

## CESA Comments on Flexible Ramping Product Technical Appendix

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CESA offers only brief comments on the Flexible Ramping Product (FRP) Technical Appendix. CESA appreciates the opportunity to provide these comments, and welcomes any discussion related to these issues.

CESA support the proposal and believes the California Independent System Operator should move to cement and approve the product design and begin the implementation efforts soon, particularly as data shows continued growth in net load changes associated with changes in the generation fleet, leading to more ramping challenges, periods of excess or negatively priced generation, and forecast uncertainty.<sup>1</sup> FRP will create a more efficient market solution by explicitly procuring and reserving capacity specifically to address uncertainty in the net-load forecast targets, imitating a stochastic market solution so as to address this growing range of net-load targets.

Beyond CESA’s recommendation to the CAISO to finalize and approve the FRP design, CESA notes how the CAISO may need to pursue further work in a separate initiative regarding optimizing commitment decisions. CESA’s views stem from one aspect of the new design: how commitment decisions made by the optimization can change the target (and thus cost) of provisioning FRP. This can occur because commitments for one resource may create different ramping needs for subsequent intervals due to the different p-min, start-up times, min run times, etc of different units, versus the ramping effects of committing a different unit. To

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<sup>1</sup> See “CAISO Market Performance and Planning Forum” slides regarding market performance and resource mix, as well as CAISO modeling efforts shown in the CEC/CPUC/CAISO Joint-Agency Workshop on Bulk Energy Storage.

clarify, if a resource has no p-min or start-up time, it can be committed without affecting the ramping targets for subsequent intervals. Resources with a ramp-in to a p-min, however, would affect the near-term ramping needs (either positively or negatively). As these resources ramp-in, the optimization must accommodate this unavoidable ramp-in to the p-min, similar to accommodating a self-schedule's ramp-in. Additionally, resources with longer run-times may change the ramping needs in later intervals well after the decision to commit the units, whereas resources with no run-time limitations can be shut off without driving some ramping need to balance out the off-cycling generation.

As CESA understands it, the CAISO's proposed FRP design and commitment engine will not weigh the FRP costs *related to accommodating a newly committed unit* in its commitment decisions. To CESA, this highlights how commitment decisions may not be least cost in cases where a commitment drives increases in FRP costs. All else being equal, resources that reduce FRP costs should be committed, ideally. This potential weakness in the design reveals a need for potential overhauls of the CAISO's commitment engine so that costs related to resource commitments are fully factored in. This may also link to efforts to reflect commitment costs into LMP pricing as a way to reduce select uplift costs related to cost-recovery of commitment costs. CESA looks forward to exploring these matters further in the appropriate forum.