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

Contact Information: Nancy Rader
e-mail: nrader@calwea.org
phone: 510-845-5077
Dariush Shirmohammadi
e-mail: dariush@shirconsultants.com
phone: 310-858-1174

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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") Flexible Ramping (FR) Product Supplemental: Foundational Approach dated July 11, 2012. The CAISO Proposal lays out several new fundamental concepts related to the FR product design, procurement and cost allocation and asks a number of specific questions particularly related to the magnitude and type of the needed FR product (FR-up and FR-down) in the Day-Ahead (DA) and Real-Time (RT) markets.

Our comments consist of three sections: Section I offers our broad comments on the overall FR procurement and cost allocation processes, Section II offers specific suggestions for making the FR procurement, if necessary at all, 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

CalWEA strongly supports CAISO's main goal of ensuring that sufficient ramping capability is committed and dispatched as part of its various existing markets to maintain the reliability and security of the CAISO controlled power system. However, CalWEA is still not convinced that CAISO needs to introduce a new product such as FR for that purpose. In fact, CalWEA is not aware of any other Balancing Authority (whether an RTO or a traditional utility) that has introduced or is in the process of introducing such a product. 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 penetration 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. They also allow VERs to cost effectively participate in providing system flexibility services including ramping. CalWEA strongly believes that modeling ramping needs as a constraint in the forward and real-time markets, already partially implemented by the CAISO, with some minor modifications, would address all issues that we are trying to address through the introduction of the FR product.

At a higher level and more importantly, CalWEA believes that 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 that is serving California's load. We believe

that the three most critically necessary changes that the CAISO should consider for that purpose are:

- Introduction of multiple forward markets close to real-time (e.g., Day-Of markets);
- Allowance for more granular scheduling for the purpose of system operation (e.g., 15-minute scheduling) closer to real-time for all generation and demand resources;
- Provisions of incentive for all resources to more actively offer the flexibility inherent in their characteristics rather than fixed self schedules; and
- Allowance for VERs, whether in PIRP or otherwise, to more effectively participate in providing system flexibility, including ramping.

Finally, CalWEA believes 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 cost, 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 source 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 collected from the LSE that is taking the output of that resource – for accounting purposes, this could be achieved via the Scheduling Coordinator (SC) that represents the LSEs. 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 process.

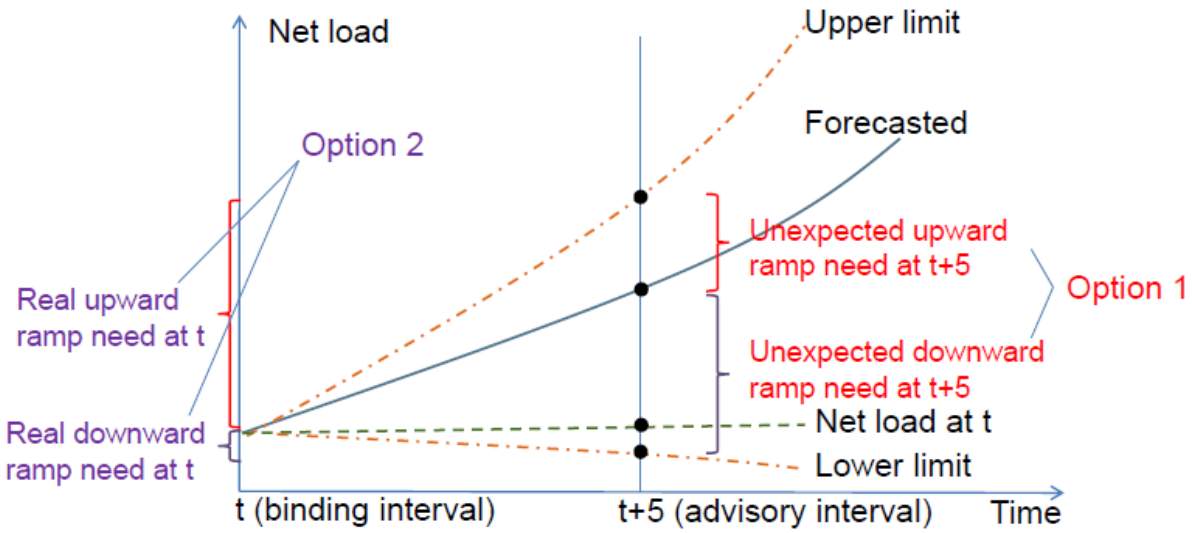
We will further elaborate on these points in Section III of our comments.

II. FLEXIBLE RAMPING PRODUCT PROCUREMENT

In Section 1 above, CalWEA broadly identified the fundamental changes that the CAISO should consider in its market structure so that it can more efficiently accommodate the flexibility needs of its system. In this section, we would like to offer comments on the specific features of the CAISO's latest proposal for procurement of the FR product.

