

**SCE comments on the CAISO's Revised Straw Proposal on
Multi-Stage Generator Modeling**

SCE appreciates the ongoing efforts by the CAISO to identify and implement changes in the market software to improve the modeling of multi-stage generators. SCE is supportive of the conceptual approach reflected in the Revised Straw Proposal and we provide the following comments to identify some concerns as well as to help continue the process.

Multi-Stage Generation Units

SCE is concerned that the proposed modeling changes will only be applied to those units that have specified Forbidden Operating Regions (FOR) in the Master File. Under the proposal, the ISO offers to evaluate the impact of extending the change to other units with operational dependencies if and when the need arises.

SCE notes that the currently proposed modeling changes are different and more extensive than those originally proposed and SCE believes that these currently proposed modeling changes will enable some units that are not currently listed in the Master File with FOR to be more accurately dispatched. As such, we were encouraged with the CAISO's position voiced during the teleconference that their ultimate desire is for all units to be modeled as accurately as possible and that stakeholders should talk with their respective ISO liaison to request inclusion of additional units.

However, SCE understood the CAISO's answer to a subsequent question asked by a stakeholder on this issue to indicate that evaluations by the CAISO would take place only after the implementation is complete. SCE encourages the CAISO to remain open for additional discussion on this topic as we believe that any unit that could benefit from the changes ultimately implemented should be allowed to do so. We therefore request that a time period be established after the CAISO Board's approval during which stakeholders can identify and the CAISO will evaluate the feasibility of including additional units which will benefit from the multi-stage generation modeling changes approved for implementation.

Bid Cost Recovery for Multi-Stage Units

SCE requests the CAISO provide additional clarification on how Bid Cost Recovery (BCR) will be calculated for Multi-Stage Generating units (MSG). In particular, SCE would like the CAISO to expand upon its example in the revised straw proposal to more clearly describe the commitment costs (start-up, minimum load, transition costs) that would be used in a MSG resources BCR calculation in instances where MSG units are; (1) only scheduled in the day-ahead market- not incrementally dispatched in real-time and (2) initially schedule in the day-ahead market and then transitioned to a higher configuration in the real-time market.

As currently drafted the proposal appears to only include commitment costs that are a result of being incrementally scheduled in real-time and would exclude commitment costs that were a result of being scheduled in the day-ahead market. Commitment costs resulting from a CAISO scheduling instruction must be included in a resources BCR calculation, regardless as to which market the commitment cost incurred. SCE would oppose any change to current BCR rules that would exclude commitment costs that were incurred as a result being scheduling in the day-ahead market.

SLIC Outages

SCE believes that the proposal to have SLIC extrapolate an outage to all impacted configurations is not feasible and that this approach is reminiscent to earlier versions of SLIC where the CAISO thought they could combine outages together to develop the resource availability. Just like we learned back then, the combination of outages on a resource is too complex for the CAISO to model and needs to be pushed out to the market participants.

As reflected in SCE's comments during the conference call, while submitting a physical outage may work and be administratively easier to submit for some types of MSG units, other types of MSG units may require that outages be submitted on a configuration level, which is acknowledged to be more burdensome. SCE is willing to accept the additional burden in exchange for the better modeling of the configuration availability.

In order to mitigate the risks associated with this burden, SCE strongly requests that the CAISO consider upgrading their SLIC API which enables communication from market participant computer systems to CAISO computer systems. Such automation of these important communication channels allows market participants a better means to provide accurate and timely data to the CAISO. The current SLIC API can be described as cumbersome at best. A redesign of this system should be incorporated into any enhancements made to SLIC.

Implementing Uninstructed Deviation Penalties

SCE agrees the current inaccuracies in market dispatch, of which failure to properly model MSG is just an example, make implementation of uninstructed deviation penalties inappropriate at this time. We support CAISO efforts to improve the accuracy of unit modeling and dispatch, but our hope is that with accurate modeling and pricing there will be no need to ever implement uninstructed deviation penalties (UDP).

