Stakeholder Comments

Flexible Ramping Products – 1st Revised Straw Proposal

Submitted by	Company	Date Submitted
Alexander Morris (626) 302-7713	Southern California Edison ("SCE")	December 13, 2011

Southern California Edison (SCE) appreciates the opportunity to comment on the revised Flexible Ramping Products (FRP) straw proposal. SCE urges the design process be slowed and expanded to ensure a thorough review with a well-crafted result which successfully allows the California Independent System Operator (CAISO) to better leverage renewable resources. In this effort, the CAISO should re-align itself with its core guiding principles and allocate the costs for the Flexible Ramping Products based on cost-causation principles. Avoidance of cost-causation perpetuates subsidies that harm market efficiency. The difficulty in remedying these subsidies increases with time, such as with the Participating Intermittent Resources Program (PIRP), and left unchecked such subsidies may become enduring structural flaws in the CAISO market design.[1] SCE expects the CAISO to be non-discriminatory and independent in its market design and operation. In light of the CAISO's own comments on the drivers for the FRP and comments by FERC on the Flexible Ramping Constraint, the proposed cost-allocation directly to metered demand may be unjust and unreasonable.[2]

1) **The CAISO should prioritize a robust stakeholder process by providing sufficient time and detail for stakeholder review.**

   The FRP are part of a complex system in which changes should be fully assessed before implementation. The CAISO's artificial deadline for a board presentation rushes the FRP design process unnecessarily. This haste reduces the ability to conduct a thorough design process, effectively eliminates the possibility of exploring alternative designs, and increases the likelihood of a do-over or patch-fixes at a later date. Insufficient design could also result in costly performance issues. For FRP to be properly designed and reviewed, the CAISO must extend the current stakeholder process.

   SCE recalls that the CAISO's Board of Governors directed CAISO staff to expediently develop FRP to replace the Flexible Ramping Constraint due to concerns of overpayment for

[1] Given the resistance by PIRP beneficiaries to modifying PIRP in the Renewables Integration: Market Product Review 1, let alone eliminating it, the CAISO should expect great difficulty in eliminating or reducing other subsidies established in product design.

[2] See Section 2 of these comments.

the Flexible Ramping Constraint.[3] Specifically, the Board expressed concern over the use of a clearing price for compensation for a constraint. SCE supports changes away from the Flexible Ramping Constraint and believes that the CAISO staff can address the Board's concerns without rushing the full design and implementation of the FRP.

If the CAISO Board still requires a product to immediately replace the FRP, the CAISO should consider a tiered product design and implementation process. As such, the CAISO could prioritize FRP design for Real-Time procurement, and then subsequently design Day-Ahead (DA) Market procurement structures. Also, given the negligible attention to Flexible Ramping Down design – as opposed to Flexible Ramping up designs which were addressed throughout the Flexible Ramping Constraint Stakeholder process – it may be prudent to also delay downward designs.

Finally, key details, estimates, and simulations or other analyses should inform the design. Aside from simple examples provided in straw proposals, the design process relies heavily on theory. With complexity of the CAISO's systems, empirical approaches and beta-testing are needed. For instance, the ISO should provide realistic estimates of Flexible Ramping Up and Down Capacity needs across 24 hours of days with relevant operating characteristics. The CAISO should attempt to use actual market data to simulate the cost and utilization of a proposal prior to finalizing the design.

2) **Product costs should be allocated based on cost-causation - the current proposal hinders the long-term effectiveness of renewables in the grid.**

The CAISO's current proposal inexplicably proposes a major step backwards in cost-allocation methodology. The current proposal allocates costs for the FRP to metered demand. This design reverses progress towards cost allocation based on causation, violates agreed-upon guiding principles, and reduces the market's ability to drive corrective action for managing variability and uncertainty. CAISO staff's original proposal for cost allocation based on deviation categories provided a principled and implementable approach. SCE urges reversion to that proposal and continued refinement of that approach. Stakeholders have yet to provide a single substantive example of why the CAISO staff's original straw cost-allocation proposal would be difficult to implement. SCE notes that only two out of fifteen submitted stakeholder comments seemed to oppose cost-causation based allocation.[4] These opposing parties failed to provide substantive comments behind their reasoning to allocate costs to load nor did they cite implementation difficulties.

