Stakeholder Comments

Flexible Ramping Products Incorporating FMM and EIM Straw Proposal

Submitted by	Company	Date Submitted
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The following are Southern California Edison's (SCE) comments on the California Independent System Operator's (CAISO) June 2, 2014, Straw Proposal[1].

1. **The CAISO requires a detailed Simulation before finalizing any complex design, including FRP. Otherwise, stakeholders have an insufficient basis to reasonably support the proposal.**

As illustrated above, on any complex design initiative, the CAISO should introduce a formal simulation process before finalizing the design. SCE strongly supports the building of a "sandbox" style Simulation environment. This simulation for FRP should be comprehensive and be an offline model of the entire market process. The CAISO proposal should be completely incorporated through the Simulation design, construction, running, and evaluation. This should be a general approach for any design change – a Simulation that embodies the proposal and is thoroughly evaluated before the actual market proposal is finalized at the Board. The CAISO should use this Simulation environment to test a series of real-world situations (using actual market data where possible) as well as "stress cases" to understand performance under adverse conditions.

[1] http://www.caiso.com/Documents/StrawProposal_FlexibleRampingProduct.pdf

The complexity of the CAISO proposal and the lack of transparency on several key elements require a complete Simulation of the entire proposal from DA need determination, all the way to RT cost allocation. Further, there is no clarity on how price formation occurs in this proposal and how it interacts with the myriad market design elements, both existing and proposed. Given the complexity of the proposal, without a simulation, SCE cannot conclude the impact on market price formation will be just and reasonable.

The comprehensive Simulation should transparently show the functioning of the proposal in the Day Ahead, 15 minute, and to the extent possible, the 5 minute time frames. For example, the CAISO proposal on FRP buyback in RT impacts DA as well as RT energy bids. The Simulation will demonstrate the interaction. SCE needs to see how this proposal will impact RT price formation under various real world conditions before SCE can decide if it can support the proposal. The Simulation should thus include actual, historic market data so that prices before and after the design can be compared.

2. The FRP proposal requires a regional component to be reasonable.

In the 2012 state of the market report, the Federal Energy Regulatory Commission (FERC) stated,

"CAISO implemented the constraint for the ISO as a whole, rather than for specified locations. This failed to prevent insufficient ramp capability to meet load ramping

needs around San Diego in summer 2012.[2] If FRP procurement stays systemwide, it may fail to provide the need it is trying to meet."

SCE supports such a position and strongly recommends the CAISO introduce a regional component to FRP procurement. At this stage, SCE would support something as simple as using the existing A/S regions[3]. The zonal procurement will better ensure that FRP is in the general location when it is needed.

Moreover, without at least some basic locational procurement, the CAISO will likely buy FRP that is "trapped in" by congestion and unable to provide benefit to the grid. In turn, the CAISO would likely have to increase procurement targets and "hope" the increased procurement finds resources in the correct area. The CAISO should avoid this unreasonable and inefficient approach by instituting regional procurement targets. Moreover, a simulation may help the CAISO determine the appropriate regions.

3. The CAISO Must Fully Document their Proposed Methodology for DA Procurement.

The CAISO proposal concerning DA procurement is largely undocumented and unclear to stakeholders. A non-exhaustive list of items that need to be addressed, in detail, include:

Day Ahead

a. The CAISO should provide a detailed walkthrough of the "Forecasting Tool" it mentioned during the June 6 meeting.
b. What specific data goes into the "Forecasting Tool" for the DA forecast? What data are used in all other forecasts? What is the output of the forecast?
c. What is the CAISO trying to procure in the DA? Is it just the deterministic ramp associated with forecasted Net Load? Does it include errorbands or "wings", and if yes, what are the error bands and what is the expected target to

[2] Page 23. http://www.ferc.gov/market-oversight/reports-analyses/st-mkt-ovr/2012-som-final.pdf
[3] We note that while A/S is procured on a regional basis, the CAISO allocates costs system-wide. SCE suggest the CAISO follow this same approach (regional procurement/system-wide costs allocation) for FRP. The system-wide cost allocation ensures that all those who benefit from this grid reliability product also pay for it.

which the CAISO procures? Do the error bands come from the DA forecast or from some other sources (e.g. historical 15-minute error bands)?

d. Is procurement and "maintenance" of FRP hourly, 15 minutely or 5 minutely?

e. If 5 minute procurement in DA, does the CAISO buy MW/5min for each 5 min interval or does the CAISO also constrain FRP capacity over an hour or other time interval? For instance, the CAISO requires 5MW/5min and also 120 MW/hour? If procurement is hourly, does the CAISO have 5 minute constraints?

f. What is constrained in any future estimates/lookaheads? What granularity is in these lookaheads?

15 minute

Questions a, d, e, f.

5 minute

Questions a, d, e, f.

