

Calpine comments on the August 18th 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 August 18th working group meeting. Calpine generally supports greater reliance on energy and AS markets to resolve over-generation issues. To the extent that the CAISO continues to develop a capacity product to address over-generation issues, Calpine believes that the CAISO proposal requires important clarifications and a re-focusing on the cause of over-generation, i.e., self-scheduling/too much must-take generation in the middle of the day during shoulder months. As described below, a re-focusing of the proposal to effectively limit self-scheduling might be more comprehensible and easier to implement without changing current RA rules.

Calpine does not support SCE's proposal to remove the obligation to offer flexible RA economically into CAISO markets. One of SCE's arguments for removing the economic must offer obligation for flexible RA seems to be that the obligation does not actually make more operational flexibility available to the CAISO but encourages SCs to reflect physical constraints in economic offers. Calpine believes that it is important for physical constraints to be reflected in economic offers and contribute to price formation.

CAISO Proposal

Calpine offers the following general comments on the CAISO proposal as well as specific comments on the CAISO's August 18th presentation.

Calpine believes that the CAISO proposal could benefit from a more direct focus on self-scheduling and greater clarity with respect to product definition, the obligation to procure the product, and how different types of resources will be treated under the proposal. Calpine offers suggestions on a reframing below recognizing that the reframing may be fully consistent with the intent of the CAISO's proposal.

The product

Calpine believes that the fundamental cause of prospective over-generation is self-scheduling during a specific set of over-generation risk hours (ORHs). Consequently, the product underlying the CAISO's over-generation proposal should be the right to self-schedule, i.e., self-scheduling rights (SSRs), during ORHs. These self-scheduling rights could be traded.

Obligation to procure

In the operational time frame, in order for an SC to self-schedule generation or imports during ORHs, it would have to show a corresponding SSR for each MW that it self-scheduled. Self-schedules without

SSRs either would be rejected or assigned a lower priority, i.e., they would be curtailed before self-schedules with SSRs. (Export self-schedules or higher scheduled loads could reduce an SC's obligation to show SSRs. An SC might avoid the need show any SSRs by submitting schedules that in aggregate balance load/exports with generation/imports.) In lieu of an SSR, an SC could show a downwardly flexible bid, i.e., a storage charging, flexible load, or export bid. This is similar to the CAISO's proposal for how downwardly flexible resources effectively could create "allowances." (Calpine recognizes that the mechanics of this approach in SIBR could be complicated.)

Requirements to procure SSRs would be completely distinct from requirements to procure generic or flexible RA capacity. Calpine anticipates that if SSRs were introduced, current RA rules would remain largely intact.

Treatment of different resources/allocation of SSRs

SSRs would be allocated to LSEs largely on a peak load ratio share basis. (Alternatively, they might be allocated to LRAs who then might allocate them to LSEs in a manner that accommodates preexisting differences in LSEs' resource portfolios.) An SC attempting to self-schedule large volumes of solar or must-take CHP or nuclear during ORHs likely would need to procure more SSRs than the LSEs for whom it is scheduling have been allocated and presumably made available to the SC. SCs could reduce the need to "show" SSRs by reducing self-scheduling/offering greater amounts of capacity economically.

In the event that the CAISO chose to require SSRs for the Pmin capacity of conventional generation that is committed by the CAISO, fairness would dictate some allocation of SSRs to merchant conventional generators. Merchant conventional generators could then realize the benefits of flexibility improvements by selling SSRs that were no longer needed due to flexibility upgrades, i.e., an allocation of SSRs would provide a carrot in addition to or instead of a stick.

This approach is broadly consistent with the CAISO proposal but potentially differs from the CAISO proposal, as Calpine currently understands it, in several important respects: First, it addresses all resources that potentially cause over-generation, not just RA resources. Second, it treats all self-schedules the same, including self-schedules associated with renewables as well as other must-take resources (presuming that renewables are scheduled accurately). Third, it does not presume that certain resources, such as renewables, necessarily will be self-scheduled. An SC would only be obligated to obtain SSRs for a resource in the event that the resource actually is self-scheduled. Fourth, it reflects the fact that inflexible resources do not necessarily contribute to over-generation. For example, a regularly scheduled import that occurs outside of ORHs would not require SSRs.

In addition to these general comments, Calpine offers the following specific comments on the slides from the August 18th meeting:

On slide 10, Calpine agrees that system needs are changing. Rather than framing the change as a shift in the required mix of flexible and inflexible capacity, Calpine believes that the CAISO should frame the change as an emerging over-generation challenge.

On slide 11, it is unclear that what is needed to address over-generation is “downward ramping speed.” Limiting self-schedules and/or resources that can absorb energy even slowly may help with over-generation. In addition, it is not obvious that, as the slide suggests, the same resources that are needed to meet upward ramps necessarily will be used to address over-generation.

Calpine assumes that slide 12 refers to February of this year, not February 2016.

