresses 40% of EDs = 0.8 x 0.4 = 0.32% of Energy.

The technical paper attached to the previous ISO issue paper (as well as reproduced in Figure 2 below) showed that for 2012, 21 percent to 77 percent of all exceptional dispatch volume measured in MWhs issued by month (40 percent annual) were due to the WECC SOL standard.⁵

However, the CAISO proposal introduces fundamental, complicated, untested and unproven changes to the core of the market design. To SCE's knowledge, no other ISO/RTO prices and dispatches for N-1 SOLs and no market calculates nodal prices for "corrective capacity". The price stability of the current market will be impacted under the current CAISO proposal, and no party, including the CAISO, can demonstrate the degree of this impact. Current market stability will face additional significant challenges in the near future, including addressing RTCIO uplift, moving to the 764 15-min market, EIM, etc. There is no evidence that a proposal of this complexity has been successfully implemented elsewhere, nor is there any available research, review, debate, simulation, analysis, or a demonstration of functional benefits. Without such a demonstration, SCE simply cannot conclude that disrupting the current proven and well established core LMP market framework simply to address an issue that represents a fraction of a percent of total transactions⁶ is a prudent course.

III. SCE agrees that the CAISO's must comply with reliability standards. SCE also supports the use of reliability tools such as enhanced situational awareness tools to enhance reliability and improve on current processes.

a. NERC/WECC does not require a market solution to meet these reliability needs.

NERC/WECC reliability standards define the reliability requirements for planning and operation. The Reliability Functional Model, rather than an ISO market structure where all different parties including physical and financial players are involved, defines the functions that need to be performed to ensure the reliability. The Reliability Functional Model is the foundation upon which the reliability standards are based.

b. Once the PTO's and CAISO understand the interpretation of the standards, all options on meeting reliability standards should be explored.

There are many reliability tools outside of the optimization that can be used to address reliability needs. These include situational awareness tools, RAS schemes, Exceptional Dispatches, load shedding, etc. Mechanisms that are out of the CAISO market also exist that can help to address reliability needs. For instances, the entire RA program exists outside of the optimization. In addition, the Local Resource Adequacy program ensures sufficient capacity to meet local reliability needs.

All the existing tools, including those outside and inside the CAISO market, need to be fully explored before making complicated changes to the already complicated CAISO

⁵ Page 14. <http://www.caiso.com/Documents/StrawProposal-ContingencyModelingEnhancements.pdf>

⁶ The CAISO should consider how this proposal would work with the proposed IDAM, or if, the IDAM could be enhanced to materially address and residual concerns. In addition, the CAISO should consider how the proposed Flexible Ramping products could be use, as well as if refinements to the current Ancillary Service procurement (e.g. more granular procurement to improve deliverability in the event of a contingency) could address concerns.

market. Further, an optimization based, market based solution for each and every reliability issue is neither required nor a preferable approach. Moreover, if a particular situation is causing “excessive” use of out-of-market tools, the CAISO should first see if existing market features and tools, such as an additional constraint in a localized area, can reasonably address the unique situation. If not, the CAISO should explore if incremental enhancements to existing structures (such as introduction of additional ancillary service regions) would suffice. It is therefore not clear why the CAISO has concluded that a solution outside of the core optimization is inappropriate in this instance.

In sum, the CAISO should look to refine existing tools and processes before introducing new complexities to the market.

c. SCE supports the use of, and the development of enhanced situational awareness tools as well as refining the use of existing tools.

SCE supports the CAISO refining Exceptional Dispatch (ED) and Minimum Online Constraints (MOC) to address perceived shortcomings and to reduce EDs. This includes building new off-line tools to better assist operators in making appropriate, and minimally invasive reliability commitments and dispatch decisions. To the extent the CAISO needs to look further, refining Residual Unit Commitment (RUC), or changes to the proposed IDAM, may also be considered.

If deemed necessary, the CAISO can consider the use of the current study methodology in the CAISO’s proposal to assist situational awareness. Implementing viable new “off-line” optimization tools to inform operation decisions should be considered.⁷ Such tools could even use the CAISO current proposal as a starting framework for off-line analysis. This approach would also provide real-world experience with the approach and would be useful in helping to determine what, if any, aspects of this proposal could ultimately be incorporated into the core market optimization.

IV. Only after gathering actual experience or thorough simulation and research, should stakeholders and the CAISO consider this new and complicated change to the current CAISO market.

Before the CAISO introduces any new and complicated changes to the current market, as a prudent practice, the CAISO, involving the stakeholders if necessary, should perform thorough research, analysis, and simulation testing. Only after gathering actual experience with the new idea, should the stakeholders and the CAISO consider policy changes to the current market rules or the proposal of new rules. The CAISO should have a “sand box” to simulate such ideas, and use the results to inform and help guide new design features.

⁷ If generators are being harmed via DEC’s under the current structure, they should be made whole. SCE is not aware of any generator is being harmed via Exceptional Dispatch or DEC’s under the current structure. California has extensive Resource Adequacy program, and many resources receive capacity payment through Local Resource Adequacy. For resources that are not under a RA contract, they receive ICPM capacity payment if they are deemed being needed by the CAISO. All these capacity payment programs exist for long time, and have been fully tested and proved in the real life. However, if it’s decided generators are being harmed, the CAISO and the stakeholder may consider make them whole by refining the BCR rules.

a. SCE strongly opposes complicated changes to today's LMP price formation without thorough research and real life testing.

To observe the obvious, the CAISO's LMP market is complicated. Any new and complicated changes, without thorough research and real life testing, will likely lead to unintended consequences. Further, alternatives, including in-market and out-of-market, must be fully considered and evaluated before introducing changes to the current market to address a reliability need.

The CAISO's current market is arguably the most complex in operation. This complexity makes it difficult, if not impossible, to understand what impacts a new design will have based purely on theory or intuition. As a rule the CAISO should build models of reasonable scale, simulate results, and analyze the result before finalizing a market design and before putting the new features into production.

b. SCE supports the use of the existing tools and processes to reduce EDs. However, as stated above, unless thoroughly researched and tested, unproven and untested changes to the current market rules should be avoided.

While SCE agrees that the EDs exist for certain reasons including ensuring reliability, SCE supports the use of the existing tools and processes to reduce EDs. For example, some of the EDs might be avoidable should appropriate and better situational awareness tools be put in place. Offline simulation tools may also assist in providing a better understanding of current grid operation conditions, which will lead to less EDs, in concept. A better utilization of the capacity procured through Ancillary Services, Flexible Ramping Constraints and RUC may help reducing EDs too. Minor changes to the existing market structure, such as additional ancillary service regions or additional local constraints, might also provide significant improvement. All these existing tools can be evaluated and refined to reduce EDs. However, unless thoroughly researched and tested, unproven and untested changes to the current market rules should be avoided.