

## Comments of Powerex Corp. on Flexible Ramping Product

Submitted by	Company	Date Submitted
Mike Benn 604.891.6074	Powerex Corp.	January 2, 2015

Powerex appreciates the opportunity to comment on CAISO’s December 4, 2014 Draft Final Proposal concerning CAISO’s proposed Flexible Ramping Product. Powerex reiterates its strong support for developing market-based mechanisms to supply the CAISO with products that provide flexible ramping capability. But throughout this stakeholder process Powerex has repeatedly expressed its significant concerns regarding CAISO’s proposed allocation of costs associated with the Flexible Ramping Product. CAISO’s Department of Market Monitoring (“DMM”) appears to share Powerex’s concern that the proposed allocation will create “adverse behavioral incentives” and lead to inefficient scheduling.<sup>1</sup> The Proposal’s cost allocation framework is only one problematic aspect of CAISO’s design, however. As DMM explains, “there are too many unresolved issues with the [Draft Final Proposal] to support it as the final market design.” In these comments, Powerex reiterates its concerns related to the proposed cost allocation, but agrees with DMM that CAISO should fundamentally re-think all aspects of its Flexible Ramping Product proposal.

It is well-established that costs should be allocated in accordance with cost causation principles; that is, costs should be allocated to those market participants that are responsible for their incurrence or that derive benefits from the specific service. CAISO itself has recognized the importance of allocating costs in accordance with the cost-causation principle, describing this principle as “a fundamental tenant of just and reasonable energy markets.”<sup>2</sup> Even more to the point, CAISO has also recognized that allocation of costs in accordance with causation creates an efficient pricing signal that “provides an incentive to minimize the cause of the costs.”<sup>3</sup>

Notwithstanding CAISO’s clear recognition of the importance of this principle as a cornerstone of efficient market design, CAISO’s Final Draft Proposal continues to allocate Flexible Ramping Product costs to hourly intertie schedules in a manner that ignores the extent to which ramps at the interties are *contributing to* or *reducing* flexible ramping needs and associated costs. Powerex believes that this is fundamentally inconsistent with basic cost causation principles and creates a disincentive for market participants at the interties to engage in activities that can reduce overall system flexible ramping costs.

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<sup>1</sup> CAISO Department of Market Monitoring, *Comments on Flexible Ramping Products Incorporating FMM and EIM Draft Final Proposal*. December 31, 2014.

<sup>2</sup> Cost Allocation Guiding Principles Draft Final Proposal at 5 (Mar. 15, 2012), *available at* <http://www.caiso.com/Documents/DraftFinalProposal-CostAllocationGuidingPrinciples.pdf>.

<sup>3</sup> *Id.*

As Powerex has explained, hourly inertia ramps can play an important role in reducing CAISO's overall Flexible Ramping Product costs:

Consider the following example:

### **Scenario One**

At the time of Flexible Ramping Product procurement, CAISO forecasts a 500 MW increase in Net System Demand between t and t+5. CAISO estimates that the 97.5 percentile of Net System Demand change is 800 MW, and that the 2.5 percentile of Net System Demand change is -100 MW. This can be restated as follows:

Expected Variability: +500 MW

Upward Uncertainty: +300 MW

Downward Uncertainty: -600 MW

Range of Net System Demand change from t to t+5: -100MW to +800MW

In this example, CAISO would require 800 MW of Flexible Ramping Up and 100 MW of Flexible Ramping Down. Assuming that the clearing price of Flexible Ramping Up is \$10 per MW and the clearing price of Flexible Ramping Down is \$2 per MW, CAISO would incur total Flexible Ramping Up costs of \$8,000 and total Flexible Ramping Down costs of \$200, for a total cost of \$8,200.

### **Scenario Two - adds Mitigation from Inertia Ramp**

Consider the change in these requirements when a day ahead import is scheduled to ramp in by 200 MW between t and t+5. This import ramp is opposite to the overall system needs, and hence reduces Expected Variability from +500 MW to +300 MW. Assuming the level of uncertainty is unchanged, the CAISO would now require 600 MW of Flexible Ramping Up and 300 MW of Flexible Ramping Down.

