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TO: California Independent System Operator ("CAISO")
(via e-mail to regionaltransmission@caiso.com)

FROM: Hydrostor Inc.

DATE: June 20, 2022

SUBJECT: Comments on "Generation Deliverability Study Dispatch Assumptions"

Introduction

Hydrostor is a leader in advanced compressed air energy storage ("A-CAES"), a proprietary emissions-free technology that stores electricity in the form of compressed air. A-CAES is a clean technology solution that will help California achieve its goal of decarbonizing the electricity grid and achieving its renewable energy goals. A-CAES is a compelling bulk-scale (200-500+ MW), long duration (4-24+ hours) energy storage solution. Hydrostor A-CAES is unique amongst long duration energy storage in that it can be sited where needed, including in many urban or semi-urban locations. It is a long lifespan resource, with 30-50+ years of standard operability.

Hydrostor appreciates the CAISO undertaking a review of the generation dispatch assumptions for its On-Peak Generation Deliverability studies including the presentation and discussion on June 6, 2022. As we understand it, the proposal from the CAISO would: (1) change the secondary system need ("SSN") window to include hour ending ("HE") 18; (2) revise the SSN generation dispatch assumption for energy storage in near-term Deliverability studies to 80%; (3) revise the SSN generation dispatch assumptions for energy storage in medium and long-term Deliverability studies to 50%. We further understand that the medium and long-term Deliverability studies include the Deliverability studies undertaken as part of the interconnection process and that the CAISO proposes to make these study assumption changes prior to the 2022-2023 Transmission Plan Deliverability allocation cycle.

While Hydrostor strongly supports revising the generation dispatch assumptions for energy storage in the SSN window, we do not believe that the proposed changes go far enough nor do they reflect the expected behavior of energy storage in the SSN window. We recommend that the CAISO adopt generation dispatch assumptions that dispatches energy storage at 0% or charging in the SSN window, particularly for medium and long-term Deliverability studies.

Comments

CAISO Technical Studies Must Align With Policy Objectives

We believe that it is vitally important that the CAISO align its technical studies with the policy objectives of California including supporting the development of new generation projects that will enable a cleaner and more reliable electricity grid.

Under the current Deliverability studies, many proposed projects are prevented from receiving Deliverability due to constraints identified during the SSN window. The consequence is that such projects are stymied even though they could provide much needed capacity and reliability during the highest system need ("HSN") when, as the name implies, the need is greatest. Development on many of these projects becomes stalled or delayed as they await re-study or the potential approval of expensive and long-dated transmission upgrades.

Further, the failure to address Deliverability issues disproportionately impacts long duration energy storage projects. This conflicts with the CAISO's own stated concern regarding reliability over longer timeframes including multi-day reliability needs which long duration energy storage can help address. While some shorter duration storage projects could proceed as "Energy Only" if they do not receive Deliverability, this is not generally a viable option for many long duration energy storage projects that rely on Resource Adequacy ("RA") payments as a major revenue stream. Under the current CAISO market structure, long duration energy storage projects do not derive as much market revenues (such as energy arbitrage) as shorter duration projects (per megawatt of capacity) and proceeding as "Energy Only" is challenging economically.

Dispatching energy storage at 0% (or charging) during the SSN window also reflects the expected future operation of energy storage projects as solar generation remains high in the SSN window. Therefore, adopting such an assumption will be more reflective of future energy storage operation, is better aligned with state objectives and will enable the development of significantly more resources, including long duration resources, than adopting the currently proposed dispatch assumption of 50% (for medium and long-term Deliverability studies).

Adjusting Study Assumptions Is Less Expensive Than Transmission Upgrades

The Preferred System Portfolio adopted by the California Public Utilities Commission ("CPUC") in February of this year requires the build-out of over 40 GW of new resources by 2032. Absent appropriate changes to the CAISO's generation dispatch assumptions, enabling Deliverability for the build-out of this portfolio will likely require significant, costly, long-dated and potentially challenging to permit transmission upgrades to be completed. Modest adjustments to the Deliverability study assumptions in the SSN window (which still reflect expected operation of energy storage resources) is a lower / no cost alternative that will result in ratepayer savings while still enabling the development of materially more projects than what would occur under the current proposal.

Conclusion

Hydrostor strongly supports revising the generation dispatch assumptions for energy storage in the SSN window as it will both reflect how energy storage will operate as well as enable more projects to receive Deliverability and provide reliability benefits to the CAISO grid. However, we believe that the CAISO should adopt a dispatch assumption that dispatches energy storage at 0% or charging

in the SSN window. Adopting this assumption will support broader policy objectives as well as be more cost effective than transmission upgrades.

We appreciate the opportunity to provide comments and look forward to continuing to work with the CAISO on this and other topics.