II.1 Magnitude of the FR Product Procurement

In its latest proposal, the CAISO presents two options for determining the magnitude of FR-up and FR-down that it would procure as part of its RT markets. In its Option 1, the CAISO would procure sufficient FR-up and FR-down to cover the unexpected upward and downward ramp at the next RT market time interval (for example at t+5 minutes). In its Option 2, depending on the likely direction of change in its net load, the CAISO would procure FR-up or FR-down only for the next RT market time interval. However, the magnitude of the FR-up (or FR-down) procured in this option would be the difference between the upper (or lower) limit estimate of the net load at the next RT market time interval (e.g., t+5 minutes) and the net load at the "current" market time interval t.



Under option 1, CAISO would procure both the FR-up and FR-down as part of its RT market activities but it is probable that, depending on the dominant direction of the net load change, one of the two FR products will have a very low probability of being useful – e.g., FR-down procured when the net load is increasing or FR-up procured when net load is predominantly decreasing. At the same time, under this option the amount of FR product in the direction of the net load change may prove to be insufficient under certain extreme conditions. Under Option 2, the CAISO would always have plenty of ramp capability in the direction of net load change but could run into ramp capability shortages if the direction of net load variation suddenly reverses from its dominant direction.

As we suggested during the last stakeholder meeting on this subject, CalWEA recommends a third option for determining the FR magnitude to be procured as part of the RT market. Our proposed approach is similar to CAISO Option 2 in that we recommend that CAISO procure ramp capability for the next market time interval only in the direction of the expected net load change. However, we believe that the magnitude of the procured ramp should be equal to the unexpected upward ramp need if the net load is increasing or the unexpected

downward ramp need if the net load is decreasing. In this fashion, the chances of over-procuring FR products (and as a result the cost of the FR product) will be reduced without any impact on the system's ability to meet its ramping needs except under very rare circumstances.

II.2 Marginal Value of the FR Product

In its latest proposal, the CAISO suggests that the FR product marginal value should be derived from Power Balance Violation (PBV) penalty figures. CalWEA finds this position to be untenable as the CAISO can always procure additional regulation reserve in order to avoid PBV penalties. Hence, we contend that 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.

III. FLEXIBLE RAMPING PRODUCT COST ALLOCATION

CalWEA commends the CAISO for improving its FR product cost allocation scheme to better reflect the benefits of pooling resources within load, supply and import resource categories. We still contend, however, that this cost allocation does not actually reflect cost causation – in that regard, we are particularly dismayed that the framework offered for the allocation of the FR product cost fails to recognize the impact of resources with flat output profiles, which contribute to the need to find other system resources that can cover system ramping needs as the CAISO tries to balance supply with demand on an ongoing basis.

III.1 Threshold Used for Determining a Specific Resource's Cost Responsibility

The CAISO's proposal to allocate FR costs calls for allocating the supply category component of the FR product cost to a particular resource based on the difference between its

metered energy output and its instructed dispatch when that difference lies outside of a 3% threshold band of the resource's instructed dispatch. In other words, if a resource's output remains within 3% of its instructed dispatch, it will not be allocated any FR cost. CalWEA understands that, for a VER, the instructed dispatch level will be the most up-to-date 15-minute output of the VER as forecasted by the CAISO and then adjusted to correspond to the 10-minute settlement time interval.

CalWEA agrees with the use of a threshold for the purpose of evaluating the cost allocation determinant of a specific resource. However, the use of a fixed percentage threshold fails to properly reflect the impact of a resource on the FR procurement cost, particularly for larger generators. As a result, we propose that the threshold value used for a resource be changed to 5% of the instructed dispatch level, but be capped at 5 MW (with the methodology for VERs remaining the same). In other words, any resource whose metered output deviates by more than 5 MW from its instructed dispatch level should be included for cost allocation.

III.2 Accuracy of the 15-Minute VER Output Forecast

The CAISO's proposal to use of the most up-to-date 15-minute VER output forecast as the base value for calculating the deviation of the metered output used for FR product cost allocation is a positive step. However, based on our experience with PIRP, we are very 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, the CAISO should seek to improve its capabilities in this area.

III.3 Collection of the FR Cost Allocated to Supply Resources

As we have repeatedly stated in these proceedings, CalWEA believes that the CAISO should identify the FR cost contribution of a supply resource but collect that cost from the LSE that takes the output of that resource. Recovering costs from LSEs on a pro-rata basis (a significant shift from the current CAISO practice of spreading ancillary services costs to all LSEs based on their load share) would have several benefits. First, 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). Second, it would protect resources that are under existing contracts that do not provide for the recovery of FR costs. And, third, 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 outcome, the CAISO should estimate the future integration costs of various resource types located in different parts of its footprint so that the LSEs could use the 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).

Finally, in order to ensure that the resources that are competitively selected in the procurement process continue to perform well, the CAISO could develop performance standards that the resource can manage to and use a reward/penalty system to incentivize the resource to follow those standards. The CAISO has already established such standards through its reward/penalty-based available capacity standards, whereby a highly available generator can receive a reward and a resource with low availability faces a penalty. Additional standards, to the extent they do not explicitly or implicitly already exist, could be developed for this purpose.