

California Independent System Operator

**Comments of the California Wind Energy Association
on the July 11, 2012, CAISO Draft Proposal on
Flexible Ramping Product Supplemental: Foundational Approach**

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INTRODUCTION

The California Wind Energy Association (“CalWEA”) appreciates the opportunity to comment on the California Independent System Operator Corporation’s (“CAISO”) Revised Draft Proposal on Flexible Ramping (FR) Products dated August 9, 2012. The CAISO Proposal lays out additional new fundamental concepts related to FR product design, procurement and cost allocation and specifically focuses on further eliminating potential “double-pay” opportunities for the FR product procurement, incenting self-scheduled resources to offer flexibility into the CAISO market and offering opportunities for renewable resources to offer their flexibility into the FR product market.

As before, our comments consist of three sections: Section I offers our broad comments on the overall FR product procurement and cost allocation processes, Section II offers our specific suggestions for making the FR procurement more efficient, and Section III offers our specific comments on the CAISO proposed FR cost determination and allocation schemes.

I. THE CAISO PROPOSAL FOR A NEW FLEXI-RAMP PRODUCT IS NOT CONSISTENT WITH INDUSTRY PRACTICE

To start, we would like acknowledge CAISO's improvements in its latest FR product Proposal in the following areas:

- Further eliminating double-pay opportunities when procuring FR products;
- Providing an incentive, albeit a mild one, to self-scheduled resources to offer flexibility to help with the system's ramping needs; and
- Allowing renewable resources, whether in PIRP or otherwise, to participate in the FR market. In that regard, CalWEA especially commends the CAISO for not only allowing PIRP resources to offer FR products for select hours but also for these resources to remain in PIRP for those hours that their offered FR product was not awarded by the CAISO.

However, as we have stated on numerous occasions in the past:

- CalWEA is still not convinced that CAISO needs to introduce a new product such as FR product for the purpose of efficiently integrating renewable resources;
- CalWEA is not aware of any other Balancing Authority (whether an RTO or a traditional utility) that has introduced or has announced any intention of introducing such a product;¹
- CalWEA is concerned that CAISO has not presented any compelling arguments that it needs to introduce the FR product rather than deal with ramping need as a constraint

¹ As we have stated before, the two BAs with the largest penetration of Variable Energy Resources (VERs), namely the Midwest Independent System Operator (MISO) and the ERCOT ISO, have significantly higher penetrations of VERs (up to 3 times more) than that of the CAISO and a significantly lower availability of flexible resources (their conventional fleets consist mainly of inflexible nuclear, coal and combined cycle plants), yet these ISOs have not found it necessary to introduce a new product to address the short-term ramping needs of their systems. Instead, they are cost effectively accounting for system ramping needs as a requirement (constraint) in their various forward and real-time market runs.

as other major BAs with much deeper penetration of renewables intend to do – it appears to us that the only motive behind the introduction of FR product is an easier allocation of the cost of managing system ramp needs; and

- Most importantly the CAISO has failed to consider the fundamental design changes to its market that are necessary to more efficiently address the rapidly changing generation landscape in California (and the need for better ramp management), which should be done before thinking about new products such as FR. Once again, CalWEA believes that the critically necessary market changes that the CAISO should consider are:

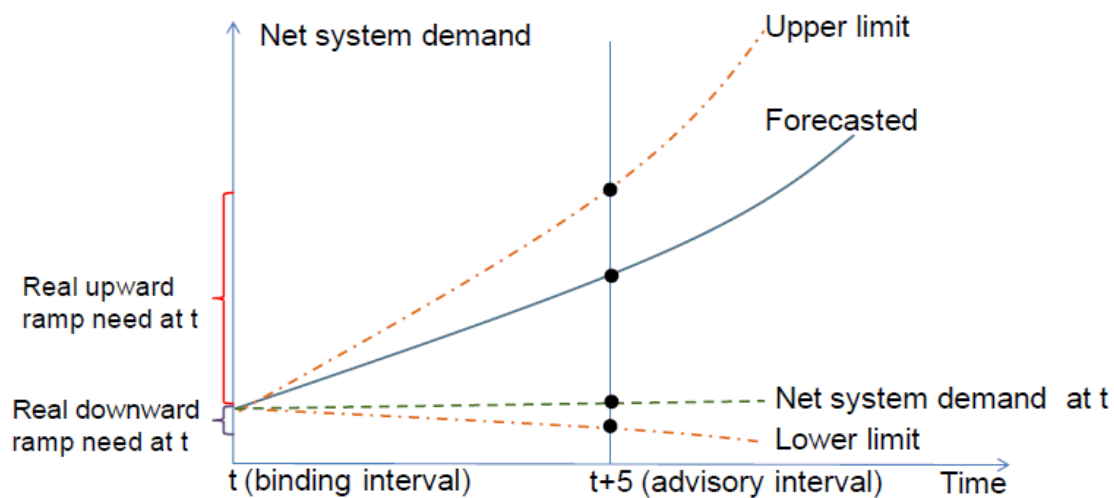
1. Introduction of multiple forward markets close to real-time (e.g., Day-Of markets);
2. Allowance for more granular scheduling of resources for system operation (e.g., 15-minute scheduling) closer to real-time for all generation and demand resources; and
3. Provision of stronger incentives, both penalty and rewards, for all resources to more actively offer the flexibility inherent in their characteristics rather than act on fixed self-schedules.

