## Calpine comments on the July 22<sup>nd</sup> Flexible Resource Adequacy Criteria and Must-Offer Obligation Phase 2 Working Group Meeting

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Calpine appreciates the opportunity to comment on the July 22<sup>nd</sup> working group meeting. (Calpine focuses its comments on the presentation from the meeting rather than the issue paper that was released before the meeting.)

Calpine appreciates the CAISO's thoughtful approach to articulating its evolving needs for additional operational flexibility, in particular downward flexibility to address overgeneration conditions. While Calpine believes that the CAISO can manage the reliability issues associated with overgeneration conditions without a new capacity product, through either energy and AS markets or out of market actions, at the meeting, the CAISO made a strong case that out of market approaches are far from optimal. Consequently, Calpine understands the appeal of the CAISO's proposed downward capacity product, i.e., inflexible capacity allowances, to ensure that the CAISO has sufficient bids to manage downward flexibility issues through its energy and AS markets. Nevertheless, Calpine believes that the CAISO should gather more evidence that its energy and AS markets are failing or likely will fail to manage overgeneration economically before implementing a downward capacity product. Have observed curtailments been managed economically or out of market? To the extent that curtailments occur primarily in real-time are there changes to forecasting and/or the IFM that would allow curtailments to be anticipated in the day-ahead time frame, when economic solutions may be more readily available?

In the event that the CAISO introduces a downward capacity product, Calpine has two overarching concerns: First, the rules for the product, including the allocation of the obligation to procure the product, should apply equally to all potential contributors to overgeneration, including renewables. While it may be purely a matter of exposition or accounting, the CAISO's presentation could leave the impression that renewables are presumed to be allowed to generate under overgeneration conditions while other resources are expected to adjust their output or procure allowances to accommodate renewables. Second, Calpine is concerned that the design discussed at the meeting could impose new costs on suppliers without providing a means for suppliers to recover those costs. For example, Calpine is not sure how the design would treat the inflexible Pmin blocks of dispatchable resources that are offered economically into CAISO markets, i.e., that the CAISO can choose to commit. Calpine fears that the design would introduce a costly new obligation for suppliers to offset their inflexible Pmin capacity with allowances without any corresponding enhanced revenue to recover these new costs. In addition, to the extent that the CAISO seeks to encourage incremental investment that might alleviate Pmin burden, the CAISO's design would require complementary multi-year contracts to enable suppliers to amortize incremental investment costs over a reasonable time frame.

Calpine offers the following more specific comments on thee CAISO's proposed approach to implementing a system of inflexible capacity allowances.

First, on slides 28 and 29, Calpine does not object to the consideration of additional criteria in the determination of what capacity is flexible. Further, it may be reasonable for the CAISO to consider minimum up and down times and/or minimum cycle times, i.e., the sum of minimum up and down times in determining whether the Pmin block of a resource is flexible. As indicated in previous comments, Calpine suggests that the CAISO reconsider whether resources require *cold* start times of less than 90 minutes in order for their Pmin blocks to be considered flexible. In its own fleet, Calpine has observed that as the penetration of renewables increases and our units cycle more often, very few of our starts are cold.

Meeting more stringent performance requirements may entail additional costs. These costs include wear and tear, exposure to operational risk, and potentially incremental investment costs. If more stringent performance requirements are not matched by enhanced compensation, suppliers may simply choose to not supply the product.

Second, as discussed above, Calpine requests clarification of the CAISO's intended treatment of "dispatchable inflexible" capacity, i.e., bid-in inflexible Pmin capacity. If the CAISO can optimally commit inflexible capacity through its markets, why should the capacity potentially require allowances? If it does, how would the proposal account for the fact that under minimum net load conditions, many units with inflexible blocks may not be committed and hence may not contribute to overgeneration? Rather than subject dispatchable inflexible Pmin capacity to an obligation to procure allowances, an alternative might be to create multiple tranches of flexible RA, e.g., with and without inflexible Pmin. (Calpine is offering no view at this point about how such tranches might overlap with the current three flavors of flexible RA.) This approach might have the same impact of potentially requiring suppliers to procure allowances for their inflexible Pmin capacity but using a "carrot" instead of a "stick."

Conversely, how does the CAISO intend to account for the Pmin burden of "floating flexible" capacity, i.e., flexible capacity for which the underlying inflexible capacity has not been sold as RA? Reliance on such capacity to provide flexibility may contribute to overgeneration without any associated obligation to procure allowances. One crude solution might be to require that a resource sell its inflexible capacity or buy allowances for its inflexible capacity if it wants to sell its flexible capacity. In addition, as discussed below, Calpine is not opposed to the CAISO's suggested prohibition the self-scheduling of non-RA resources.

Third, in order to facilitate compliance, Calpine believes that there should be a single set of RA rules covering all months. On slides 38 and 42, the CAISO suggests that its idea for limiting inflexible capacity would apply only to non-summer months. While Calpine recognizes that the

need for limits on inflexible capacity may be less pressing in the summer, Calpine suggests that the CAISO could address this issue by setting high and/or non-binding limits for the summer.

Fourth, based on slide 36 and other related slides, Calpine is unsure of how the CAISO's use of the term "flexible capacity" relates to the current definition of flexible capacity. For the nonsummer months, is it the CAISO's intent to require the procurement of sufficient dispatchable capacity to meet the entire change between the minimum net load in a month and the net load peak (on the same day?)? How would this requirement differ from the current requirement to meet the largest 3-hour net load ramp in a month? Calpine is not opposed to expanding flexible RA requirements but suggests that this aspect of the CAISO's presentation could be clarified.

Fifth, on slide 39, Calpine is confused by the CAISO's assertions about an accommodation for "VER output at peak" in determining limits on inflexible capacity. Limits on inflexible capacity should reflect conditions in which overgeneration conditions are likely to materialize, i.e., not peak conditions. Calpine believes that these limits should apply to all resources that wish to self-schedule through overgeneration conditions, including VERs that contribute to overgeneration conditions.

Sixth, on slide 46, the CAISO suggests that storage discharge could count towards RA requirements while storage charging might be used to provide inflexible capacity allowances. Could the same storage resource charging capability be used to provide allowances as well as *flexible* RA?

Seventh, with respect to the specific structure of allowances, Calpine recommends that they entail offers to increase load/export or reduce generation at prices as low as the bid floor. Structuring the allowances in this manner will provide the energy and AS markets maximum opportunity to resolve overgeneration themselves, i.e., they will exhaust all possible solutions before using offers at the bid floor that are tied to allowances. In addition, permitting allowances to be supplied through very low priced curtailment/load/export offers should limit the costs of compliance, i.e., if allowances are essentially very low-price put options that are out of the money most of the time, then they should cost relatively little.

Eighth, Calpine supports the CAISO's proposal to assess whether the flexible RA fleet can meet ramps shorter than three hours. To the extent that the CAISO consistently determined that the flexible RA fleet were insufficiently fast, Calpine would prefer that the CAISO introduce additional wholesale market products targeted at faster resources rather than relying on backstop procurement as proposed in the presentation.

Finally, with respect to limiting the self-scheduling of non-RA resources, Calpine believes that Options 1 and 3 may have merit. Calpine is concerned that Option 2 may unfairly penalize resources that have chosen to operate in the day-ahead time frame. For example, it may be unreasonable to de-commit a resource based on its DEB alone when it has incurred start costs that it expects to amortize over a multi-hour (or day) run cycle.