

**CALIFORNIA ISO
FLEXIBLE RAMPING PRODUCTS**

**COMMENTS OF THE STAFF OF THE
CALIFORNIA PUBLIC UTILITIES COMMISSION
ON THE DRAFT FINAL PROPOSAL**

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April 23, 2012

The Staff of the California Public Utilities Commission (the CPUC Staff) appreciates this opportunity to comment on the California ISO's (CAISO) *Flexible Ramping Products Draft Final Proposal* ("Proposal") posted April 9, 2012. The CPUC Staff support the objectives and general framework of the Proposal and appreciate the CAISO's refinements to the Flexible Ramping Products (FRP) over several iterations. The CPUC Staff recommends that the CAISO further revise the final proposal before submitting it for CAISO Board approval as follows:

1. The final proposal should expressly incorporate transparent post-deployment monitoring of FRP performance, especially regarding important design parameters that may require adjustment (such as the portion procured in the day-ahead market, or the weighting of potential energy costs).
2. The final proposal should defer regional bifurcation of FRP markets until after assessment of initial FRP deployment experience.
3. The final proposal should increase the influence on FRP procurement decisions of the FRP bidders' energy bids in the real time (RT) markets (e.g., caps and floors).
4. The final proposal should not adopt the newly proposed FRP demand curve for procurement relaxation without additional justification of the selected curve parameters including realistic illustration of how the curve would work in practice.
5. The final proposal should revise the current No-Pay Proposal because it provides insufficient penalties and disincentives for FRP non-performance.
6. FRP design characteristics and deployment experiences such as procurement amounts and costs must be explicitly factored into and reconciled with proposals and studies regarding longer term flexibility needs.

The CAISO should also recognize that FRP cost allocation and its timetable must be manageable for existing power purchase contracts or their feasible amendments, going forward.

1. Post-implementation assessment, including adjustment of key design parameters, is essential to ensure an efficient product and prevent gaming.

The FRP proposal for a complex and unprecedented new market product includes parameters that are critical for achieving economically efficient implementation and avoiding potential for gaming. Such parameters include: the portion of FRP requirements procured in the day-ahead (DA) market; the FRP bid cap; the formula for accounting for potential real time (RT) energy dispatch costs when selecting DA FRP bids; the demand curve for relaxing FRP procurement requirements as a function of procurement cost; and the magnitude of the penalty for non-performance. The CPUC Staff do not oppose any of the above parameters in concept.

The particular parameters used to implement FRP are critical to make the product work efficiently and fairly, but are also difficult to determine accurately in advance of deployment. It is thus essential that the CAISO, in its tariff provisions and supporting business practices, explicitly provide for transparent and thorough analysis of post-deployment performance of FRP. The CAISO does state that “[a]ll threshold values, penalty prices, and other parameter settings ... are also tentative and subject to changes in the ISO’s parameter tuning process.”¹ But this is not explicit enough. The final proposal should expressly set forth how the parameters will be adjusted to reflect the post-implementation monitoring and assessment.

Furthermore, the post-implementation reporting should include data and statistics on FRP procurement amounts (by time of day and seasonality), prices and costs, as well as the deviations calculated for market participants as the basis for allocating FRP costs (within confidentiality requirements). The success and efficiency of bid-based FRP depends heavily on efficient bidding behavior of market participants, which requires adequate quantitative insights into the functioning of FRP markets, including payment opportunities and cost exposures. This information is also essential for informed self-provision of FRP, which could add to robustness of FRP markets because (as the CPUC Staff understand it) self-provision would consist of selling FRP to *financially* hedge the seller’s potential FRP cost exposure rather than to physically balance FRP provision versus FRP responsibility.

¹ CAISO Draft Final Proposal, p. 9.

Finally, in addition to the recently proposed regional bifurcation of FRP markets, future refinements may include FRP cost allocation to load based in part on deviations rather than entirely based on load ratio shares and FRP cost allocation to resources based on summing only undesirable deviations in the same direction as total system or total supply deviation, which could encourage an efficient mix of resources.

2. The recently addition of regional FRP procurement and cost allocation should be omitted from the final FRP proposal.

The draft final proposal introduces a “regional requirement” for FRP procurement and cost allocation (when warranted by congestion). This new feature—which appears for the first time in the fifth version of the FRP proposal and after 5 months of stakeholder discussions—is not fully explained, has not been vetted by stakeholders, and should be omitted from the final proposal submitted for CAISO Board approval.

Regional procurement can significantly increase the overall complexity and challenges of implementing FRP and assessing deployment results. It increases the risk of economic inefficiency and that FRP markets will be thin and vulnerable to gaming. Further, it has not been demonstrated that the system requires a regionally procured flexibility product in the near future. Accordingly the CAISO should assess the initial FRP deployment results and their implications for a regionally disaggregated product before deciding to procure FRP and allocate their costs on a regional basis.

Thus CPUC Staff request further description and analysis by the CAISO of the need, design and consequences for regionally disaggregated FRP. This includes the criteria that would trigger such a market bifurcation, and the frequency with which this might occur. But regionally disaggregated FRP should not be included in the current proposal given the phase of the FRP design and rollout.

3. The final proposal should increase the influence of real time energy bids on the selection of day ahead FRP awards.

The selection of DA FRP providers (through DA FRP awards) should be influenced by both the FRP bids for ramping capacity reservation and the energy costs that would be incurred if the procured flexible resources are dispatched for energy in RT. The providers selected will influence the pool of resources available to provide RT energy, and it is appropriate to require

that DA FRP bids be accompanied by RT energy bid caps and floors. The CPUC Staff disagree that requiring DA FRP bidders to submit RT energy bid ranges is overly burdensome or risky for FRP providers. Those providers can select whatever bid range they wish, weighing risks of overly wide versus overly narrow ranges.

