

## Stakeholder Comments

### CAISO Generator Contingency & RAS Modeling Revised Issue Paper & Straw Proposal

Submitted by	Company	Date Submitted
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SCE appreciates the opportunity to comment on the California Independent System Operator (CAISO) Generator Contingency & Remedial Action Scheme (RAS) Modeling Revised Issue Paper & Straw Proposal (Proposal)<sup>1</sup>. In the Proposal, the CAISO outlined a mathematic formulation of its proposal and provided numerical examples of a two-bus system. As currently written, the Proposal does not address many important policy questions. Although SCE generally supports that market dispatch should reflect RAS schemes in that RAS schemes make additional economic power available to serve load, SCE believes that the CAISO should study further important policy questions under the Proposal. SCE also suggests the CAISO should consider whether the benefit of the Proposal would be largely offset by the risk of potential negative impacts to the market and whether the Proposal would outperform the current approach<sup>2</sup> to model RAS.

In the comments below, SCE provides a list of potential issues that haven't been addressed by the CAISO in its Proposal. SCE believes these issues should be addressed as part of this stakeholder process and will provide its comments once clarification from the CAISO and more information is available on these issues.

#### **1) How does the Proposal provide for consistency between the interconnection process and deliverability status, and the energy prices as proposed?**

Under the Proposal, it is interpreted that a RAS generator would see a different emergency limit than a non-RAS generator at the same location, and therefore the Proposal prices the RAS generator differently. In essence, the RAS generator may not be charged the same congestion price as all other non-RAS generators at the same location for the emergency case, so under the Proposal, generators with RAS will be paid a different, likely higher, price than they receive today<sup>3</sup>.

Such outcome should be further evaluated to ensure its consistency with the general design of RAS schemes. Per SCE's understanding, RAS schemes are mainly for reliability purposes. When a generator is interconnected to the grid, if an interconnection study shows it will create an area deliverability issue under a contingency case, then the generator may be required to have RAS

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<sup>1</sup>The CAISO Generator Contingency & RAS Modeling Revised Issue Paper & Straw Proposal, available at [http://www.caiso.com/Documents/RevisedIssuePaper\\_StrawProposal\\_GeneratorContingency\\_RemedialActionSchemeModeling.pdf](http://www.caiso.com/Documents/RevisedIssuePaper_StrawProposal_GeneratorContingency_RemedialActionSchemeModeling.pdf)

<sup>2</sup> See CAISO MPPF Presentation for current approaches to model RAS, Nov, 2014, Slide Pages 37 – 48, available at [http://www.caiso.com/Documents/Agenda-Presentation\\_MarketPerformance-PlanningForum\\_Nov18\\_2014.pdf](http://www.caiso.com/Documents/Agenda-Presentation_MarketPerformance-PlanningForum_Nov18_2014.pdf). In addition to those modeling approaches, under certain conditions, "operators de-activate single transmission contingencies related to the remedial action scheme", page 25, the CAISO Issue Paper & Straw Proposal.

<sup>3</sup> Slide Page 14, CAISO Presentation: <http://www.caiso.com/Documents/AgendaPresentation-GeneratorContingencyandRemedialActionSchemeModeling-RevisedIssuePaperandStrawProposal.pdf>.

As illustrated in the CAISO example, A RAS generator, G1, receives a much higher price than G2, a non-RAS generator, while both G1 and G2 would receive a same price today.

installed. Further the generator may have energy-only deliverability status under the RAS, which means its output is not fully deliverable, thus the energy only generator will be the first to be curtailed, should such condition occur. However, under the CAISO Proposal, it appears that a generator with a RAS would receive a higher price than those without a RAS at the same location, i.e., the generator would not only receive higher economic benefits under the emergency case, but also be the last to be dispatched down by the market assuming generators at the same location bid at the same price. The CAISO should provide a clarification in this regard.

**2) How will a RAS scheme with multiple units would work under the CAISO Proposal?**

When there are multiple units at the same location with installed RAS, how does the CAISO plan to determine which RAS resources are armed if all RAS resources do not need to be armed? If being armed potentially means a higher LMP, the decision of which resources to arm is not a trivial one.