[3] SCE's understanding of directives from the CAISO Board of Governors to CAISO staff on August 25th, 2011.
[4] CalWEA and Sempra Generation comments on the Straw proposal

a. Sound market structures *with appropriate cost-allocation for VER integration* are needed for California to successfully embrace renewables in long-term grid operations.

The challenges associated with efficiently integrating Variable Energy Resources (VERs) will continue to mount as the CAISO approaches its 33% Renewable Portfolio Standard (RPS) goal. Therefore, the CAISO should address the need for fundamentally sound cost allocation structures now, when they are easiest to implement, rather than later on.

Without basic cost allocation principles established now, VER integration will incur unnecessary costs to California's ratepayers, and ultimately increase the likelihood of degraded grid reliability. Either result will harm California customers and likely impede progress towards the favorable adoption of VERs. Operational issues associated with PIRP readily illustrate the problems with removing proper market incentives and costs. For reasons such as these, CAISO staff and stakeholders set guiding principles to steer renewables integration efforts.

SCE continues to support the CAISO staff's recognition of the benefits of cost-causation principles as a core structure for effective market design. Previously, CAISO comments "recognize[d] that load and resource variability and the associated settlement risks are best managed by those market participants directly responsible for serving load or developing and operating resources". [5] Further, the CAISO argued against the allocation of integration costs to metered demand, noting that ratepayers are not in the best position to manage uncertainty or minimize integration costs. The CAISO clearly explained that ratepayers are not responsible for "building, operating, or scheduling resources" and, since "inaccurate forecasting and scheduling can create operational uncertainty and add to unit commitment costs, [f]orecasting and scheduling inaccuracies should be maintained within reasonable bounds *by allocating costs to parties that are best able to improve accuracy.*"[6]

In comments to FERC regarding the Flexible Ramping Constraint, the CAISO further affirmed its support for cost-causation principles, stating that "the CAISO agrees with SCE, however, that as it proceeds in the development of the more permanent Flexible Ramping Product that the CAISO should consider modifying its current cost allocation

[5] "Renewables Integration Market Vision & Roadmap – Revised Straw Proposal", California ISO, August 29th, 2011, p. 4. http://www.caiso.com/Documents/RevisedStrawProposal-RenewablesIntegrationMarketandProductReviewPhase2.pdf

[6] Ibid, p. 5.

paradigm to account for cost causation principles."[7] California stakeholders and the FERC should have difficulty with the CAISO's movement away from this commitment.

Representations that the "bulk of variability will be attributed to load" is a short-term argument at best and fails to mitigate the negative long-term market impacts of the current proposal. Further, FERC-approved cost-allocation methodologies for Regulation service show it to be just and reasonable to allocate costs to parties based on cost-causation.[8] .

b. The ISO's most recent proposal should be abandoned – it appears unjust and unreasonable and harms market efficiency and long-term operations.

SCE sees the CAISO's current proposal of allocating all product costs to load as unjust and unreasonable, and thus inconsistent with a viable market design. FERC also expressed concerns in its evaluation of the CAISO proposal to allocate Flexible Ramping Constraint costs to metered demand.[9] The CAISO staff developed a prudent and efficient cost-allocation design in its previous proposal, and SCE suggests working off that design. Development of systems for proper cost-allocation is well within the means of the CAISO, as it already has the data and systems necessary[10].

c. Trading FRP costs does not resolve problems with the CAISO's current proposal – this structure instead provides incentives for resources to seek free balancing services and shift such costs to CAISO load.

The CAISO's proposal attempts to create a work-around solution for cost-causation, but band-aid solution has flaws. Consider, for example, a hypothetical VER located in Utah which schedules its power into the CAISO Balancing Authority via a dynamic transfer. In this case, no contract exists with the Utah VER by which to structure a transfer of FRP costs. Instead, these integrating costs are borne by CAISO load. Thus, Utah ratepayers receive a subsidy, courtesy of California ratepayers. This result is unacceptable, and the inability of load to control or avoid these balancing costs is expressly unjust. Such treatment was also described by Powerex in its comments to FERC.[11] Rather, a proper market design allocates such costs to the Scheduling Coordinator representing the resource. For this reason, full and complete structural solutions are needed – not work-arounds which fail to address real costs in the real market.

