CALIFORNIA ISO
FLEXIBLE RAMPING PRODUCTS

COMMENTS OF THE STAFF OF THE
CALIFORNIA PUBLIC UTILITIES COMMISSION
ON THE NOVEMBER 29, 2011 REVISED STRAW PROPOSAL

December 15, 2011

The Staff of the California Public Utilities Commission (CPUC Staff) appreciate this opportunity to comment on the California ISO's (CAISO) November 29, 2011 and December 5, 2011 stakeholder meeting on the Flexible Ramping Products Revised Straw Proposal. The CPUC Staff appreciates the CAISO's significant efforts to better describe how the Flexible Ramping Products (FRP) would be procured, deployed, settled and how costs could be allocated. Still, the CPUC Staff remain concerned that key aspects of the proposal are difficult to assess, as described more fully in the following comments.

1. Stakeholder Need More Details and Examples on the Method to Determine FRP.

The CAISO needs to continue to better explain and demonstrate the method the CAISO proposes to use to calculate the magnitude of FRP procurement. At the December 5, 2011 Stakeholder meeting the CAISO estimated that the average FRP procurement will be 500-1000 MW procurement. The CAISO should explain how the requirement would vary across conditions.

The CPUC Staff also remains concerned about potential inefficiency and unnecessary costs stemming from the way FRP capacity is procured and compensated, and then dispatched and compensated (or withheld from dispatch). Accordingly, the CAISO should provide more complete examples (including graphs) of flexible ramping and energy bidding, FRP procurement, price formation, product conversion (e.g., spin to FRP), FRP and energy dispatch/deployment, and costs -- all the way from day ahead to real time dispatch, including successive real time pre dispatch (RTPD) 15-minute intervals.

The CPUC Staff also would like to better understand the economic consequences for energy prices of higher or lower procurement of FRP, including the extent to which FRP costs at higher or lower levels of FRP procurement would likely be offset by energy cost savings. Section 5.7 of the Revised Straw Proposal states that CAISO plans to publish data on FRP procurement cost, MWh deviations subject to cost allocation, and per MWh rate of deviations. Additional data should be

published on deployment (and non-deployment) of FR for energy, including whether/to what extent FRP providers are the marginal resource that set the energy prices. These metrics should be reported on at the lowest level of aggregation that is feasible and protects confidentiality. Finally, the CAISO should use the information gained from the flexible ramping constraint to refine FRP design and to assess potential impacts on energy prices, with the objective to minimize overall procurement costs.

2. Interaction between FRP and Load Following Requirements

Whether the CAISO ultimately chooses to procure the Day-Ahead amount of FRP based on the forecast minimum hourly amount or a prescribed confidence level, the hourly amount of FRP procured in the day ahead market should change dynamically based on the daily forecast and temporal conditions. Since the estimated minimum amount of FRP needed would likely change based on how other market reforms and software changes impact the market optimization and participant bidding behavior, the CPUC Staff believes the FRP procurement level should be adjusted to minimize overall costs subject to maintaining adequate flexibility in real time.

The CAISO has indicated that the proposed FRP is expected to address net load variability and uncertainty over a shorter time horizon than the "load following requirement" analyzed in recent renewable integration studies. The CAISO should explain how the integration study results should be interpreted in light of the different time horizon and explain whether the integration study methodology should be revised accordingly. It should also explain if it expects any need for an additional increment of flexible capacity (load following requirement in excess of FRP requirement) and if so, how that would be obtained.

3. Interplay of Day-Ahead Market and RTPD Substitution with FRP and Ancillary Services

The CAISO should analyze the proposed method for substituting FRP and ancillary services (AS) spin in the context of all the other features being proposed within the FRP initiative. Specifically, the CAISO should conduct further testing and simulation of the effects of such substitution on real-time locational marginal prices (LMPs), FRP clearing prices, and bidding behavior. Appropriate off-ramps should be provided in case unintended consequences arise during deployment of the FRP.

4. Revision of the Third RTD Interval Deployment Method

The CAISO's next revised straw proposal needs to more fully explain the method and criteria for dispatching (or not dispatching) FRP for energy needs. The CAISO proposes to limit the dispatch

(for energy) of procured FRP based on the amount of uncertainty/variability that is actually realized, and to limit dispatch in the third 5 minute dispatch interval to avoid making the FRP provider unable to fulfill its accepted FRP bids for the next 15 minute pre-dispatch commitment interval. In addition to being incomplete, the proposal for dispatch and deployment constraints raises energy pricing concerns—even if the CAISO intends to implement constraints to avoid undesirable energy price impacts produced by a penalty price approach.[1]

Accordingly, the next straw proposal should include examples that take into consideration risks of unnecessary inefficiencies in the energy dispatch. For example, if variability/uncertainty is not "realized" in the first one or two 5-minute intervals, this might justify higher dispatch in subsequent interval(s) above the dispatch level that would be justified based only on realization of variability/uncertainty in those intervals. Examples should also cover how one 15-minute period's FRP procurement competes with/constrains energy dispatch in the prior period, how dispatch might be managed to restore available ramp from FRP providers previously deployed for energy, and how this may apply to demand response and storage resources.

