



Submit comment on update

20-Year transmission outlook (2023-2024)

[CalWEA Comments as submitted into CAISO portal 8-30-23](#)

1. Please provide your organization's comments on the 20-Year Transmission Outlook.

CalWEA wishes to highlight the fact that one very important assumption for the deliverability element of the first Outlook study, which presumably will be used for the current study, is inconsistent with CAISO's current deliverability methodology. More specifically, the first Outlook study used transmission outage assumptions lesser than the N-2 assumptions (N-0 and N-1 was used for 230kV and above, and N-1-1 was used for 500kV), while the deliverability assessment methodology uses far more stringent N-2 assumptions. Should CAISO not adopt a reform to that assumption in its current stakeholder initiative addressing potential reforms to the deliverability methodology, the transmission plan and price tag coming out of the Outlook will fail to represent the full extent of the upgrades that would be deemed needed to integrate the SB 100 portfolio.

CalWEA encourages CAISO to run a version of the Outlook study that assumes comprehensive deliverability reforms to obtain an indication of how much they would reduce the required upgrades and associated costs of interconnecting and delivering the same amount of capacity, while remaining reliable under NERC standards. These assumptions would include eliminating the SSN study and raising the 5% DFAX threshold for 500 kV line overload constraints to 10% – reforms that the CAISO is currently proposing, as well as assuming sub-N-2 outage conditions and using the CPUC's adopted QC levels for dispatch rather than values that greatly exceed QC levels, such as the 83% dispatch level being proposed for offshore wind. CalWEA expects the results of such a study to show that deliverability reforms beyond N-0/N-1 outage conditions will further reduce the upgrades needed to comply with NERC standards and will free up capacity for storage resources that will improve the integration of variable energy resources into the system.

CalWEA requests clarification of any higher-level studies that will be conducted in this 20-Year Outlook. Rather than the pseudo-deliverability study (snapshot power flow analysis) that was conducted for the first Outlook, we hope to see higher-level technical studies performed that will evaluate stresses in every generation pocket. A fuller understanding of the potentially required upgrades will help CAISO and stakeholders identify opportunities for efficiencies and cost reductions.

Lastly, we encourage CAISO to use the 20-year Outlook to inform the upsizing of transmission upgrades in its TPP cycles, as it did in the 2022-23 TPP.

2. Please provide your organization's comments on the approach to offshore wind.

While a 20-year conceptual plan will almost certainly remain conceptual, given a multitude of uncertainties that will unfold in that timeframe, CAISO should strive to envision the best solution to all expected high-value needs to produce overall efficiencies that will reduce total costs as well as improve system reliability. CAISO has presented conceptual plans for Central and North Coast

offshore wind that include a transfer path beginning from a single onshore substation for each area. CAISO should also develop conceptual offshore networks to collect the offshore wind generation and deliver it to the grid and should anticipate the resolution of downstream constraints. That is, CAISO should develop a single, integrated design that supports the efficient delivery of at least 20 GW of offshore wind to California's coastal load centers. (Such an approach is underway in Great Britain in National Grid's "Pathway to 2030 Holistic Network Design" – see: <https://www.nationalgrideso.com/future-energy/pathway-2030-holistic-network-design>.)

Shared interconnection network facilities will make full use of the transfer path capacity, reduce total transmission costs, and reduce impacts to the seabed by reducing overall cabling requirements to shore. It would be inefficient and costly for several adjacent OSW projects to separately connect to the grid with parallel gen-ties. A single, shared collection network with interconnection hubs that all projects connect to would not only be more efficient and impose fewer impacts, but it would lower the pro-rata cost for each project and overcome a significant development hurdle. CAISO should begin to conceptualize such offshore networks both at the North and Central Coasts in this year's 20-year Outlook.

Regarding downstream constraints, in the first 20-year conceptual plan, CAISO added system elements to the initial plan to address the constraints that would result from connecting planned resources to the grid. This year's draft plan begins to envision system enhancements at the Central Coast depending on the status of the DCCP; however, CalWEA recommends that CAISO envision the full design at the outset, including two offshore wind hubs. The two proposed VSC-HVDC offshore sea cables, one to Humboldt and one to the Bay Area at the Collinsville substation, should be part of the northern wind hub. The Central Coast offshore projects would connect via the Central Coast wind hub to Central Coast substations (Diablo Canyon and/or an expanded Morro Bay, and the Bay Area via Moss Landing) and to Southern California via Redondo Beach and the SONGS substation using HVDC subsea cables. This system would deliver Northern and Central Coast wind to all major load areas, and help relieve several known transmission constraints (e.g., Path 26 and Path 15). All the onshore and offshore HVDC lines should be designed as bi-directional to create a parallel backbone network to the onshore north-south network, substantially increasing the transfer capacity of the entire grid under both normal conditions and transmission outage conditions. Such a network would also lend itself to strengthened interconnections with Oregon, which is also planning for offshore wind off its southern coast.

Given the increasing risk of major wildfires, offshore networks will bring considerable risk-reduction benefits, and would also avoid the difficult task of obtaining siting approvals involving a large number of land owners along a statewide, land-based path.

3. Please provide any additional comments that you have.

No further comments.