Comments of the California Energy Storage Alliance on the Draft 2020-2021 Transmission Plan

Submitted by	Organization	Date Submitted
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1. **Storage as transmission asset**

CESA appreciates the ISO's consideration of storage as a viable and more cost-effective alternative to transmission assets, such that the Draft 2020-2021 Transmission Plan includes recommendations to procure appropriately-sited battery storage to replace two previously-approved transmission projects.[1] While the current draft does not include incremental Resource Adequacy (RA) value for storage with durations beyond four hours in the San Diego Area,[2] future Transmission Planning Process (TPP) cycles should incorporate updated RA value assumptions if the California Public Utilities Commission (CPUC) reforms RA rules for such resource capabilities. This issue is especially relevant as the Local Capacity Technical Studies reveal the value of longer duration discharges from storage resources; thus, the assessment methodology should be reevaluated in subsequent TPP cycles.

Separately, CESA also encourages the ISO to relaunch the Storage as a Transmission Asset (SATA) Initiative in the near future, which is currently planned roughly for 2022.[3] Other initiatives likely need resolution prior to its restart, and CESA appreciates the ISO's continued consideration of storage as transmission alternatives in the interim when the provision of transmission service does not directly conflict with market activities, broader consideration of storage can be supported with proposals developed in the SATA Initiative.

2. **Storage mapping and resource retirement in policy assessment**

CESA generally supports the ISO's storage mapping methodology and results in the 2020-2021 TPP cycle, as well as the transmission capability estimates provided.[4] In future cycles, we look forward to improving upon these methodologies that can support reducing or eliminating reliance on gas-fired generation.

[1] Draft 2020-2021 Transmission Plan at 12 and 114.
[2] *Ibid* at 159-160.
[3] Final 2021 Policy Initiatives Catalog at 17.
[4] Draft 2020-2021 Transmission Plan at 168-169 and 171-173.

3. **Other Studies – Frequency Response**

CESA appreciates the ISO's study on frequency response needs as the CAISO balancing area transitions away from conventional generators with rotating masses providing inertial response, to one where significant portions of the resource mix is composed of inverter-based generators and storage. Energy storage in particular has significant potential to support the ISO's frequency response needs going forward, with its fast active power response and ability to absorb (charge) and supply (discharge) power. It has the capability to regulate both active and reactive power at the point of connection with the AC grid in providing both synchronous inertia as well as synthetic inertia.

While Order No. 842 from the Federal Energy Regulatory Commission (FERC) did not specify headroom requirements and focused instead on requiring frequency response capabilities, CESA encourages the ISO to develop market-based frequency response products as opposed to creating general, across-the-board performance requirements, which would not encourage the most efficient, cost-effective, and highest-performing primary frequency response to be delivered. Rather, a market product for this service would allow certain resources to reserve the headroom required to provide the frequency response capacity, as needed and where the resource is most economically positioned to do so.

In its analysis, the ISO assesses the most stressed conditions in the spring months (*i.e.*, high renewables, low conventional generation, relatively low load) along with the greatest contingency condition (*i.e.*, Palo Verde generating station outage) to determine frequency response sufficiency in the CAISO balancing area. The ISO found that enabling frequency response from all of the new resources coming online between now and 2024 would ensure and improve frequency recovery, as compared to the counterfactual where such capabilities are not enabled.[5] The frequency response coming from a combination of inverter-based resources and battery energy storage systems (BESS) was found to significantly improve the ISO's ability to fulfill its Frequency Response Obligation.[6] However, in practice, rather than enabling these capabilities in this generalizable way in accordance with the study's assumptions, the ISO should explore market products, as contemplated in a forthcoming Frequency Response Measure Initiative.[7] Ensuring headroom from inverter-based resources in this way comes with an opportunity cost, such as in the form of reduced renewable energy credits (RECs).

Furthermore, the analysis assumed certain BESS operational parameters for when their frequency response capabilities are enabled, such as conservative limits to how it can immediately transition from charging to discharging to deliver the needed primary frequency response.[8] In future studies, CESA would like to work with the ISO to potentially update this underlying assumption and provide potentially accurate models for battery storage controls, identifying a representative charge-to-discharge range, as well as other parameters (*e.g.*, reduced rate of charging) that is capable of being provided to support frequency response.

[5] *Ibid* at 387-390.
[6] *Ibid* at 400 and 402.
[7] Final 2021 Policy Initiatives Catalog at 20.
[8] Draft 2020-2021 Transmission Plan at 398.

Finally, though it is understandable for the ISO to focus on BESS in its frequency response study and forthcoming initiative, especially as BESS will representative the vast majority of resource additions in the near term, the ISO should also be aware that several non-BESS technologies (*e.g.*, compressed air and liquid air energy storage) have the capability of providing inertia, as the discharge from such technologies may be delivered from rotating turbines. The amount of inertia on the grid may also impact the relative effectiveness, performance requirements, and total frequency response capacity needed from inverter-based resources and BESS.

We look forward to participating in future studies and the forthcoming initiative.