



6/21/2022

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

CAISO Transmission Planning:

Vistra Corp. respectfully submits these comments in response to the CAISO's On-Peak Generation Deliverability Study Generation Dispatch Assumptions<sup>1</sup> posted on June 3, 2022 and discussed at a public stakeholder call on June 6, 2022. Vistra respectfully urges the CAISO to not adopt the storage dispatch assumption change it proposes to make in its Generation Dispatch Assumptions. Vistra is concerned with unintended consequences that assuming generation dispatch of storage at less than 100% of maximum operating level may have on storage development activities. In spirit of good utility practice, the RA obligation is to provide the full capacity under contract, where the capacity must provide 100% deliverability not 80%, or 50%, deliverability and the planning studies should assume that same expectation. Unless RA rules change to only require a portion of a BESS MW sold for RA to have full capacity deliverability status, the assumption change is inappropriate and inaccurate. It does not reflect the expectation of RA performance, nor does it reflect expected operations from a technical perspective.

### **CAISO should not reduce the storage dispatch assumption below 100% of Pmax**

CAISO proposed at its June 6<sup>th</sup> call to adopt new assumptions for storage dispatch:

- Reduce dispatch assumption to 80% of maximum operating level ("Pmax") in near-term deliverability studies: CAISO states, "However, the current storage study amount for the SSN study should be reduced from 100% of the maximum storage capability to 80% of the maximum storage capability, for near-term deliverability studies."<sup>2</sup> Our understanding is that the CAISO is

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<sup>1</sup> <http://www.caiso.com/Documents/Presentation-GenerationDeliverabilityStudyDispatchAssumptions-Jun062022.pdf>.

<sup>2</sup> *Id* at 17.

basing this recommendation on its view of storage fleet producing between 70-90% of its peak storage output during SSN period<sup>3</sup>, a similar analysis it reviewed for intermittent resources.

- Reduce dispatch assumption to 50% of maximum operating level (“Pmax”) in long-term deliverability studies: CAISO states, “Therefore for long-term deliverability studies storage should be studied at 50% of installed capacity in the SSN study”<sup>4</sup>. Our understanding is that the CAISO is basing this recommendation on its view of storage fleet producing almost 50% of maximum operating level during SSN in its analysis of the 2026 and 2030 IRP portfolios.

CAISO should not treat BESS like intermittent resources, which reducing the dispatch assumption based on the analysis described does so based on flawed logic that BESS output is intermittent and historical output shapes or forward model assumptions should limit the assumed amount of capacity that is deliverable – this is inaccurate since BESS are on-demand resources dispatchable up to Pmax.

Importantly, battery energy storage systems (“BESS”) are not intermittent resources but are instead dispatchable resources, where historical output levels could be result of CAISO dispatch instructions. As dispatchable resources, BESS that have full capacity deliverability status and are under a Resource Adequacy (“RA”) contract have a must offer obligation to make its peak output level (100% of Pmax) available to CAISO market unless physically unavailable and CAISO market or grid operations can either issue a market dispatch or an out-of-market dispatch to 100% of Pmax. BESS operations are akin to thermal on-demand generation subject to use limitations, not to intermittent resources.

As an owner and operator of a large BESS, we view a dispatch assumption less than 100% of maximum operating level as inaccurate. An assumption less than 100% of the maximum operating level does not reflect the expected battery operations during SSN and should not be adopted.

### **Opposition to storage dispatch assumption changes based on actual experience**

Vistra is a leading, Fortune 275 integrated retail electricity and power generation company based in Irving, Texas, providing essential resources for customers, commerce, and communities. The company

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<sup>3</sup> A more informative way to show the information being analyzed for storage is to represent the range of individual storage resources output during each hour in a box plot. We expect multiple storage resources were participating at 100% and others at lower levels to arrive at the 70-90% output range described. Storage output varies by resource and is a function of market or out-of-market instructions. We request the CAISO perform and publish this analysis to better inform any further discussions.

<sup>4</sup> *Id* at 21.

brings its products and services to market in 20 states and the District of Columbia as well as Canada and Japan and participates in six of the seven competitive wholesale two-settlement markets in the U.S. and the Western Energy Imbalance Market with approximately 39,000 megawatts across a diverse portfolio, including natural gas, nuclear, solar, and battery energy storage facilities.

In California, Vistra owns and operates a portfolio of 1,130 MW of generation and 400 MW / 1,600 MWh of energy storage and provides natural gas retail products to California consumers. Through its subsidiaries, Vistra operates the Moss Landing Energy Storage Facilities and the natural gas-fired Moss Landing power plant, which provide Resource Adequacy capacity and other products to the grid. Vistra also operates the distillate fuel-fired Oakland power plant, which is subject to a Reliability Must Run Agreement with the California Independent System Operator. Vistra is developing energy storage facilities in California that can provide Resource Adequacy capacity and other grid services to enhance the reliability of the California grid for up to an additional 1,810 MW / 7,240 MWh of combined storage projects.

Vistra provides the following storage dispatch assumption feedback based on its experience operating the Moss Landing Energy Storage 400 MW / 1,200 MWh battery energy storage system (BESS) that achieved commercial operations in 2021 and its plans to develop an additional 1,810 MW / 7,240 MWh BESS beginning in 2023.

Vistra's experience with BESS operations does not provide any support for an assumption that BESS dispatches are only reliable up to a portion of its maximum operating level. It is the opposite of intermittent output where a portion of its capacity may not be reliably deliverable, the entire output subject to a capacity obligation must be reliably deliverable up to 100% of Pmax under our long-term arrangement. BESS is akin to use limited resource that is dispatchable but limited to a certain MWh energy limit per cycle and is limited to a number of cycles per day depending on its technical capabilities. It is important that these MWh state of charge capability, round-trip efficiencies, and depth of discharge are highly resource specific details and a fleet wide assumption disincentivizes developers to strive to bring the highest quality assets to the grid. Like hydro with energy use limitations or thermal generation with use limitations, BESS should be assumed to provide 100% of maximum operating level during SSN, or HSN. Below we will address the fact that the ability of storage to manage its use limitations are largely done through overbuilding where there are greater "MW" behind the Point of Interconnection ("POI") to ensure the BESS can meet its obligations to support full capacity deliverability up to its POI injections.

BESS developers and operators can manage the need to be deliverable up to its Pmax through oversizing behind the POI. There is a gentle balance to maintain from a development perspective

because the over-sized portions are used to manage technical capabilities including round-trip efficiencies and depth of discharge limits, but this limits the full output that can be made available. Oversizing to fully mitigate these parameters is costly and unrecoverable as we can only sell capacity up to the MW amount limited by our Point of Interconnection. The important element of this feedback to consider is that the ability of storage to produce up to 100% of maximum operating level is the expectation of the asset and it is developed to be able to do so today, even if that means developers choose to oversize the MWh behind the POI to manage technical concerns from depth of discharge, round-trip efficiencies, and longer-term expectations of degradation. In practice, we develop and operate the asset to be able to inject 100% of its RA obligation, potentially up to POI, and CAISO planning should expect that performance on-demand if dispatched to provide full output when dispatch, assuming sufficient state of charge.

Vistra urges the CAISO to not prematurely change the generation dispatch assumptions for BESS.

Sincerely,

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