California ISO (CAISO) Day-Ahead Market Enhancements

Issue Paper and Straw Proposal

March 7, 2018 Meeting

Submitted by	Company	Date Submitted
Victor Kruger vkruger@semprautilities.com 858-654-1619	SDG&E	3/21/2018

San Diego Gas & Electric (SDG&E) respectfully submits the following comments in response to the California Independent System Operator (CAISO) request for stakeholder input on Day-Ahead Market Enhancements Issue Paper and Straw Proposal meeting March 7, 2018.

SDG&E is generally supportive of the 3 main elements proposed as day-ahead market enhancements:

• 15-minute scheduling granularity in Integrated Forward Market (IFM)

• Day-ahead (DA) imbalance reserve product

• Combined Integrated Forward Market and Residual Unit Commitment (RUC)

However, the devil is in the details and not enough detail is available at this early stage to make firm conclusions. Additional clarifications and examples are needed to alleviate SDG&E's concerns as the stakeholder process proceeds.

Supportive of:

Increasing DA award granularity from hourly to every 15-minutes should greatly reduce interventions in Real-Time (RT) particularly during high ramp periods since resources can be committed at the beginning of any 15-minute interval DA. Also allows known needs (including uncertainty) to be handled more transparently and efficiently in the more robust and liquid DA market. Addressing uncertainty earlier allows better co-optimization with other needs and minimize shortfalls in RT.

SDG&E supports combining RUC and IFM. RUC's lack of ability to de-commit resources support its merger with IFM to co-optimize everything (energy AS) in the DA market.

Imbalance reserves procured relative to the CAISO net load forecast is an improvement from using bid in demand (that has systematic problems particularly with Variable Energy Resources (VERs)). Forecast differences and uncertainty combined into a total DA imbalance need in both the up and down direction appears to have significant benefits. Like sufficient RT bids should be ensured in the vast majority of situations to meet expected imbalances that materialize in RT and out of market RT interventions should be significantly reduced.

Volumetric price differences will still be handled by the bid curve and price differences due only to intra-hour changes (at the same volume) are relatively small DA. The added complication of moving from hourly to 15-minute DA bidding doesn't appear justified. This assumes that DA the hourly average cost at a given volume is close to the highest 15-minute expected cost so maintaining hourly DA bidding should not cause any major problems.

Supply and demand both drive imbalance need so costs should be allocated to supply and demand that create the need for imbalance reserves to be utilized.

Shaping imports with 15-minute granularity can help address the CAISO's known ramping needs DA leaving mainly unknown needs to be handled in RT. There is the potential for hydro resources to provide significant shaping at a cost-effective price.

Imbalance reserves can be used in the RTM for many needs like energy, AS, flexible ramping product, uncertainty or corrective capacity.

Concerns With:

Time-frame for implementation appears tight. End to end testing, market simulation and perhaps parallel testing is needed. This will have the greatest impact on systems we have experienced in many years. A reasonable set of milestones must be set and the schedule should reflect some unexpected problems. Many initiatives recently have experienced significant delays from optimistic schedules.

Resources without imbalance reserve awards can elect not to bid into the real-time market but can still be exceptionally dispatched. Full impacts of this within the RA framework and on RAAIM may cause thorny problems.

Are new protections needed against marker power because of the increasing needs DA caused by the new imbalance reserves needed? Imbalance reserve awards could significantly move clearing up the bid stack. Also reserving flexibility in one direction may reduce available flexibility in the opposite direction (simultaneously with increasing the need in that opposite direction). Over generation periods could be difficult to resolve in both directions DA with the expected resource fleet. This could lead to impacts on allowed self-schedules.

Seamlessly integrating scarcity event penalty pricing in DA with 15-minute granularity could be a challenge. Imbalance reserve penalty price based on RT flexible reserve product penalty price may not be optimum.

The possible impacts if self-provision of imbalance reserve is allowed. The current proposal does not allow self-provision but there will be pressure to allow it and it must be evaluated fully for consequences.

RA capacity bid price > $0 for imbalance reserves is a major change from the current RUC process. Also use limited resources with opportunity cost adders will complicate bidding and market power

mitigation. RA resources will effectively be selling the same capacity twice. Once before DA as RA and DA as imbalance reserve.