Expected Variability: +300 MW

Upward Uncertainty: +300 MW

Downward Uncertainty: -600 MW

Range of Net System Demand: -300 MW to +600 MW

Assuming the same market clearing prices as above, CAISO would incur total Flexible Ramping Up costs of \$6,000 and total Flexible Ramping Down costs of \$600, for total costs of \$6,600.

### **Inertia Ramp (Scenario Two) Reduces CAISO Flexible Ramping Need**

The net effect of this change in Expected Variability is both an increase in the Flexible Ramping Down product requirement and a decrease in Flexible Ramping

Up product requirement, leading to a \$1,600 reduction in the CAISO's total Flexible Ramping Product costs.<sup>4</sup>

Although the import in the above example was responsible for a 20% decrease in CAISO's Flexible Ramping Product costs, under CAISO's proposal it would nonetheless be allocated a share of those costs. The extent to which the import ramp had decreased the need for Flexible Ramping Up would be ignored while, at the same time, the extent to which the import ramp had increased the need for Flexible Ramping Down would be recognized, and charged, to the importing Scheduling Coordinator. Such a result is fundamentally unjust and unreasonable and inconsistent with cost causation.

While the foregoing example concerns the net benefit of an hour-to-hour import ramp examined in a single five-minute interval, a similar concern also arises for hour-to-hour import ramps that provides a net Flexible Ramping benefit measured across all four five-minute intervals, but may result in an increase in net Flexible Ramping Product costs in any one (or more) five-minute interval(s). For example, if an hour-to-hour interchange ramp increases Flexible Ramping Product costs in one interval, but reduces Flexible Ramping Product costs in the remaining three intervals, the relevant Scheduling Coordinator would be charged Flexible Ramping Product costs for the single interval in which it increased costs, while the net Flexible Ramping Product benefit conferred on the system by the import ramp would be ignored in the other intervals. This would be the case even if the decrease in Flexible Ramping Product costs over the three intervals in which the import reduced flexible ramping needs far exceeded the increase in costs in the single interval where the import increased flexible ramping needs.

In short, CAISO's proposed cost allocation methodology creates a structure in which market participants changing the level of imported power into the CAISO on an hourly basis can only lose. Any change in a market participant's hourly intertie schedule can only attract Flexible Ramping Product costs, regardless of whether that change decreases overall Flexible Ramping Product costs and confers benefits on the system.

There are both "fundamental" and practical problems with CAISO's proposal:

First, such a structure is at odds with basic cost causation principles. Instead of providing a credit to reflect the extent to which an hourly intertie ramp decreased the need for the Flexible Ramping Up or Down in a particular interval or series of intervals, CAISO proposes to allocate any cost savings associated with intertie ramps as "free" cost savings to those resources requiring this ramping capability, while asymmetrically charging for any increases in ramping costs associated with intertie ramps. As Powerex has explained, "CAISO's proposal breaks the essential link between the activity driving the costs (i.e., the level of import ramps) and the financial responsibility for those costs."<sup>5</sup>

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<sup>4</sup> Comments of Powerex on Flexible Ramping Product at 2-3 (June 23, 2014), *available at*: [http://www.caiso.com/Documents/Powerexcomments\\_FlexibleRampingProduct\\_StrawProposal.pdf](http://www.caiso.com/Documents/Powerexcomments_FlexibleRampingProduct_StrawProposal.pdf).

<sup>5</sup> Comments of Powerex on Flexible Ramping Product at 2 (Sept. 3, 2014), *available at*: <http://www.caiso.com/Documents/PowerexComments-FlexibleRampingProductRevisedStrawProposal.pdf>.

