CALIFORNIA ISO
FLEXIBLE RAMPING PRODUCTS

COMMENTS OF THE STAFF OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION FOLLOWING THE OCTOBER 2, 2012 WORKSHOP

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October 12, 2012

Overview

The Staff of the California Public Utilities Commission (the CPUC Staff) appreciates this opportunity, following the recent October 2, 2012 technical workshop, to comment on the California Independent System Operator's (ISO's) proposal for deploying new Flexible Ramping Products (FRP) within the overall electricity market design and operations. The year-long effort to design FRP has illuminated the complexities of designing a bid-based ramping product, which is an unprecedented hybrid of energy and capacity. The CPUC Staff appreciate the ISO's efforts to evolve the proposal over multiple iterations, which we believe improved the design and stakeholder understanding of the product.

Nevertheless, with the recent addition of the Integrated Forward Market – Residual Unit Commitment (IFM-RUC) integration proposal, the overall proposal is now too complex to be committed to deployment in the near term. The conceptual description and illustrative examples are not sufficient to allow the CPUC Staff to fully assess and support the overall proposal including IFM-RUC integration. Furthermore, the overall proposed market changes would strongly interact with other market reforms that are required or being considered, and this interaction needs to be more fully evaluated. Therefore, CPUC Staff recommend staging the proposed reforms as discussed below.

Real Time FRP deployment is the most basic objective of this initiative and should be pursued first, ahead of other parts of the proposal.

If the FRP initiative's primary goal is, as the CPUC Staff understands it, to make operational flexibility more efficiently and transparently available to the system operator, then deployment of Real Time (RT) FRP should be the initial and most urgent focus of this initiative. By itself, designing and deploying RT FRP presents nontrivial challenges and requires innovative market

changes. The CAISO should address and resolve these challenges first, separate from the remainder of the proposal. If RT FRP encounters significant problems or needed revisions, it is better to work these out before trying to combine RT FRP with DA FRP and IFM-RUC integration.

In contrast, the IFM-RUC integration was only lately added to the growing scope of the proposal. Although it appears promising, it has not been sufficiently vetted or analyzed. It represents too broad, fundamental and complex a change to be finalized and combined with FRP for rapid rollout, and should be addressed via a separate initiative process. Such a process should include consideration of how IFM-RUC integration should be coordinated and timed with the broader set of market reforms under consideration.

Furthermore, implementing DA FRP adds to the complexities presented by RT FRP, and depends on the recently proposed IFM-RUC integration. DA FRP should be delayed until RT FRP is deployed and assessed (likely with valuable lessons learned), and until the nature and timing of IFM-RUC integration is clarified.

Issues associated with RT FRP provide more than enough challenge – before adding DA FRP or IFM-RUC integration. For example, important challenges that the CAISO should address during finalization and implementation of the RT FRP proposal include the following.

- The CAISO will need to define exactly how minimum and maximum FRP up and down procurement targets are set and updated, for different kinds of system circumstances.
- The CAISO will need to specify how the novel FRP demand (value) curves are established, including how the curves will be varied for different system circumstances, updated over time and pragmatically adjusted based on actual market experience. As the CPUC Staff has emphasized in previous comments, such pragmatic adjustment is essential and should be built into the FRP design and implementation. In adjusting such curves, it is essential to consider the effect of FRP procurement on not only potential power balance violations, but also on prices and costs for all co-optimized market products.
- FRP is a hybrid product and is neither purely energy nor capacity. The hybrid nature of the product has been a major source of design complexity and even confusion. It contributes to concerns regarding market power, gaming, compensation and economic efficiency. It is reflected in the recent Settlement in which the *FRC* pricing formula appears to address tradeoffs between FRC and energy revenues. Also, Appendix A to PG&E's September 25 FRP comments appears to in part illustrate concern regarding the interaction of energy bids/dispatch with FRP procurement, in impacting overall market efficiency. The changing proposals and debate regarding if and how FRP should be convertible to or from more conventional ancillary services further illustrate the unique hybrid nature of FRP. Thus, in finalizing and testing product design, and in subsequent post-deployment monitoring, the CAISO should more fully consider the implications

and consequences of the "hybrid design", including implications of not explicitly factoring energy bids and probability of energy provision into FRP procurement or commitment decisions.