---

[7] In it response to the comments of market participants in Page 21: *Answer to motions to intervene and comments, motion to file answer, and answer to protests of California Independent System Operator Corporation under ER12-50*

[8] FERC's ruling on Westar (ER09-1273); FERC's ruling on Puget (ER11-3735)

[9] FERC's Order on the Flexible Ramping Constraint (ER12-50-000), 12/12/11, ¶29

[10] This was reflected in the CAISO staff's Straw proposal cost allocation.

[11] Page 6: *Motion to Intervene and Comments of Powerex Corp. under ER12-50*

d. If the CAISO re-institutes its original cost-causation proposal, cost-allocation can happen with the development of the Flexible Ramping Product design

The CAISO overlooks the useful and implementable structure that its staff proposed in the first Flexible Ramping Product Straw Proposal. This proposal offered an immediate framework to allocate FRP costs based on cost-causation. SCE sees no need for an upfront workshop on cost-causation and expects subsidy recipients to leverage this event to promote more delays. This would only serve to increase the total subsidy that VERs receive by not receiving their integration costs and instead having California ratepayers continue to subsidize the integration of these resources.

3) More time and consideration is needed regarding compensation structures.

Opportunity-cost aspects of FRP are complex, and the proper pricing structure for FRP requires additional consideration. The CAISO's straw-design proposes to price FRP capacity at the full opportunity cost of the marginal resource. In the third real-time interval (RTD) of a Real-Time Pre-Dispatch (RTPD) interval, however, all constraints on FRP capacity relax, and these resources have opportunities to earn energy revenues, even if no uncertainty or variability is realized in this third RTD interval. Moreover, there are other circumstances where FRP is allowed to sell energy in both the 1st and 2nd RTPD intervals. As a result, SCE has concerns the proposed structure may overpay and is improperly treated in the optimization's formulation of the constraint.

The calculation of opportunity costs is complex. A key underlying issue is the likelihood of dispatch. The frequency of dispatch should be analyzed using market data – purely theoretical approaches may overlook key aspects of the CAISO dispatch instructions and other operational issues that lead to more frequent dispatch than expected. Even noted experts on Market Design such as Scott Harvey of the MSC have explained that these calculations are difficult to make and require thorough data-analysis. In addition, the experience gained from Flexible Ramping Constraint can lend insight into the frequency and magnitude of FRP dispatch.

In light of the challenges with opportunity-cost based clearing prices, stakeholders should discuss the merits of ex-poste pricing. Under this structure, along the lines of Bid-Cost Recovery rules, compensations would be calculated and awarded after delivery of Flexible Ramping services, in the form of ex-poste calculations for energy opportunity costs and for energy delivered.

4) Procurement targets and broader market component interaction need additional design consideration and analysis.

Numerous aspects of the procurement targets need detailed scrutiny and development, with DA targets the most unclear concept. The entire purpose of DA FRP procurement may need clarification. For example, in DA, the CAISO likely plans to procure sufficient FRP to address some expected amount of intra-RTPD uncertainty and variability within a given hour, yet there is no certainty that the DA procured energy resources will allow sufficient ramping to meet the four RTPD targets of that hour. The CAISO's proposal fails to address this consideration or provide sufficient details on DA procurement.[12]

To address DA procurement, numerous questions must be addressed. For example, what is the role of FRP if, hypothetically, RTPD ran every 5-minutes and also served as the 5-minute RTD? Do FRP needs, by definition, become 0MWs? Would, in turn the DA FRP also be 0MWs? If yes, has the CAISO considered this design rather than FRP? If the DA requirements would not be 0MW, then the CAISO is currently specifying the wrong DA product/and or procurement target for DA FRP.

Moreover, if DA procurement in a system with substantial VERs cannot guarantee sufficient physical operating flexibility, the broader issue of the role of the IFM and RUC must be considered. Does the CAISO expect the IFM to serve merely as a financial market and have the Residual Unit Commitment (RUC) process ensure sufficient physical energy and flexibility? If so, should FRP procurement exclusively occur in the RUC (a.k.a. physical scheduling) run? And if so, why isn't the simultaneous co-optimization of RUC with the IFM part of the FRP design discussion? The CAISO's proposal for DA FRP capacity to merely inform RUC procurement capacity seems insufficient to reach an efficient design.

