SCE Comments on Revised Straw Proposal on Day Ahead Market Enhancements

Submitted by	Company	Date Submitted
Aditya Chauhan aditya.chauhan@sce.com	Southern California Edison	5/2/2018

Southern California Edison (SCE) provides the following comments on the California Independent System Operator (CAISO) Revised Straw Proposal on Day Ahead Market Enhancements (DAME)[1].

The CAISO should have a process to explicitly answer stakeholder questions such that stakeholders can better understand the proposal

SCE strongly recommends that the CAISO collect all the unique questions in stakeholder written comments and from the 4/18 stakeholder meeting, and provide written answers to each of these questions. Given the multitude of questions in the written comments and at the meeting, it is clear that stakeholders do not understand key aspects of the CAISO's proposal. In light of this recommendation, SCE reposts its prior questions in Appendix 1. Additionally, SCE has further questions, presented below, that arose from the 4/18 meeting.

Further questions, in addition to questions from SCE's prior comments[2]:

Will the CAISO provide correctly simulated fifteen minute Day Ahead schedules and present the analysis, as assured during the 4/18 meeting?

As SCE, DMM, WPTF, and other stakeholders noted during the 4/18 meeting, the assumption of a constant ramp between adjacent hours and interpolating between the hours is not appropriate to produce simulated schedules. SCE understands that, during the meeting, the CAISO committed to rectifying this and producing appropriate simulated fifteen minute

[1] http://www.caiso.com/Documents/RevisedStrawProposal-DayAheadMarketEnhancments.pdf
[2] SCE strongly urges the CAISO to answer the questions posted in: http://www.caiso.com/Documents/SCEComments-DayAheadMarketEnhancements-IssuePaper-StrawProposal.pdf

schedules. Further, as noted during the meeting, SCE urges the CAISO to provide descriptives (such as kurtosis) of the distributions of differences between the status quo and fifteen minute granularity so stakeholders may determine a clear and substantive benefit from fifteen minute scheduling.

SCE understands that at this point the CAISO does not have fifteen minute simulated data for DAM schedules. However, the largest impacts of the CAISO proposal are from the fifteen minute schedules, through the granularity benefit and through the settlement of IRP. Thus, without this data, the purported benefits of either the fifteen minute granularity move or the IRP procurement, cannot be substantiated. The CAISO should work toward obtaining such data and providing it to stakeholders. For instance, the CAISO does have minute-by-minute forecast data of net load from the Flexible Capacity Needs Assessment for 2017[3]. Given this, the CAISO should explain why this data cannot be used for DAME needs or why the CAISO is unable to provide other data that will meet DAME needs.

Has the CAISO considered that IRP may not be the best tool to meet the CAISO's needs?

Assume, after accurate analysis of the benefit of moving the DAM to fifteen minute granularity, that the CAISO still has needs stemming from the existing state of fleet dispatchability. SCE remains unconvinced that IRP is the appropriate tool to meet temporary shortcomings due to fleet attributes. Load serving entities are actively moving toward California's goals of a highly flexible renewable fleet supported with storage. Such a fleet is expected to have all the attributes to provide for the CAISO's needs of flexibility in the future. In the interim, it may be more optimal to use targeted enhancements that allow non-conventional resources to realize increased dispatchability.

Has the CAISO considered the potential impact of the proposal to the consistency between the DAM and RTM?

With the proposal to change the DAM to 15-minute granularity, the proposal has a potential to increase the consistency between the DAM and FMM. However, the optimization objective may be quite different between the DAM and RTM under the proposal, because the products and costs being considered in the optimization can be quite different. This can lead to inconsistency issues between the DAM and RTM and impact the overall market efficiency.

[3] Page 7 http://www.caiso.com/Documents/FinalFlexibleCapacityNeedsAssessmentFor2017.pdf

To increase the consistency between the DAM and RTM, for instance, has the CAISO considered using DA procurement of FRP as an alternative to IRP[4]? SCE strongly recommends the CAISO consider such an option given the two key benefits of (a) a seasoned product, and (b) minimal impacts and externalities.

Under the CAISO's proposal, do virtual bids make bets against the CAISO model?

The CAISO proposal has virtuals bidding quantities against physical resources and load, as is the status quo. However, the CAISO demand forecast drives IRP procurement and commitment which determines the prices against which the virtuals settle. This is clear from the constraint formulations[5]. The first constraint has virtuals determining energy. The second and third constraints have CAISO load forecast and energy determining IRP. Together, these three constraints are simultaneously optimized to determine LMP. Thus, virtuals and the load forecast, together, determine the LMP.

Since the CAISO is not a Scheduling Coordinator, virtuals betting against the CAISO's optimization and settling on prices driven by that optimization is an unacceptable proposal. How does the CAISO address virtual bidding when the virtual is not settling against other market participant decisions but the CAISO's modeling itself? Further, if virtual bids are driving commitment decisions, should they not be allocated BCR?

Advanced questions are premature

SCE believes that topics such as, 15-minute reoptimization, Corrective capacity bidding, treatment of AS self-provision, etc., are premature. Stakeholders are still uninformed of the majority of key details, and more importantly, nothing is set in stone. SCE recommends soliciting stakeholder input on these advanced questions during a later iteration.

