



3/26/2021

California Independent System Operator
250 Outcropping Way, Folsom, CA 95630

CAISO Transmission Planning:

Vistra Corp. respectfully submits these comments on the CAISO's 2022 and 2026 Draft Local Capacity Requirements ("LCR") Study Results posted on March 9, 2021 and discussed at a public stakeholder call on March 11, 2021. We appreciate that these Draft Results are the result of decisions the CAISO Transmission Planning group previously made when developing its Final Study Plan and final base cases. Vistra is committed to continuing to engage with the CAISO through its processes seeking stakeholder feedback. We submitted comments raising issues with storage modelling assumptions in our comments on the CAISO 2022 Local Capacity Technical Study Criteria Methodology and Assumptions¹ and

Vistra appreciates the CAISO spending time to summarize and response to stakeholder comments submitted on its LCR Draft Study Manual. In its responses, the CAISO stated in response to Vistra that:

"While batteries may still be able to replace some local generation it will require installation of 6, 8 or 10 hour batteries (depending on each local area specific need)."²

We appreciate the CAISO providing this explanation. The CAISO's analysis is helpful in that it informs the market that the CAISO reliability studies show directionally that there is a need for longer duration assets to complement assets that truly have shorter maximum duration limits. Our concern is that by using the "4-hr storage" concept in the study that the CAISO is injecting into its local reliability study the false construct that batteries being built have a maximum duration physical limit. Our understanding is this in most cases this is not the limit but rather there is the MWh energy limitation we have described, like other energy use limited resources.

Similar to other use-limited resources, energy storage has an energy limit (MWh limit) per cycle as well as a maximum cycles per day limit that is limited by other physical characteristics such as its interconnection rights and its round-trip efficiency. An energy storage resource rated to be able to sustain its maximum installed capacity for four hours with a round-trip efficiency of ~90% can provide just short of three cycles per day, however this will impact its incremental operations and maintenance costs. For instance, a 300 MW/1200 MWh energy storage resource could provide twenty-four hours of maximum sustainable output of 50 MW per hour without violating its energy limit. An operating pattern likely more consistent with operations would be to provide maximum sustainable output up to 120 MW per hour for 10 operating hours, allowing the remaining 14 hours to be used to re-charge. We note this example assumes one cycle per day limit, which is not generalizable to all energy storage and much more conservative than its physical capabilities. An energy storage resource could cycle up to almost three times per day, only if it is able to reflect the operations and maintenance costs resulting from increased cycles and MWh output in its offers. This example illustrates that the RA procurement framework needs to compensate energy storage RA resource equivalently to provide MWh across the day as it does to those that provide MWh across four-hours. Under the current rules, an energy storage resource willing to provide its MWh across a greater span of hours would have to de-rate its capacity value on a MW basis to provide the MWh over a longer duration, which would adversely impact its economics removing any incentive to build the asset. We support policy changes in this area that direct procurement changes to result in development consistent with reliability needs is the goal.

¹ Vistra Corp Comments – 2022 Local Capacity Technical Study Manual, November 18, 2020.

² ISO Responses to Comments on 2022 Local Capacity Requirements Draft Study Manual, Page 8.

The example above focuses on charging approach that would ensure full state of charge by an earlier hour that could be dispatched based on market needs throughout a much longer discharge period. The alternative scenario should also be explored where an energy resource charges over an extended period or charges during periods where the charge limitation does not affect the local area to provide its full state of charge across the four-hour period at net peak. Energy storage resources have flexibility in how they operate to ensure sufficient state of charge to optimize its use and value in the energy and ancillary service markets. We believe the maximum storage and maximum 4-hr storage analysis should capture the diversity of approaches that could be adopted to charge the battery. The information would be more helpful to inform developers consideration if the CAISO instead reported on the maximum charge MW that CAISO believes can be withdrawn from the grid on an hourly basis within each Local Capacity Area. The information would be more helpful to inform developers consideration if the CAISO instead reported on the maximum charge MW that CAISO believes can be withdrawn from the grid on an hourly basis within each Local Capacity Area.

We request the CAISO consider that energy storage resources are providing energy that can be dispatched across the day – not energy that is limited to a four-hour max duration. We request the CAISO consider reframing this analysis to report on the maximum amount of local RA that can be supported by various durations regardless of technology type rather than solely focusing on four-hour duration storage. Vistra thanks the CAISO for its consideration of our comments.

Sincerely,

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