5) **Demand Elasticity, Scarcity Pricing and Parameter Pricing need consideration.**
Rules for scarcity and parameter pricing need to be developed. These rules should detail how the CAISO intends to administratively price FRP if persistent undersupply conditions exist.

DA procurement proposals should also address demand elasticity. In general, SCE supports procurement targets that ensure reliability within a reasonable probability. But specifying FRP as an inelastic constraint may unnecessarily increase costs in both the DA and real-time markets. As FRP is not a formal Ancillary Service, 100% procurement in the DA is unnecessary. Further, procurement to a 95% confidence level is likely too high and expensive. Analysis should be used to determine a "sweet spot" for procurement such that costs are reduced while reliability maintained. Moreover, the CAISO should consider a "demand curve" to purchase any amount based on a consideration of cost/price.

[12] A move to 15-minute scheduling should mitigate some of these concerns as DA energy procurement would ensure ramping ability between each 15-minute target and FRP would address realized uncertainty and variability between 15-minute and 5-minute energy targets.

6) **SCE supports the proposed product settlement rules for No-Pay and inclusion of FRP revenues in Bid-Cost Recovery (BCR) calculations**

These aspects of the CAISO's proposed design are logical and fair, but additional details should be added to avoid overcompensation. BCR calculations should "net" over 24 hours, and other market power considerations should be discussed. Scheduling coordinators or resources that consistently deviate should face harsher energy replacement costs, such as at the lower of DA, Hour-Ahead (HA), or RT energy System Marginal Energy Clearing Prices for Flexible Ramping Up and vice versa for Flexible Ramping Down. Persistently poor performers should be prohibited from FRP sales.

7) **The CAISO should develop an alternative proposal that eliminates Non-Contingent Reserves and solicit stakeholder comments**

SCE understands the benefits of non-contingent spin in so far as this product allows for the full DA procurement of Spinning Reserve capacity without removing non-contingent spinning reserve capacity from the energy stack, essentially creating a more efficient market optimization. Even though this approach lowers system costs, it still raises concerns of overpayment. Spinning Reserve clearing prices reflect the foregone opportunity to sell energy, yet Non-Contingent Spinning Reserve resources may have opportunities to earn energy rents in addition to their opportunity cost-based capacity payment.

Moreover, the CAISO proposes a complex decision process to convert between Non-contingent products and FRP. Given the complexity created by this interaction, the CAISO should explore an alternative approach for discussion: Eliminate non-contingent reserves. The CAISO should detail how reserves and FRP would interact with other reserves under this simplified approach. At this point, the CAISO should not limit consideration of this idea based on concerns over a reduction of potential AS supply.

For clarity, SCE is not recommending elimination of Non-Contingent Reserves at this time. Rather, SCE requests this option be formally explored as part of the FRP process.

8) **Intra-RTPD, FRP capacity should be released if energy ramping capability exceeds expected Flexible Ramping needs.**

Rules need to be developed and discussed for times of surplus ramping capabilities. On occasion, CAISO operators may find the system flush with ramping capabilities. In these times, the FRP rules should allow the full release of FRP capacity into the energy stack to ensure a least-cost optimization. Current rules indicate that even in system conditions where

energy resource flexibility far exceeds the possible range of ramping needs, FRP capacity is withheld from energy dispatch for the first two RTD intervals of an RTPD scheduling and commitment period.

9) The rules for "locking" energy bids for DA awards need additional consideration in conjunction with DA procurement rules.[13]

The CAISO characterizes price persistency of FRP energy bids from the DA into RT as the "locking" of DA prices. Such "locking" intends to guard against a case where resources could be selected in DA with lower energy bids but could earn outsized market rents by increasing energy bids in RT when such resources are part of a captive set of FRP supply resources. Ultimately, FRP rules should prevent games of this nature.

These rules require additional discussion as part of the overall development of DA procurement rules and targets and should be finalized in concert will the suite of DA rules. To the extent FRP providers demonstrate a material change in fuel prices between DA and RT, SCE suggests BCR be considered for FRP resources, but only under extreme and pre-certified conditions, such as when RT fuel-prices exceed DA fuel-prices by some large percentage.

[13] http://www.caiso.com/Documents/Presentation-FlexibleRampingProductDec5_2011.pdf