Finally, CalWEA recommends that the cost of providing system ramping needs should not be allocated to Load Serving Entities (LSEs) based simply on their load share. On the contrary, as we have articulated before, we believe that the system ramping costs, whether determined through FR procurement costs or by isolating the cost of addressing the ramping constraint in the CAISO's markets, should be attributed to the sources of such flexibility need. However, there are two important caveats to this CalWEA position:

1. Ramping costs should be accurately quantified and clearly attributed to the sources of such costs. We have yet to see a proposal from the CAISO or any other party which would achieve either of these two goals.
2. The ramping cost attributed to a generation resource, whether a VER or conventional resource, should be directly collected from the LSEs that are taking the output of that resource. For accounting purposes, this would be achieved via the Scheduling Coordinators (SCs) that represent those LSEs – thus, if an SC represents a generation resource only, it should not be allocated any cost. Along with this requirement, we believe that the CAISO should publish an estimate of the cost of integrating specific renewable technologies in different parts of its footprint so that such costs could be used by LSEs in their Least Cost Best Fit (LCBF) resource procurement evaluation process.

II. FLEXIBLE RAMPING PRODUCT PROCUREMENT

In its latest proposal, the CAISO offers one solution for determining the magnitude of FR-up (FRUP) and FR-down (FRDN) products that it would procure as part of its RT market. Based on that solution, at time t , the CAISO would procure as much FRUP and FRDN products to cover not only the ramp needed to cover the energy-forecasted (expected) system ramp need but also the unexpected upward and downward ramp at the next RT market time interval (for example at $t+5$ minutes). These amounts are presented the “Real Upward Ramp Need” and “Real Downward Ramp Need” at time t in the graph below:



Real ramping need:

Potential net load change from t to t+5
 (net system demand t+5 – net system demand t)

CalWEA understands the CAISO’s reasoning behind recommending this approach, however, we recommend the following two modifications:

1. At the time of dominant unidirectional system ramp needs (ramp-up during early morning and ramp-down during late afternoon hours), CAISO should procure ramping needs only in the direction of the dominant ramp. In other words, during morning ramp-up hours, CAISO should procure only the FRUP product and, during late afternoon hours, CAISO should procure only FRDN. We believe procuring FR products in the opposite direction to the dominant ramp during these times will be a waste of resources and money. This arrangement would also allow FR product procurement to be limited to the unexpected ramp need, as opposed to the “real ramp need,” which should save significant ramp procurement costs.²

² In the figure above, the unexpected ramp need at time t will be the difference between the upper ramp limit at time t+5 (which is the same as the “real upward ramp need” at time t) and the forecasted dispatch point at time t+5.

2. For every RTD interval that is outside the dominant ramp periods, CAISO should optimize the procurement of FRUP and FRDN products by comparing the two options that would exist for FR product procurement:
 - a) Option 1: Procure “real upward ramp” and “real downward ramp” for the time interval; or
 - b) Option 2: Procure “real upward ramp minus forecasted ramp” and “real downward ramp plus forecasted ramp” if the ramp is forecasted to be upward or “real upward ramp plus forecasted ramp” and “real downward ramp minus forecasted ramp” if the ramp is forecasted to be downward.

Then, CAISO would select the option that results in the least cost FR product procurement for that time interval.

Finally, CAISO, in its latest proposal, continues to suggest that the FR product marginal value, which is used to establish maximum FR product procurement targets, should be derived from Power Balance Violation (PBV) penalty figures. This position is totally untenable as the CAISO can always procure additional regulation reserves, or find other means at potentially significantly lower cost, in order to avoid PBV penalties. Hence, the marginal value of the FR product should be the lower of the expected PBV penalty figures or the marginal cost of the additional regulation reserve (or other measures that could be used to avoid PBV condition).

III. FLEXIBLE RAMPING PRODUCT COST ALLOCATION

CalWEA agrees with the CAISO that internal self-scheduled resources should be allocated FR procurement costs. We believe that such allocation would provide some motivation

for these resources to offer their inherent flexibility into the market. However, we believe that such “penalty-based” incentives are too weak to motivate these resources to provide system flexibility. We believe that if CAISO would adopt true cost-causation-based cost allocation scheme, it would become apparent that resources with flat output profiles play a significant role in aggravating the system’s ramping needs and capturing the cost of such impacts would provide a much stronger incentive for self-scheduled resources to constructively participate in meeting system flexibility needs.

With regard to the settlement determinant for allocating FR product procurement costs to renewable resources, which heavily relies on VERs’ output forecast by the CAISO, CalWEA remains seriously concerned with the ability of the CAISO’s existing forecasting systems and services to forecast the VER 15-minute output with sufficient accuracy and at levels considered achievable with current state-of-the-art forecasting tools. Hence, we would like to continue to work with the CAISO to improve its VERs’ output forecasting capabilities.

Finally, as we have repeatedly stated in the past, CalWEA continues to advocate that the CAISO collect the accurately allocated FR cost of a supply resource directly from the LSEs that take the output of that resource. Recovering costs from LSEs would have several benefits including:

- It would result in lower overall renewable energy costs for consumers, because generators would not have to assume the worst for unknown FR costs over the lifetime of their project and build that into their prices (regardless of whether the worst-case materializes);
- It would protect resources that are under existing contracts that do not provide for the recovery of FR costs; and

- It would allow for optimization of the procurement process for new resources by incentivizing LSEs to procure generation with the least overall costs, considering the entire generation lifecycle – i.e., a resource with a significant FR (integration) costs, will only be selected if its energy price plus its other attributes, such as transmission cost, outweigh its FR costs. To facilitate this globally optimum procurement process, CalWEA recommends that the CAISO estimate the future integration costs of various resource types located in different parts of its footprint and that LSEs use integration cost information when they evaluate and select supply resources. A major advantage of this approach is that, unlike generators who must build worst-case estimates of unknown future FR costs into their PPA prices, an LSE, which has realized savings as part of this optimal resource procurement process, would only pay the actual FR (integration) costs that materialize (as well as lower contract prices since renewable generators have not had to factor worst-case prices into their bids).