- The proposed FRP design presents unprecedented cost allocation issues that will need to be addressed in final product design and/or in post-deployment evaluation. These include whether the separate methods for allocating FRP costs *among* versus *within* three market segments are ultimately consistent with each other (*among* vs. *within* method), and with cost causation. How variable energy resources' forecasting accuracy, scheduling and bidding affect their cost exposure and the need for (and efficiency of) FRP remain to be determined. An important practical cost allocation issue concerns how existing scheduling and contracting practices not developed in anticipation of FRP may need to adapt. On this latter point, the CPUC Staff make a specific recommendation below.
- We have heard that the additional optimization constraints imposed by FRP can theoretically increase overall market product prices when considering an individual dispatch interval but can decrease (and especially make less volatile) market prices and costs across multiple intervals when inter-interval ramping linkages are explicitly included in the co-optimization. How this actually plays out remains to be tested, certainly via deployment, but preferably also through more comprehensive pre-deployment analysis or simulation, as recommended by other stakeholders.
- Whether there are locational congestion-driven limitations in how procured FRP can actually be utilized remains to be, and should be, empirically monitored and assessed in any new RT FRP market.
- Looking beyond product design, we strongly advocate addressing the above issues via detailed and transparently reported market monitoring and assessment following deployment.

Finally, before the final RT FRP proposal and implementation timelines are established, the CAISO must consider and discuss with stakeholders how other potential RT market changes would impact and be integrated with RT FRP, or make it desirable to delay FRP in the interest of more efficient integration of different reforms. Such other reforms include those implied by FERC orders or by market design priorities being teed up, including 15-minute intertie schedules, 15-minute RT dispatch and beyond-5 hour RT look-ahead optimization. Also, the outcome and implications of a lower DEC bidding floor and its possible extension to PIRP resources should be considered. If it turns out to be more efficient to closely integrate RT FRP with other RT market reforms, then the CAISO might consider modifying final design and deployment accordingly.

In summary, the CPUC Staff recommend the following.

- The CAISO should deploy only RT FRP first, given the number of market innovations and challenges entailed, and only *if* this would be more efficient than waiting to integrate and harmonize FRP with potential RT market reforms on the horizon (such as 15-minute RT dispatch) that could significantly change the role of FRP.
- Second, the CAISO should examine IFM-RUC integration in a separate initiative, giving considerable attention to interaction with other market reform priorities and providing more detailed analyses or simulations of potential performance.
- Third, the CAISO should pursue DA FRP only after RT FRP has been deployed and tested, and after the status and timing of IFM-RUC integration has been clarified.

The CPUC Staff also have a specific recommendation regarding FRP cost allocation, as follows. The CPUC Staff have obtained information from the IOUs indicating that of about 18,000 MW of contracted wind and solar resources, a minority (but not insignificant) portion equal to slightly over 10% are (or would be) scheduled by an entity other than the IOU. These non-LSE scheduling coordinators would be directly allocated FRP costs under the proposed methodology. Furthermore, there appears to broadly be uncertainty or ambiguity under current contracting, regarding how new operational costs such as for FRP would be allocated between the generator and the IOU. It appears that this issue is likely to be subject to future consideration and negotiation. Expectations and experiences regarding forecasts and their use could also be relevant.

The CPUC Staff recommends that any FRP deployment include a phase-in period during which the cost allocation methodology is applied but its results are provided on an informational basis only. During this period, FRP costs would be allocated similarly to how ancillary services costs are allocated, or else similarly to recently-settled allocation of FRC costs. This would provide a useful "breathing space" opportunity for adjusting scheduling, forecasting and contracting practices. It would also provide an opportunity for the CAISO to adjust the cost allocation methodology if necessary.

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