**3) It should be further studied whether the Proposal would create false economic signal that would value RAS more than network upgrades. The question on whether it's appropriate to exempt a generator from a congestion charge simply because it's on RAS should also be evaluated.**

It should be further studied whether the Proposal may create false economic signal that would value RAS more than the option of network upgrades for the interconnection process. Since RAS and network upgrades are both important to ensure the grid reliability, whether this outcome is appropriate should be fully vetted.

It should be evaluated further whether it is appropriate to exempt a generator under RAS from a congestion charge while other generators without RAS at the same location are charged for the congestion seen on a same path<sup>4</sup>. Although generators with specific arrangements today, such as with an Existing Transmission Contracts (ETCs) or with designated ties (Gen Ties), are exempted from a congestion charge, it's usually for the reason that the entity who owns the generator pays for the cost of the transmission. Whether a generator under a RAS scheme should receive similar benefits should be further evaluated.

**4) There are potential issues on price formation, market power mitigation, and impacts to Convergence Bids and Congestion Revenue Rights (CRRs).**

Beside the issue of whether it's appropriate to exempt RAS generators from a congestion charge, there are other potential issues as well. As shown in the CAISO example<sup>5</sup>, the price for a RAS generator will depend on the bid price and the max capacity of non-RAS generation at the same location, it should be evaluated whether this may bring market power issue if both RAS and non-RAS generation is owned by a same entity.

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<sup>4</sup> See CAISO Example as noted in Footnote 2 above.

<sup>5</sup> See the CAISO Example as noted in Footnote 2 above, where G1's LMP is dependent on the shadow price of Path A-B and the ratio of Pmax of G2 v. total system capacity. If Pmax of G2 is small and/or the system capacity is large, the congestion price for G1 will be small, thus avoiding paying for the congestion cost.

The Proposal could have material impact to the CRR market, since the CRR market does not consider any generation characteristic, nor a separate limit for RAS. Additionally, the Proposal may result multiple prices at the same location. In such circumstances, it is unclear at which price and resulting congestion value CRRs should settle at and at which price convergence bids would be settled.

**5) Given these potential issues, the CAISO should consider whether the benefit of the Proposal would largely be offset by the risk of potential negative impacts to the market.**

Given these potential issues, the CAISO should examine, among 19,800 MWs of RAS arm-able generation on its system, how much generation is actually armed at a particular time and how much of the RAS-activated generation cannot be adequately addressed under current modeling efforts. This may provide a basis to assess potential gain of this Proposal in allowing additional economic power to serve load.

**6) The generation contingency proposal may result in significant reduced grid capability to flow economic power to serve load, among other issues.**

Under the CAISO Proposal, for every generator that is evaluated for its contingency, its energy price can be a unique value, resulting in multiple prices at the same location. Whether this seemingly mixed price signal would create an issue for generation investment and siting should be further evaluated. As correctly recognized by the CAISO, the Proposal can also have material impact to CRRs, as the CRR market does not see the proposed congestion related to a generation contingency. More importantly, the CAISO Proposal to model generation contingencies can lead to reduced grid capability<sup>6</sup> to flow economic power to serve load. In reality, the magnitude of the reduced grid capacity under the CAISO Proposal can be large if the pool of generators for the contingency evaluation is big.

Given these issues, SCE suggests that the CAISO should further evaluate the potential impacts of its proposal. Presumably, the issue of generation contingencies is not unique to the CAISO and a survey on how other ISOs handle this issue should be useful in developing a solution.

## Summary

While SCE generally supports that market dispatch reflecting RAS schemes so additional economic power can be made available to serve load, SCE believes there are material issues associated with the CAISO Proposal that should be further evaluated to assess whether the Proposal would outperform the current approach to model RAS. With regard to the generation contingency proposal, SCE supports the CAISO placing it at a lower priority than RAS modeling<sup>7</sup>, as it has more issues that need to be resolved.

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<sup>6</sup> See the CAISO Example, Page 15, in the CAISO Presentation. In the example, Path A-B is only loaded at 86 MW under the CAISO Proposal while the line would be loaded at 750MW today; this represents an 89% reduction.

<sup>7</sup> Slide Page 6, CAISO Presentation.