SCE is concerned with the CAISO's generic statement that the results of post-MSG implementation monitoring may indicate that imposing uninstructed deviation penalties is warranted. SCE points out that the CAISO's use of the terms "in part" and "one step closer" both explicitly imply that there is more than one reason contributing towards generation units experiencing uninstructed deviations from sub-optimal dispatches. Other reasons that have been identified during various stakeholder discussions include at times grossly inaccurate ramp rate modeling, the use of incorrect and infeasible ramp rates used by the optimization to reduce costs, significant shortcomings in how the master file requires participants to model start-up and min-load costs, particularly if a unit must re-rate its Pmin upwards, a 24-hour optimization horizon, a STUC model with a 5 hour horizon, and a host of other modeling shortcomings.

In summary, while UDP implementation and MSG modeling may have some overlap, it is inappropriate to make direct linkages or imply that somehow UDP is the "goal" and MSG modeling will help us achieve the goal. SCE believes that any analyses performed by the CAISO regarding justifying implementation of uninstructed deviation penalties should be conducted through a stakeholder process, and then only after the CAISO has sound justification based on actual observations that demonstrate deviations

are creating a material operational issue or are creating material market distortions. Without such observations, UDP should not be implemented even if the MSG process is considered fully functional and many of the other issues noted above have been resolved.

Self-Schedules in RT to meet RA offer obligations

Unlike the current market which allows an SC to submit a self-schedule and offer a bid representing the RA obligation for selection of economic energy and capacity, the proposal is that for MSG units, a self-scheduled configuration submitted into the RT market will be rejected if it does not meet the RA offer obligations. That is, the self-schedule configuration will be treated as the default commitment and not as the default minimum configuration. This is not acceptable and SCE requests the CAISO to create a model which behaves more like the current market in regards to self-schedules.

Review and Testing of Implemented changes

SCE is pleased to see a reference within the current proposal that the CAISO plans to thoroughly test the implemented multi-stage modeling functionality. However, we are concerned with the CAISO's inclusion in the current proposal that the significant modeling enhancements contained in the current proposal and the importance and value of competing enhancements to the MRTU market design during the first year of operation may result in prioritization and compromises to accomplish important market enhancements.

Because SCE is concerned that the full level of implementation and/or full level of review and testing associated with the MSG modeling changes may become compromised, we recommend that a schedule be developed that contains implementation and testing milestones and that the implementation of the MSG modeling changes should not be considered a success until all milestones are achieved, regardless of schedule delays due to compromises. SCE also notes that the proposed functionality changes described in the straw proposal will result in significant software and process changes to SCE. As a result the CAISO must work with stakeholders to include enough time in its implementation schedule for stakeholders to modify their respective internal systems and processes.