On slide 17, Calpine notes that many of the resources that are represented as inflexible on the slide are either currently flexible, will be flexible, could be flexible, or will be retired in the 2021 time frame. For example, Calpine routinely offers a significant fraction of its geothermal capacity economically into CAISO markets. In addition, Calpine believes that many resources that the slide has represented as Non-Dispatchable QFs are in fact CHP units that have modified their contracts to become dispatchable and/or will be retired as their contracts expire over the next several years. Calpine believes that there is also potential for Dedicated Imports, biomass, and biogas to become dispatchable. Finally, the representation of net load effectively assumes that wind and solar are must take even though an increasing fraction of these resources are dispatchable/can be curtailed economically. The lack of clarity about what resources are actually inflexible/must-take suggests that any proposal to address over-generation should not assume that certain resources are must-take. Instead, it should limit the self-scheduling that potentially causes over-generation.

On slide 18, Calpine recognizes the CAISO’s concerns about how the upwardly flexible resources that are needed to meet upward ramps may contribute to over-generation to the extent that they must be committed to Pmin in order to meet subsequent ramps. To the extent that the conditions of concern, i.e., potential over-generation conditions followed by large upward ramps, are caused by solar, which is relatively predictable, Calpine believes that resources that can start within 90 minutes, the current standard for a resource’s Pmin capacity to be considered flexible, are sufficiently fast to be off during over-generation conditions and started in time to meet subsequent ramps. As in previous comments, Calpine encourages the CAISO to reconsider the 90-minute *cold* start flexible RA criterion because, at least for CCGTs, very few starts are cold.

As discussed above, one potential approach to encouraging flexibility improvements to conventional generation might be to require SSRs to be shown for the Pmin capacity of conventional generation that is committed by the CAISO during ORHs. If the CAISO pursues this approach, Calpine recommends an allocation of SSRs to merchant conventional generation. This allocation would enable merchant generators to benefit from improvements in flexibility by selling SSRs that they no longer need rather than punishing them for the presumed inflexibility of their resources. (LSEs would have similar incentives and enjoy similar benefits from improvements in the flexibility of their portfolios due to the SSRs that they would be allocated based on their load.)

The figures on slides 19 and 20 may represent a WECC-wide dispatch as indicated, but Calpine believes that they also reflect the zero net-export assumption, i.e., that, on net, power cannot flow out of the CAISO, underlying the CAISO’s LTPP modeling. This assumption seems increasingly unrealistic in light of

Pacificorp's announced intention of full integration with the CAISO. Relatedly, Calpine notes the potential for greater exports in the event that CAISO export fees are reduced.

On slide 21, Calpine questions the CAISO's focus on "Pmin burden." A significant cause of over-generation seems to be self-scheduling and other forms of must-take energy from resources, such as nuclear plants, that may be operating above their Pmins, and resources such as solar that may not have well-defined Pmins in the same sense as conventional gas-fired resources. As shown on slide 17, the Pmin capacity of CCGTs, for example, that are committed presumably to provide upward flexibility may contribute little to over-generation compared to other potential causes of over-generation.

Nevertheless, to the extent that the CAISO wishes to address the "Pmin burden" associated with conventional generation, especially the burden of Pmin capacity that is not self-scheduled and the CAISO commits through its markets, as discussed above, Calpine urges an approach that rewards flexibility rather than punishes inflexibility, e.g., an allocation of SSRs that could be resold as flexibility improvements obviate the need for them. Calpine also encourages the CAISO to address the "Pmin burden" associated with its own out-of-market unit commitments, e.g., for MOCs, perhaps by reducing or eliminating them.

In addition, Calpine does not understand the assertion that "Flexible capacity solutions identified in long-term planning should have an obligation to provide the capacity solutions for which they were procured." If the claim is that flexible resources should be encouraged to participate in CAISO markets, Calpine believes that there are many ways to encourage such participation, including robust energy markets that allow deeply negative and positive prices as well as rules that constrain self-scheduling.

On slide 25, Calpine agrees that FRP in and of itself may not address over-generation problems but allowing a broader range of resources, including dispatchable renewables to provide downward reserves, may help address over-generation problems that are related to high volumes of renewable generation.

On slide 27, Calpine agrees that greater reliance on ED/CPM to address over-generation is undesirable.

On slides 30 and 31, Calpine strongly supports the CAISO's proposals to expand the time-horizon of STUC so that it can "see past the belly of the duck" and to lower the bid floor.

On slide 32, rather than differentiating between RA and non-RA resources with respect to scheduling priority, Calpine believes that the CAISO should allow SCs to "buy" scheduling priority by acquiring Self-Scheduling Rights (SSRs), as described above.

With respect to the proposal on slides 33-46, Calpine reiterates its comments that the proposal should be re-focused on limiting self-scheduling. Such a re-focusing of the proposal might be more comprehensible and easier to implement without changing current RA rules.

SCE proposal

As Calpine understands the SCE proposal, SCE would like to eliminate the economic must-offer obligation for flexible RA resources. The justification for the removal is that forcing resources to offer

economically does not change their underlying physical flexibility and hence compels SCs to reflect physical constraints in economic offers. Calpine does not support this aspect of the SCE proposal. Calpine supports the incorporation of physical constraints in economic offers so that they can contribute to price formation.

Calpine does not object to other elements of the SCE proposal. For example, Calpine agrees with SCE that additional capacity products to address shorter than three hour ramps probably are not necessary. As indicated in previous comments, to the extent that needs for capacity to address shorter ramps becomes evident, Calpine would support the introduction of additional capacity products to address such needs. Calpine does not support reliance on backstop procurement to secure capacity to address faster than three hour ramps.