Second, CAISO's cost allocation proposal is at direct odds with its own methodology for determining its Flexible Ramping Product needs and, ultimately, its costs. More specifically, under the CAISO's proposal, CAISO will treat *known* ramping activity differently than *uncertain* ramping activity in determining its need for Flexible Ramping Products; yet CAISO does not carry forward this critical difference between known ramping activity and uncertain ramping activity into its cost allocation framework. For example, a known intertie ramp will reduce the CAISO's Flexible Ramping Product procurement (and costs) in one direction and increase the CAISO's Flexible Ramping Product procurement (and costs) in the opposite direction. In contrast, an uncertain ramp (such as load forecast errors, variable energy resource forecast errors, and uninstructed intertie deviations) only increase the CAISO's Flexible Ramping Product procurement (in one or both directions), and cannot be relied upon to reduce Flexible Ramping Product procurement at all (in either direction). This is because CAISO must plan to have sufficient ramping capability whether or not the uncertain ramp materializes. Accordingly, it is efficient, equitable and fully consistent with cost causation to credit and charge *known* ramping activities to the extent that they increase or decrease Flexible Ramping Product costs, while declining to credit *uncertain* ramping activities that are not (and cannot be) relied upon to reduce Flexible Ramping Product costs in either direction.

Third, and even more troublingly for all market participants, CAISO's cost allocation methodology creates inefficient pricing signals and may increase overall Flexible Ramping Product costs. In particular, CAISO's proposal will act as a disincentive to market participants to engage in beneficial ramping activity by encouraging market participants to reduce hourly intertie ramps.

CAISO has indicated that it believes that it would be inappropriate to provide a credit where an hour-to-hour increase in intertie schedules reduces the need to procure Flexible Ramping Up or Down, as the only reason that the intertie schedule can increase is because there has been a corresponding increase in load, which does not receive a credit. CAISO's attempt to draw a comparison between the movement of an intertie and load misses the point. It is unjust and inefficient to asymmetrically charge any known ramping activities for the costs caused by that activity without also recognizing the economic benefits of the activity. Thus, to the extent a Scheduling Coordinator's load ramp is *known* and reduces net system ramping needs in an interval, it too can be (and is) relied upon to reduce CAISO's Flexible Ramping Product costs in one direction and should also receive a credit. Moreover, CAISO overlooks that the primary goal of the Flexible Ramping Product is to ensure that there are sufficient supply resources to address system variability and uncertainty. Unlike load, which is generally price inelastic, supply-side resources respond to price signals. Here, the signal that CAISO will be sending to intertie resources is to minimize hourly ramping activity altogether, regardless of whether that activity would reduce total system costs.

CAISO has also argued that providing a credit would be inappropriate because a market participant would only increase its intertie schedule from one hour to the next if locational marginal price ("LMP") is increasing over the relevant time period. CAISO's argument ignores that (i) applying Flexible Ramping Product costs inconsistent with cost causation will serve to undermine and reduce participants' willingness to respond to hourly LMP price signals, and (ii) that there will be significant uncertainty regarding a market participant's responsibility for

Flexible Ramping Product costs. Under CAISO's proposal, a market participant will have no way of knowing what its responsibility for Flexible Ramping Product costs will be in advance since neither Flexible Ramping Product prices or specific costs allocations will be known at the time participants must submit their offers. Consequently, a market participant will not be able to determine whether its responsibility for these costs will partially or fully offset any increase in the applicable LMPs such that its transactions will no longer be economic. The rational response to the combined effect of CAISO's proposal and this uncertainty is for a market participant to seek to minimize hour-to-hour ramps in order to reduce its potential exposure to Flexible Reserve Product costs.

For the foregoing reasons, Powerex again urges CAISO to adopt a cost allocation methodology that is consistent with cost causation principles. There are alternatives to the present structure, which would provide efficient price signals to market participants. For example, CAISO provides importers with credits for cost-reducing activity when allocating the costs of contingency reserves. CAISO unambiguously recognizes for contingency reserves that imports reduce the contingency reserve procurement (and costs) that CAISO would otherwise incur and that it is both efficient and consistent with cost causation principles to compensate the importing SC for these cost-reducing benefits.<sup>6</sup> CAISO has failed to provide any meaningful explanation for why a similar approach could not be employed in the case of allocating the costs of the Flexible Ramping Product to *known* ramping activities.

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<sup>6</sup> The allocation of contingency reserve costs also addresses DMM's concern that credits would be unworkable because "the counterfactual cannot be known." A credit would not need to be based on what costs would have been absent a particular schedule. Both charges and credits could be based on the marginal cost of meeting the requirement under the *actual* market solution, not under a counterfactual solution. This is the approach used to determine charges and credits for contingency reserve, and the same principle can apply to the Flexible Ramping Product.