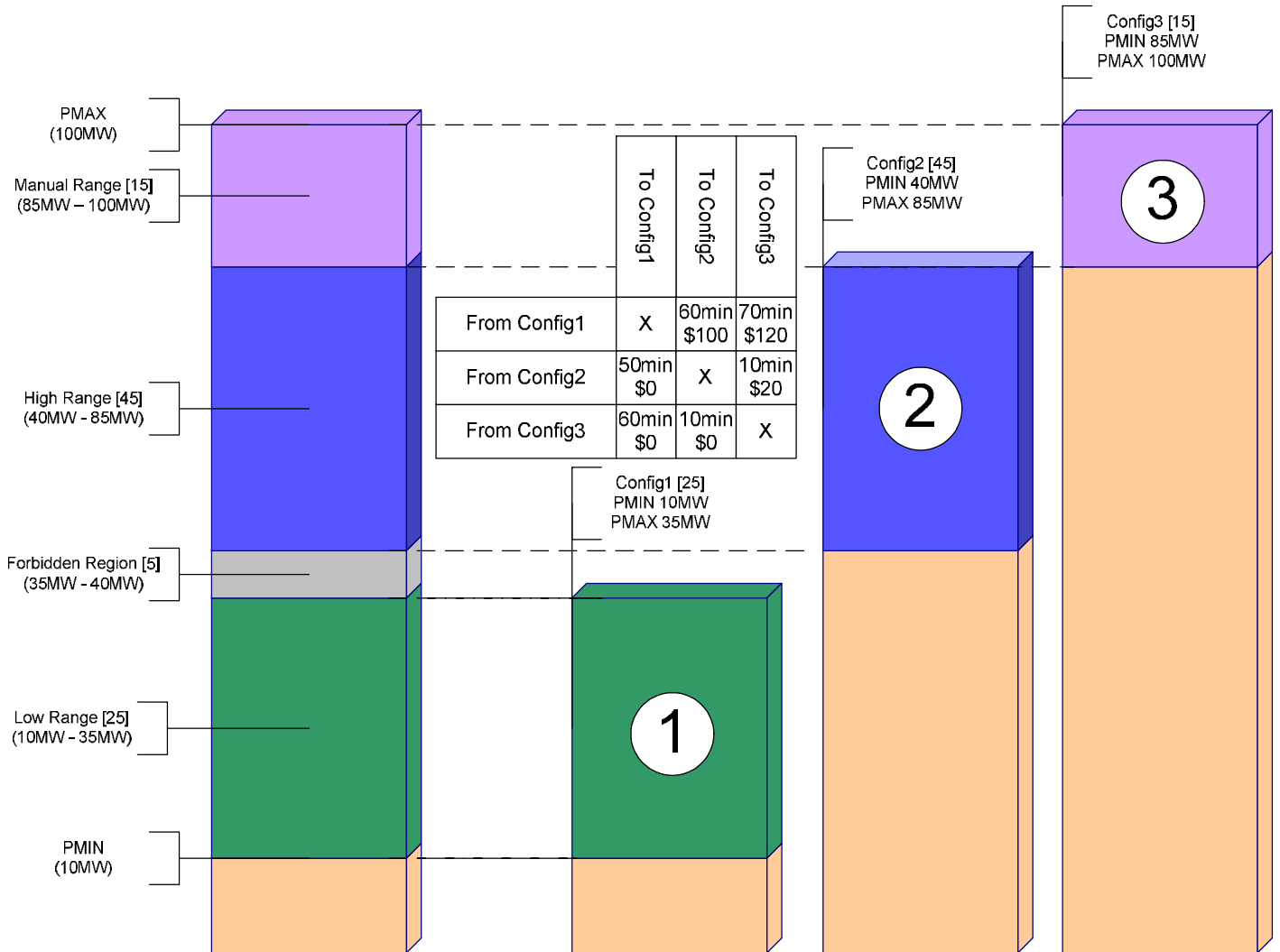
Per these comments, SCE also recommends that successful testing be defined to include testing by both the CAISO and stakeholders on their respective market simulation systems and that one required test should include the CAISO doing a bid-to-bill test in order for market participants to verify that settlements are calculating correctly and are an accurate representation of dispatch decisions. SCE also informs the CAISO that we anticipate at least one month of in-house testing will be required.

Understanding modeling changes

Our support of the proposal is based in-part upon being satisfied that the potentially significant implementation impacts of the proposal, e.g. significant SLIC and Master File enhancements, and the associated implementation schedule are manageable. SCE requests that the CAISO conduct an in-depth technical workshop with stakeholders to fully discuss the logic changes that are proposed to be implemented in the market optimization software. A thorough understanding of the CAISO modeling approach is needed in order for stakeholders to independently verify market MSG resources awards for MSG unit and system wide LMP prices. This is a complicated issue, and the processes used to model and then optimize MSG should not be performed in a “black box”.

We believe that a goal of the stakeholder process should be full transparency over the formulation of the problem within the optimization and the techniques that will be used to solve this complex issue. We request the CAISO release a detailed technical whitepaper on the topic and then hold a workshop to discuss the issue prior to finalizing the design and implementation. This workshop can happen prior to or after Board approval but needs to occur early enough to provide stakeholders adequate time to engage their respective software vendors to initiate comparable necessary changes to in-house simulation and ancillary software.

Example: Below is a non-combined cycle example. This example is also available in MS Visio file format so the ISO can modify as they see fit. We encourage the CAISO to also develop a combined cycled example that may be referenced during future discussions.



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