HASP reversal rule will still apply but is it enough?

Replacement processes for all current uses of RUC need to be developed. Like to keep generation on across transition between days and any other things RUC is currently used for.

SDG&E has some concerns about this proposal, one of the main concerns centers around the settlement of these features and them being properly designed into the existing Bid Cost Recovery (BCR) settlement process. We would like some clarification and detail around the different BCR component (Day Ahead, Real Time, Revenue & Costs) impact for the given scenarios outlined in the proposal.

If a resource will be paid for any imbalance reserve award given in DA Market and that *imbalance reserve bids will be guaranteed through the resource's day-ahead bid cost recovery (BCR) calculations, which will also include any revenues earned through imbalance reserves awards.* Does this mean there will be a revenue and a respective cost component in the BCR calculation for the award imbalance reserves? Also, for any revenue earned through the imbalance reserves awards, will this be accounted for in the revenue portion of DA or RT BCR?

If a resource doesn't meet its MOO and is hit with a No Pay, what are the BCR implications here? Will it be a revenue component and will it be included in the DA or RT BCR calculation?

If a resource is awarded imbalance reserve in the day-ahead market and deviates from the 15-minute or 5-minute dispatch, the resource will be charged for the costs associated with the uncertainty movement allocation of the resulting flexible ramping product (FRP). What are the BCR implications here? Because this would occur in RT, will this be included in the RT Revenue or Cost portion of the BCR calculation?

Lastly, has any consideration been given to the idea that these enhancements could possibly create mal incentives which could lead to manipulation (through certain bidding strategies) of settlements, specifically BCR. If so how does CAISO plan to deal with this potential issue (ie mitigation measures?).

Overall, we tend to think BCR is very complicated already, and if CAISO wants to move forward with these enhancements, we would like to see some examples with numbers of how each of these scenarios would flow through the BCR calculation to get comfortable with these changes.

Clarifications and Examples Needed:

1. Hourly block schedules for internal and intertie resources
2. Procured by sub-regional zones?
3. RA resources will no longer have a real-time MOO unless awarded a day-ahead schedule, AS, or imbalance reserve award.
4. Virtual supply and demand examples including virtual import/export and VER forecast errors.
5. Based on net deviations by scheduling coordinator but at what level for complex SC relationships.
6. Two-tier cost allocation a)imbalance reserve deviation b)measured demand has to be explained under many circumstances.

7. Proper incentives? Resource does not meet its MOO: – No pay provisions • Resource meets its MOO but deviates from dispatch: – Charged for costs associated with flexible ramping product (uncertainty movement) – No rescission of imbalance reserve payments
8. Examples of UEL CAISO/SC forecast and settlements -Scheduling coordinators provide fifteen-minute upper economic limit (UEL) for bid-in load. • Scheduling coordinators provide fifteen-minute upper economic limit for VERS. – IFM will use CAISO forecast or SC submitted UEL (determined by SC) – If SC uses their own forecast in IFM, they can still use the ISO forecast in the RTM. – RTM will use CAISO forecast to clear the market, but SC can submit UEL for settlements
9. Impacts of Imports/Exports not tagged, VER not meeting IFM schedule

CAISO Questions:

Will existing policies for exceptional dispatches or capacity procurement mechanism need to change? Yes. But how cannot be determined yet until full details of the proposal are know.

No CPM payment for RA resources that are exceptionally dispatched in real-time? SDG&E has not finalized an opinion on this yet.

Congestion revenue rights will now be settled based on 15-minute IFM schedules instead of hourly schedules. Does CRR settlement rule need to be reviewed? Yes (see section on BCR for similar concerns).

How will intertie deviations be fully addressed? SDG&E has not finalized an opinion on this yet.

How will D2, D3 and 72 hour RUC be impacted? SDG&E has not finalized an opinion on this yet.

When will extra long start resources be committed? SDG&E has not finalized an opinion on this yet.

Initial SDG&E Questions:

Should greater value for fast start units be taken into account in awards and/or clearing price?

Should have testing and qualification of imbalance reserve resources. Also certified imbalance capacity like AS?

Ramp deliverability of imbalance reserve resources complicated by MSG dead-bands and transition times. How will this be handled?