5. FRP Settlement Should Not be Excessive or Encourage Gaming

The CPUC staff remains concerned that under the current FRP paradigm, risks exist of unwarranted double or other over-payment for both FRP capacity reservation plus a subsequent deployment for energy in real time dispatch. The risk appears to arise where (1) providers are compensated for FRP based on a shadow price inherently reflecting opportunity costs across all market products in real time predispatch (RTPD) or the integrated forward market) and (2) they have a high probability of being subsequently dispatched and paid for energy (from the reserved FRP capacity) at 5-minute real time dispatch prices, which could differ from energy prices used to calculate opportunity cost-based FRP prices.

The CPUC Staff understands that the Market Surveillance Committee will undertake a review of potential overpayment of opportunity costs associated with FRP awards, but also requests that the CAISO provide examples for how the deployment method will minimize risks of gaming. Further, empirical data from the flexible ramping constraint deployment should inform the FRP initiative with respect to potential risks of gaming or other negative unintended consequences.

[1] Flexible Ramping Products Revised Straw Proposal, November 29, 2011, pg. 17. http://www.caiso.com/Documents/FlexibleRampingProductRevisedStrawProposal.pdf

The CPUC Staff recognizes that an FRP provider faces the possibility of not being dispatched for energy, which would reduce its control over its energy utilization, as a result of selling a capacity reservation. The CPUC Staff recommends exploring the suggestion (made during the December 5th stakeholder presentation) to pay flexible ramping capacity that is dispatched for energy the real-time LMP only, not both the flexible ramping RTPD clearing price and the real-time LMP. Under this proposal, the energy payment compensates for the opportunity cost and the RTPD market clearing price for flexible ramping compensates the resource for the un-dispatched flexible ramping capacity. What is fair compensation for the willingness to bid flexible ramping capacity remains an open question. The CAISO should further explore whether it is economically efficient and appropriate to have a full energy payment when dispatched in real time accompanied by reimbursement of the flexible response capacity payment. The manner in which expectation or potential for energy payments impacts FRP bids should be better understood and gaming risks assessed.

6. More Consideration is needed before any Decision on a Cost Allocation Method

The CPUC Staff continue to support development of an appropriate causation-based cost allocation approach that is not unnecessarily burdensome and that will incentivize efficient behavior. The CPUC Staff support moving forward to develop other aspects of the proposal while continuing to refine and discuss with stakeholders the cost allocation methods and metrics. In the next draft proposal the CAISO should provide additional detail on alternative potential metrics for allocating FRP costs in a manner that can elicit efficient behavior while not being overly burdensome or discriminatory.

The CPUC Staff support pursuing causation-based cost allocation as part of developing market reforms that best address future flexibility needs, and recognize that deferring commitment to a specific cost allocation approach may be disappointing to some stakeholders. But embarking on new uncharted cost allocation methods warrants further thought and consideration of choices to prevent negative unintended consequences, and to obtain further information and experience (e.g., with the flexible ramping constraint deployment). The proposal to initially allocate FRP procurement costs to load is an interim measure and should be revised when supported by sufficient information, analysis and vetting. This could occur before or after FRP is initially deployed. Allocating FRP costs to generators based on their facility-specific gross deviations could send strong economic signals. However, the CAISO and stakeholders should further consider and discuss whether it is equitable and not overly burdensome to allocate FRP costs to load based on aggregate load deviations (netted across

all load, in any interval), whereas allocation to generators, even small ones, would be on an individual (e.g., not portfolio) basis.

The CAISO and stakeholders should also further consider whether the "settlement calculation" metrics presented in Table 12 of the revised straw proposal are equitable and balanced across the four "buckets" (load, hourly scheduled, dispatchable, and Intertie Ramp resources). For example, would ancillary services obligations for load over- or under-state the load's responsibility for 15 minute variability/uncertainty, compared to attributing variability/uncertainty to generators based on imbalance energy?

Finally, the CPUC Staff request that the CAISO explain its view and intentions regarding a "holistic" approach to cost causation described at the stakeholder meeting. What kinds of costs and allocation metrics might be adopted, and what might be the timeline for this holistic allocation effort? Further, the cost allocation methodology would likely have to be substantially refined over time as analytic information and market experience accumulate, including deployment of variable energy resources.

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