The Proposal's approach to factoring potential RT energy costs (if dispatched) into IFM co-optimization that includes selection of DA FRP providers undervalues the importance of RT energy bids. It may also be necessary to consider a need for DA energy bid caps and floors for potential DA FRP providers that have default (zero) FRP bids (*i.e.*, FRP price takers).

However, if RT energy costs are considered in DA FRP procurement only to the extent currently being proposed (which is by adding to a resource's DA FRP bid the product of 0.025 and the \$/MWh amount by which the resource's submitted RT energy bid cap exceeds \$300/MWh for purposes of DA market optimization) then this inadequately weighs the importance of potential RT energy costs. Instead, the cost attributed to DA FRP bids for purposes of selecting DA FRP providers should equal the FRP bid plus the product of an "energy weight" factor ("E") and the bidder's submitted cap on its RT energy bid. This would account for the full range of potential RT energy bids, rather than considering only those above \$300/MWh.

The E factor could reflect the statistically estimated probability of the DA FRP resource being dispatched for RT energy, but could also be based on other considerations. Like other key parameters, an E factor would need to be fine-tuned based on deployment experience. For FRP *down*, the arithmetic would be reversed such that the effective cost penalty added to the DA FRP capacity bid would reflect the energy cost *savings* if the DA FRP resource were to be dispatched down in RT. (For a negative RT energy bid, the potential for being dispatched down in RT would be represented as an added energy cost, rather than cost savings, for RT dispatch downward.)

4. FRP procurement relaxation is a good concept, but the demand curve parameters should be supported by analysis and post-implementation monitoring.

The CPUC Staff agree that it is appropriate to relax FRP procurement requirements in the event of high FRP costs. Still, it is not clear if the specific FRP demand function that the CAISO

proposes (which was first presented in the draft final proposal) represents the best starting point or what consequences may follow from its implementation.

The demand function is one of the “design parameters” that will need to be evaluated and adjusted based on deployment experience, and it may need to vary for different conditions (such as during system ramp or peak load periods). It would be helpful if the CAISO demonstrated the cost consequences of using the proposed FRP demand curve on FRP procurement before submitting a final proposal for Board approval. For example, the demonstration should estimate consequences in the event that FRP up amounts and prices attain levels and distributions experienced for the past few months’ deployment of the Flexible Ramping Constraint.

5. The current no-pay proposal provides insufficient penalties and disincentives for FRP non-performance and should be revised.

The draft final proposal reduces the originally proposed penalty for FRP non-performance for not following RT dispatch instructions up or down consistent with a flexible ramping award. In the current proposal, a non-performing FRP provider would only forfeit FRP capacity payment for that portion of the flexible ramping award that was not provided when called for. Thus, if a resource has offered and been selected for 30 MW of 5-minute ramp and only provides 15 MW of ramp when dispatched in RT, the resource would still be paid for 15 MW of FRP capacity. If the resource was not called, or was only called on for 15 MW or less of ramp, it would receive its full payment for 30 MW of FRP—even though it was physically unable to provide more than 15 MW of ramp.

The CPUC Staff believe that the current no-pay proposal does not create sufficient penalties or disincentive for bidding (and being paid for) FRP capability that is not actually available when needed. The possibility that there may be a need to adjust the penalty for demonstrated circumstances beyond the FRP bidder’s control does not warrant the proposed penalty limitation, and the prospect of eventual disqualification from providing FRP in the event of repeated non-performance is not a sufficient mitigation measure. Disqualification might occur only after repeated awards for market-distorting phantom FRP capability. Also, disqualification may represent an inefficient administrative solution when stronger no-pay incentives could economically motivate an FRP bidder to more accurately signal its FRP capability, which still might be usefully greater than zero. Thus, the CPUC Staff recommend that the CAISO increase

the no-pay penalty to twice the value of the non-delivered FRP capacity, to create a stronger economic disincentive for non-performance/over-selling.

6. Assessments of forward system flexibility needs should fully consider the final FRP design characteristics and all post-deployment analyses.

While the flexible ramping products created through this initiative are intended to meet short-term operational flexibility needs in an efficient manner, they will also have direct impacts on the analyses and proposals to address longer-term system flexibility needs. Identification of longer-term needs could have substantial and potentially costly implications for infrastructure investments and tradeoffs looking out years from today. These longer-term issues entail considerable uncertainty regarding future conditions such as resource mix and operations, and are the subject of extensive, sophisticated studies.

Thus, it is important to recognize that FRP design characteristics, requirements and costs will provide unique empirical information relevant to the analyses and discussions of long-term needs. Therefore, FRP design characteristics and deployment experiences such as procurement amounts and costs must be explicitly accounted for and reflected in ongoing proposals, discussions and analyses of the longer-term flexibility needs. Further, if FRP (or FRP plus regulation) provides only part of longer term flexibility requirements being discussed and analyzed, then it is critical for the CAISO to clearly demonstrate how FRP fits into the *overall* long-term flexibility picture, including how much additional flexibility (e.g., beyond FRP and regulation) is being considered and why. It is not efficient or even workable for stakeholder conversations about short term FRP and longer term flexibility needs to be disconnected from each other.

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