Stakeholder Comments

Opportunity Cost of Flexible Ramping Constraint – Draft Final Proposal

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<th>Submitted by</th>
<th>Company</th>
<th>Date Submitted</th>
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<tbody>
<tr>
<td>Jeffrey Nelson</td>
<td>Southern California Edison</td>
<td>August 3, 2011</td>
</tr>
<tr>
<td>(626)302-4834</td>
<td>(SCE)</td>
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SCE thanks the California Independent System Operator (CAISO) for the opportunity to participate in the stakeholder web conference and to provide comments on the Opportunity Cost of Flexible Ramping Constraint, Draft Final Proposal.

The Flexible Ramping Constraint (Flexi-Ramp) requires a serious operational commitment by the CAISO to ensure it produces rational, economic results. We note:

- Manual forecast adjustments are known to cause discontinuities in the objective function resulting in optimization corner solutions, and thus price spikes. Any adjustments in this process require dedicated attention to the Flexi-Ramp Constraint. That is, given the long time horizon of RTPD enforcement, every 15 minutes, the CAISO must apply valid constraints for the entire RTPD 105 minute horizon.
- The CAISO must be committed to ensuring that accurate and continuous information is input into the various market and optimization systems in support of Flexi-Ramp Constraint. Otherwise, introducing this constraint could result in unwarranted and spurious market results.
- SCE also expects that the CAISO will monitor and report on the costs of introducing the constraint.
- Finally, SCE suggests material modification to the proposal, as detailed below. The CAISO should consider delaying the Board proposal beyond August if additional time is required to explore these suggestions.

While SCE supports the need for the CAISO to modify the optimization so that the Real-Time market produces a more robust and operable solution, SCE is still evaluating the full impact of the proposal. We can only do this in part because the CAISO has not provided full details at this stage. Where generation is incurring verifiable costs (including opportunity costs) as a result of the constraint, we agree the unit should be compensated. This suggests Flexi-Ramp compensation should take the form of an additional, unit specific cost-adder used in the Bid Cost Recovery (BCR) calculation. Instead, the CAISO proposes to treat the shadow of the constraint
as a “clearing price” and pay all “providers” of this service the shadow price\(^1\). The implication of making a full “clearing price” payment to all “providers” continues to cause SCE concern, and raises a host of second-order issues that must now be addressed (No-pay, BCR treatment, parameter treatment) before the proposal can be evaluated in toto.

**Generation deviation must be included for cost-allocation based on cost-causation:** SCE opposes cost-allocation to Measured Demand. Instead, costs should be allocated to negative or positive deviations from schedule. Variable Energy Resources (VERs) cause variability and uncertainty in the market, as do traditional generators that do not follow schedule. It is incongruous that all costs under this proposal should be allocated to Load\(^2\). The CAISO should not delay causation-based cost allocation for Renewable Integration: Market & Product Review Phase 2 (RIMPR2)\(^3\) implementation. There are existing settlement calculations, such as those used for the allocation of Residual Unit Commitment (RUC) costs, which could also be applied here. SCE does not see using the RIMPR2 as a valid justification to delay fair cost allocation, especially when it will likely be until 2014/2015 when those changes are made.

**No-Pay component required:** SCE opposes the lack of a No-Pay component. Already the design compensates some parties even though they have no opportunity-cost loss when selected for Flexi-Ramp. In the absence of No-pay, parties have no incentive to follow instructions since they get paid for the service even if they do not deliver. In sum, the current proposal will, at times, pay parties for a product that cost them nothing to provide, and guarantees this payment even if they chose not to provide the service.

**Revenues from Flexi-Ramp should offset costs in Bid Cost Recovery (BCR):** Any revenues that a unit receives from the Flexi-Ramp should directly offset costs of that unit when calculating the resource’s total cost eligible for BCR.

**Lack of information on parameter limits:** SCE requires information on the parameter limits for Flexi-Ramp in order to fully evaluate the proposal. SCE requests that the CAISO provide these to the stakeholders. Since the optimization frequently hits administrative prices today, it is very likely that the same will occur with Flexi-Ramp. This could imply substantial costs to the market since all “providers” are paid the shadow price. It appears that Flexi-Ramp is “inferior” to other Ancillary Service (AS) prices. This suggests that the parameter should be set such that the Flexi-Ramp shadow price never exceeds AS prices, including during periods of scarcity.

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\(^1\) SCE understands the Flexi-Ramp has no locational component, and in turn the optimization produces a single shadow price for the entire system. We ask the CAISO to confirm this is the case.

\(^2\) As the percent of VERs in California’s generation portfolio increases, the need for VER Following services will continue to grow. Based on the analyses of BPA, Puget Sound Energy, and Westar, it is more likely that the bulk of CAISO’s Following services will accommodate VERs rather than Load. BPA’s analysis shows VER balancing service reserves to be 2-3 times higher than that for Following capacity reserve (http://www.bpa.gov/corporate/ratecase/2012/docs/bp-12-E-BPA-05a.pdf). With two wind plants, the regulation requirement for wind in Puget Sound Energy’s Balancing Area was still greater than the requirement for Load (ER11-3735). In Westar’s analysis (FERC docket ER09-1273), using the stand-alone approach, wind VERs accounted for over 7% of the Regulation Requirement while Load accounted for 1.41%. In the portfolio-wide approach, wind VERs accounted for over 4% of the Regulation Requirement while Load accounted for 0.68%.

**SCE urges the CAISO to consider the effect of Virtual Bidding on the Flexi-Ramp:** Typically, binding constraints have led to higher prices as the parameter limits are hit by the optimization process. What effect, does the CAISO anticipate, the Flexi-Ramp will have on price convergence, in the presence of Virtual Bidding?

**Do not enforce Flexi-Ramp in RTD:** Since the constraint is already being enforced in the 15 minutes RTPD runs and over the expanded horizon, SCE does not see the need for enforcing the constraint in RTD. By enforcing the constraint in the RTD, the CAISO would be too conservative and this will also inflate the Real-Time Energy price.

**Instead of Creating a Flexi-Ramp Clearing Price, the CAISO should treat this cost as unit-specific BCR for only those units that have incurred a lost opportunity cost based on AS bids and Real-Time AS clearing prices:** The CAISO should explore a simplified proxy for opportunity cost and include this as a unit-specific cost in BCR calculations. We note that the Real-Time Energy price will already reflect the impact of enforcing the Flexi-Ramp constraint on “downstream” intervals, and this will tend to inflate Real-Time prices. Moreover, units providing Flexi-Ramp will still be dispatched in Real-Time (if they are economic) based on their full ramping capability in the Real-Time Dispatch interval and will capture this inflated energy cost. As a result, energy-related opportunity costs are either non-existent or are already receiving compensation in the form of inflated Real-Time energy prices. This suggests the CAISO should focus solely on lost opportunity costs associated with Real-Time Ancillary Service sales. Thus, units that did not have Ancillary Services available in Real-Time have no lost opportunity and should not receive BCR consideration (or the direct payment proposed by the CAISO). Units that had “in the money” Ancillary Service bids, that were “skipped” and instead these units provided Flexi-Ramp, could receive BCR cost consideration based on the difference between their Ancillary Service bid and the associated real-time Ancillary Service price.