

## Stakeholder Comments

### Flexible Ramping Product Supplemental Document

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Southern California Edison (SCE) offers these comments on the California Independent System Operator’s (CAISO) Flexible Ramping Product (FRP) Supplemental Document on the Foundational Approach.

#### Summary

The CAISO’s FRP paper addressed three key issues: the purpose of FRP procured in the Real-Time (RT) market, the construction of a FRP demand curve, and the allocation of FRP costs. Contingent upon additional details of the design, SCE supports the general directions of these changes. Before finalizing its positions, however, SCE needs further details. The ‘real-ramp’ proposal holds good promise in so far as it can enhance transparency, explicitly price flexibility, and reduce Bid-Cost Recovery (BCR). SCE will still need to better understand the changes to the RTD optimization algorithm and to the total costs (for both the RT and Day-Ahead (DA) markets) before endorsing this approach. Similarly, the new demand curve approach has merits, but the inputs to the demand curve must be realistic and economically justifiable. Lastly, the cost-allocation approach seems reasonable, and SCE expressly supports cost allocation among load scheduling coordinators (SCs) based on gross deviations from DA schedules. This approach creates useful price signals and incentives to load parties to manage uncertainty.

#### Detailed Comments

**1. Further discussion of the implications of the ‘real-ramp’ proposal is needed.**

Before taking a position on the real-ramp proposal, SCE needs a firmer understanding of the implications. SCE understands the real-ramp proposal to recognize and explicitly compensate all the resources that help the system meet a range of ramp requirements for the subsequent interval.

SCE requests that the CAISO clarify how the RTD optimization will price ramping needed for intervals beyond the subsequent one. Specifically, will the real-time LMP still reflect the cost of meeting a feasible seven-interval horizon? If yes, how are FRP requirements modeled in this horizon and how is the impact removed from the LMP?

SCE also requests that the CAISO assess the implications of this change on total costs, including costs for energy, flexibility, BCR, etc. The CAISO should analyze actual data to investigate the cost impacts. The CAISO could use spin bids as a proxy for FRP bids in a historical analysis.

SCE supports exploring this concept in greater detail – at a high level it appears reasonable and promising. If total costs appear reasonable and other key details are satisfactorily resolved, SCE could support this type of FRP construct, particularly because it provides more transparency and explicit pricing to flexibility. As SCE understands it, the real-ramp solution is preferable to the ‘unexpected flex ramp’ approach for five main reasons: 1) explicitly prices ramping capability within an interval 2) may improve the dispatch in periods of steeper ramps 3) may reduce BCR associated with some units providing flexibility 4) cost-allocates more easily and appropriately based on causation and 5) eliminates a potential opportunity cost concern.

In pursuing a path where ramping is explicitly priced, market power tools must be in place. The CAISO should also develop how DA FRP will be designed and how it will interplay with energy and RT ramping payments.

**2. SCE supports the principle of an FRP demand curve based on avoided costs, but stresses the importance of properly defining the inputs.**

At a high-level SCE supports the CAISO’s theoretical demand curve methodology of pricing demand based on the probability-weighted avoided reliability costs gained with each incremental megawatt of FRP. The quality of this demand curve, however, depends on the quality of the assumptions behind it. Currently, at least one of the inputs might link to a price different from its value (administrative prices for power balance constraint violations (PBVs)). The inputs should be rigorously developed until each accurately reflects the true state of the grid.

**a. The calculation to determine the abatement ratio (PBVs avoided / MW procured of FRP) should be transparent and refresh often to incorporate changing behaviors and conditions.**

The abatement ratio will change as market participants adapt to flexible ramping product and its cost allocation. This ratio will also likely vary with the season, system conditions, and other factors. Data underwriting the abatement ratio will need frequent updates. The CAISO should begin development of the abatement ratio tables or curves now.

As the data pool deepens, the CAISO can increase the granularity of the demand curve. The demand curve “steps” should be as small as possible to ensure an accurate procurement level.

- b. Since ramp shortages can occur with little to no operational impact, the value of avoiding a PBV should be tempered. The CAISO should avoid metrics that overstate the costs.**

The demand curve should link to reasonable values. SCE requests the CAISO discuss how it will value the benefits of avoiding PBVs. SCE asserts that, because PBVs occur frequently with little to no operational impact, the costs of avoided PBVs should be relatively low. In its valuation, the CAISO should note that occasional PBVs never seem to lead to load-shedding. Overpricing the real-world value of an avoided PBV would be wrong and excessively costly to FRP buyers, including VERs.

- c. DA procurement should factor in energy costs.**

The CAISO's procurement strategy for DA must include a means to procure optimally based on both capacity costs and some anticipation of energy dispatch. Once the demand curve structure is finalized, design efforts should again consider means to ensure the IFM incorporates energy bids and a probability of FRP dispatch in its DA FRP selection.

- 3. FRP cost-allocation rules should ensure loads have incentives to manage variability and uncertainty. Loads should never backstop FRP obligations for other parties.**

SCE finds the current proposal to be reasonable and mostly in-line with cost-causation principles. SCE offers the following comments to make the design more successful and supportable.

- a. SCE supports using RT uninstructed deviations for cost allocation to loads (after the preliminary allocation split amongst loads, suppliers, and fixed ramp suppliers).**

Cost-allocation methods can enhance market efficiency by providing price-signals to market participants to encourage corrective actions. FRP cost allocation to loads based on gross uninstructed deviations from DA load schedules encourages loads to reduce uncertainty or variability in RT by scheduling effectively in DA. The reduction in RT uncertainty or variability from load can ultimately reduce FRP needs and lower total electricity costs to customers. This feedback loop drives market efficiency and should be enacted.

- b. The CAISO should guarantee that load never backstops FRP costs for generation of fixed ramp suppliers.**

If generators deviate yet remain within a 3% band, who will pay for the FRP costs in the supply 'bucket'? Even if this situation is rare, rules should stipulate that costs will allocate based on cost-causation principles. A two-tier approach provides this certainty, and SCE still prefers this format. Other means to resolve this discrepancy could also work. The CAISO should develop clear rules to ensure supply based FRP costs are always allocated to suppliers.

- c. SCE requests more information on how the cost-allocation approach accounts for scheduling volatility that drives FRP needs. Allocation based on UIE may overlook this important cost-allocation structure.**

Volatile schedules may drive FRP needs yet have no UIE associated with them. When are such volatile schedules at risk for FRP costs? Only if they self-schedule? Or if they moving against the net 'trend'. SCE requests the CAISO show how cost-allocation will differ for self-scheduling versus

financial scheduling, and for scheduling in line or in opposition to the net load target. It may help to further define the net load target.

**d. The market structure should incentivize resources to submit accurate forecasts, and discourage strategic scheduling.**

Market design should encourage accurate and continuously improving in forecasts or schedules. Cost allocation rules should remove the incentive to under- or over-schedule according to expectation of FRU / FRD price differentials. These rules may need further development.