4. **SCE has remaining questions over appropriateness of the proposed cost allocation since the bulk of procurement is in DA. It appears the CAISO clearly knows the major drivers of procurement DA (VERs and Load) and should allocate DA costs accordingly.**

SCE continues to support cost allocation based on cost causation. And since a significant reason for procurement FRP is to deal with uncertainty and variability caused by VERS, SCE strongly supports cost allocation to both load and supply. It appears the CAISO proposal attempts to allocate based on cost-causation for real-time procurement, but it is not clear that DA procurement cost allocation follows these principles.

While the CAISO has not document the DA procurement process, it is our current understanding the bulk of DA procurement will be based on meeting the CAISO DA Net Load Forecast. This forecast will consists of the expected load and the expect VER production. Thus, the CAISO likely knows exactly what is driving day-ahead

procurement (the Load and VERs in the forecast). In general, SCE feels the cost should be allocated directly based on this forecast.

	Allocates costs based on DA variation (100% FRP procurement)	Accounts for forecast error in DA	Allocates costs based on RT variation (Incremental FRP procurement)	Accounts for forecast error in RT
CAISO cost allocation proposal	X	X[4]	√	X[5]
Allocate DA costs based on DA forecast; Allocate RT costs based on RT forecast	√	√	√	√

Key: X = Does not satisfy; √ = Satisfies.

Concerning cost allocation based on causation, it appears the CAISO proposal fails three out of four basic criteria suggested in the matrix above. These criteria are satisfied even by simply allocating based on separating DA and RT costs. The CAISO's proposal to pool DA and RT costs also reduces transparency.

[4] VER forecasting in DA has a larger error than Load forecasting in DA. The CAISO accounts for this by pooling costs and having Load subsidize both VER variation and the inability of the CAISO to forecast better.
[5] While all other internal resources are held to the 5 minute deviation standard, VERs are allowed to have a 7.5 minute deviation based on the CAISO persistence measure. This is inappropriately preferential. The CAISO is not even comparing resources on a level playing field.

To ensure a just and reasonable proposal, not only would the CAISO have to allocate DA costs to DA FRP-needs but also granularly allocate costs within the VER category to various VERs. All VERs do not share the same variation and uncertainty characteristics. SCE has proposed transparent and methodical cost allocation methodologies at several venues, including the cost allocation proposal for FRP[6]. SCE encourages the CAISO to implement such methodologies that clearly allocate costs.

Further, SCE finds inconsistencies and problems within the cost allocation. For example, Dynamic Transfer (DT) VERs are exempt from cost allocation if they bid deeply negative prices and do not self-schedule. In a scenario where the wind dies down, the output of such a DT would go down. The CAISO would issue a dispatch adjusted for forecast, that tracks the decline of the VER. This could happen at a time where Net System Demand is increasing and thus the declining VERs would "consume" Flexi-ramp Up, but would not pay for it. This is unjust and unreasonable and the proposal needs to be modified to ensure reasonable cost allocation.

5. SCE does not understand the reasoning behind proposing bidding of FRP in DA.

SCE questions the cost basis for DA bids. Any support for allowing FRP bidding in the DA should be demonstrated and articulated by the costs that drive such bids[7] or some other rational operational need. Given that FRP prices will capture lost energy and A/S opportunity costs, SCE has not, at this time, identified any additional cost-basis for FRP. SCE requests the CAISO and/or stakeholders to clearly articulate any such costs, if they exist and/or articulate the operational reason(s) bids are needed Without such an articulation, we question the appropriateness of allowing DA FRP bidding.

[6] http://www.caiso.com/Documents/SCE-Comments-FlexibleRampingProductCostAllocationStrawProposal.pdf
[7] Intertemporal energy opportunity costs can be captured via virtual bids.

Moreover, there are several advantages to not allowing bidding. First, the proposal is complex, and eliminating bidding should reduce the potential for market distortions. Second, without bidding, the CAISO does not need to develop an additional mitigation process for FRP.

6. The Demand Curves should Be Calibrated As Part of the Simulation process.

First, SCE strongly supports demand curves for all procurement of FRP. However, SCE questions the reasonableness of the Demand curve parameters. It appears the CAISO is trying to make an "economic tradeoff" between frequently buying low-price FRP v.s. occasionally buying very high priced energy due to a price spike. However, the proposal completely ignores the impact FRP will have on day-ahead energy prices. SCE notes that the day-ahead energy market typically clears 95% or more of the CAISO's final need. And thus even a small impact on day-ahead prices (resulting from the FRP) will impact a very large quantity of transactions, and in turn will create ***large total costs***. Because of this potential impact on the "large market", the CAISO's current approach does not seem appropriate. Rather, a more appropriate economic comparison is total cost impact of an occasional real-time price spike (over a very small quantity of transactions) v.s. the impact of FRP on DA energy prices impacting a large quantity of day-ahead purchases. This in turn suggests the demand curve should be set at much lower values than those proposed.

SCE strongly recommends the demand curve be informed by simulation, and a consideration of the total cost impact FRP has on the large quantity impacted in the day-ahead market.

Finally, SCE asks the CAISO what approach it proposes if ancillary services are cheaper than FRP? The CAISO has only compared energy and FRP but not energy and AS. SCE believes AS should be procured to substitute for FRP if the AS is cheaper.