Appendix 1

[4] For example, one approach can be procuring the |RT Forecast – RT Actual|, in DA and then reoptimizing in RT.
[5] Three constraints on page 7. http://www.caiso.com/Documents/APPENDIXC-Day-AheadMarketEnhancementsDraftTechnicalDescription.pdf

The Straw paper and the March 7th stakeholder meeting leave many details unaddressed. SCE requests that the CAISO provide these in the next iteration of the Straw proposal. A non-exhaustive list of questions follows[6]:

1. What is the empirical system impact, system MW and system dollar cost, of moving from hourly to fifteen minute Day Ahead (with a combined IFM & RUC, or at the least the impact just from hourly → fifteen-minute)[7]?
    a. How often is the forecast accurate enough to benefit from the additional granularity?
2. What is the incremental empirical system impact, system MW and system dollar cost, of implementing the imbalance reserve product (IRP) in addition to the hourly → fifteen-minute change?
    a. What are the details proposed for procuring the IRP? Specifically, what is the defined uncertainty that needs to be mitigated?
    b. What is the range (specific upper target and specific lower target) of MW to be met, the percent of uncertainty to be met, and the sample of days to be used to determine the need? The CAISO should illustrate using both forecast load and bid-in load.
        i. Physicals:
            1. How does the range move over time (different days)? Does the range stay constant or does it vary?
            2. If there is no bid-in load but only a load forecast, what energy schedules come from the market?
        ii. Physicals and Virtuals:
            1. How do Virtuals Bids play into securing baseline generation?
            2. How do Virtual Bids affect the IRP procurement range?
            3. What are the details of cooptimizing in DAM with Virtuals given that the existing IFM+RUC process does so sequentially?
    c. Will the IRP be solely procured in the DAM with none of it procured in the RTM?
    d. Locational vs Zonal:
        i. Will IRP be procured locationally? How does this interact with Corrective Capacity? With a more granular locational procurement, would it not be able to substitute for Corrective Capacity?

[6] The following questions may not completely address every detail necessary to properly understand the mechanics of the proposal but they are meant to serve as a starting point.

[7] Along the lines of empirical analysis on Figures 8 and 9 of the Straw. Figures 8 and 9 show capacity differences due to the status quo but do not show (a) the portion of those differences that would be addressed by changing from hourly to fifteen minutes and (b) the cost impact from addressing those differences.

ii. Will Corrective Capacity change AS procurement to nodal, rather than zonal? If so, will FRP procurement also become nodal?

3. What is the reduction in RT price volatility, frequency, MW, and dollar cost, from each incremental change, first from the forecast error minimization (hourly → fifteen-minute) and then from uncertainty minimization (IRP)[8]?
    a. What is the expected impact on DA energy prices, especially on high load/peak days?
4. Consider the hypothetical scenarios, where the CAISO has a:
    a. 100% gas resource fleet.
    b. Substantial amount of storage resources in the fleet.
    c. Fleet of non-conventional resources that are dispatchable.

    Does the CAISO need the IRP in any of the above scenarios? How is the procurement range a function of fleet capability?
5. How does the DAM optimization procure IRP and co-optimize with Energy, AS, and Corrective Capacity?
    a. Does the DAM optimization only consider capacity bids of IRP and ignore the energy costs of the IRP resource? Will the system end up with a lot of high cost energy bids in the RTM?
    b. Can a resource bid the same portion of its capacity for energy, AS, and IRP?
    c. Does BCR apply to an entire day's procurement of IRP from a resource?
    d. Is the bid cap for IRP proposed at $247? If not, then what is the cap?
    e. What is the specific penalty price proposed for IRP?
6. How does the CAISO account for double-payment for RA capacity by allowing RA resources to bid above $0 for IRP? Are there not existing rules to prevent EIM entities from leaning on RA?
7. How does IRP interact with Contingency Reserves, Corrective Capacity, AS, and FRP in Real Time?
    a. The DAM optimizes to minimize the cost of energy, AS, corrective capacity, and IRP. The RTM continues to minimize the cost of energy, AS, FRP. Therefore, DAM and RTM are not clearing against same categories of bids. How will the CAISO address the structural differences between the DAM and RTM?
    b. Can IRP substitute for every RTM product?
    c. How are prices set by IRP when it substitutes for RTM products?
    d. The CAISO proposal would eliminate the RAAIM provisions in RT. It appears that this may be based on the CAISO's ability to either dispatch as energy or

[8] Can the CAISO quantify or, at the least, directionally address (what is the specific intent of the IRP?) this question?

imbalance reserves. What will the CAISO expect from a resource that is an RA resource but was not picked up by either the DA energy or imbalance reserve optimization? Will such a resource still have a must offer obligation to the CAISO in RT pursuant to the current RA tariff? If so, what will be the consequences of failing to perform that must offer if RAAIM is not applied in RT?

   e. FRP is procured based on a demand curve, thus, will the RTM may forego an overall cheaper FRP resource since the DAM has already procured a lower capacity-cost IRP resource?
   f. Does IRP face buyback penalties if a resource cannot perform? How is the non-performing resource replaced? Who gets the bill for the cost of replacement?

8. Is hourly bidding available for interties? If the resource is in the money for some intervals but out of the money in others, how will the CAISO deal with this? How would BCR work?
9. How do the details of cost allocation and settlement work?
   a. How is the imbalance reserve deviation price/rate (for Tier 1) calculated?
   b. What are the details of cost allocation to Virtual Bids?
10. Will the CAISO provide a process walkthrough from procurement through cost allocation settlement using simulated DAM bids and RTM bids?
11. What resource types are eligible to provide IRP? Can wind and solar resources provide IRP?
12. How will the upper economic limit (UEL) work for bid-in demand? Will setting a UEL prevent additional demand to be purchased for a given interval by capping the bid curve? If so, that would seem to effectively neutralize the bid curve above the UEL.
13. How will unit decommitment work? Will the unit decommitment process consider both peaks and DA awards during its decommitment decisions?
14. Will the 15-minute granularity change for bidding be required (i.e. no hourly block option for internal resources)? If optional, for how long until required?
15. How will STUC work with this change? Is there any thought to changing the time horizon for STUC?