



**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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09/27/21
03:40 PM

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**OPENING COMMENTS OF LS POWER DEVELOPMENT, LLC
ON THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENTS ON
THE PROPOSED PREFERRED SYSTEM PLAN**

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September 27, 2021

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I. Introduction

Pursuant to Administrative Law Judge Julie A. Fitch’s Ruling Seeking Comments on Proposed Preferred System Plan (“Ruling”), dated August 17, 2021, LS Power Development, LLC (“LS Power”) respectfully submits these reply comments to the California Public Utilities Commission (“Commission” or “CPUC”).

LS Power generally supports the Commission’s Preferred System Plan (PSP) for use in the integrated resource planning (IRP) and procurement and to be analyzed for California Independent System Operator’s (CAISO) 2022-2023 Transmission Planning Process (TPP). This long-term plan is a key step in setting California on a path to meet its greenhouse gas (GHG) goals and electric reliability needs. It also sends an important procurement signal to load serving entities (LSEs) and developers to ensure those necessary resources are built in a timely manner to mitigate grid reliability concerns. LS Power’s comments are summarized as follows:

- Approve the 38 million metric ton (MMT) Core Portfolio as the PSP;
- The Commission should not rely too heavily on the California Energy Commission’s (CEC) Mid-Term Reliability (MTR) reliability analysis that indicates 2022 is the only

year of concern, and should continue to support resource build out by 2024 and 2025 when Diablo Canyon Nuclear Power Plant retires;

- The Commission could encourage and/or incentivize LSEs to accelerate procurement ordered in the IRP Mid-Term Reliability decision D.21-06-035 from a 2024 or 2025 online date to 2023, but this acceleration should not be required;
- CAISO is currently evaluating out-of-state (OOS) wind and transmission projects and the Commission should closely coordinate with CAISO to approve and build OOS transmission that provides policy, reliability, and economic benefits to California. The Commission should provide a clear recommendation in its PSP Decision to CAISO to enable approval in this 2021-22 TPP cycle such that transmission can be available to support the 2024/2025 development timeline of OOS resources such as Idaho wind;
- Competitive OOS wind locations should be considered fairly by updating the outdated RESOLVE model inputs and assumptions for Idaho wind capacity factor and capital cost, and capital cost of associated OOS transmission. If inputs are updated to realistic assumptions and the RESOLVE model is rerun, it shows 1,893 MW of Idaho wind starting in 2025 in the 38 MMT Core Scenario and a system cost savings of \$360 million (net present value 2022-2045) compared to the Core Scenario.
- Busbar mapping should map OOS wind at the resource location, not the CAISO boundary;

- The 38 MMT Core Portfolio should be used as the reliability and policy-driven base case in the TPP to ensure these significant resource levels are evaluated for transmission needs;
- The Commission should coordinate with CAISO on non-transmission alternatives to be built and any decision on this should be carefully addressed through CAISO stakeholder process;
- Transmission for offshore wind should be a coordinated effort and follow the CAISO tariff.

II. Comments

A. The Commission should approve a 38 MMT Core Portfolio as the PSP

4. Comment on the appropriateness of the 38 MMT Core Portfolio as the PSP

LS Power supports the 38 MMT Core Portfolio as the PSP. Table 3 on Scenario Cost Metrics in the Ruling shows the 38 MMT Core costs marginally more than the 46 MMT Core scenario and achieves the same levelized average rate. The 38 MMT Core also achieves an LOLE of less than 0.1. Given recent climate change-driven events in California, including heatwaves, droughts, and wildfires, it is clear that California needs to do its part to reduce GHGs.

The 38 MMT Core Portfolio is heavily comprised of utility-scale solar and battery storage projects. While LS Power understands these resource levels may not translate to specific procurement targets, LS Power suggests that the Commission encourage LSEs to

closely consider location diversity in their portfolios. The August 2020 outages and July 2021 transmission outage from the Bootleg fire that led to California supply shortages illustrate the risk of relying too heavily on resources internal to CAISO and OOS resources through existing import paths. The Commission should encourage LSEs to appropriately value location (including OOS) diversity in procurements to improve grid reliability and resiliency and also encourage CAISO to develop transmission solutions that can offer diversity for import paths.

B. The Commission should not rely too heavily on CEC’s MTR reliability analysis and should continue to support resource buildout by 2024 and 2025 when Diablo Canyon retires.

16. Comment on the CEC’s MTR reliability analysis, the determinations regarding the need for fossil-fueled generation resources, and the actions, if any, that the Commission should take as a result.

The CEC’s recent MTR reliability analysis¹ is a useful tool to evaluate grid reliability at planned resource levels. However, LS Power cautions the Commission on relying too heavily on the result that 2022 is the only year of concern for the different procurement scenarios. The procurement scenarios, including the 38 MMT PSP, are aggressive given California’s historical levels of buildout. While there are significant levels of resources in the CAISO Interconnection Queue, it is questionable whether California is on track to meet 2023 and 2024 capacity targets given current levels of build out and interconnection delays. While LSEs and developers are moving quickly to meet these goals, the Commission should continue to act swiftly to approve contracts and coordinate CAISO and Transmission Owners to streamline interconnection

¹ CEC, Midterm Reliability Analysis & Incremental Efficiency Improvements to Natural Gas Power Plants, August 30, 2021
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=239554&DocumentContentId=72991>

processes and transmission approvals to ensure the needed level of resource buildout is achieved. Additionally, the Commission should encourage LSEs to procure all clean energy resource types, including OOS resources that can be online by 2024 or 2025 when Diablo Canyon Nuclear Power Plant retires. The Commission should also work with CEC to update this reliability analysis annually to reflect actual new capacity that comes online.

C. The Commission should encourage and/or incentivize accelerated D.21-06-035 procurement, but not require procurement acceleration.

15. Comment on whether and how much procurement required in D.21-06-035 should be accelerated to 2023 and/or suggest additional actions to facilitate additional resources in response to the Governor's Proclamation from July 30, 2021.

The Commission could encourage and/or incentivize LSEs to accelerate procurement ordered in the IRP Mid-Term Reliability decision D.21-06-035 from a 2024 or 2025 online date to 2023, but this acceleration should not be required. Accelerating projects to come online in summer 2023 is likely challenging, but may be possible with streamlined approval processes. Given that 2023 is already a tight implementation timeline, the Commission should also consider accelerating projects to come online in 2024 and 2025. Out-of-state wind, for example, is noted in the PSP with a 2030 buildout, but Idaho wind could be online by the end of 2024 if transmission project approvals are received in the 2021-22 TPP which would allow new transmission required to deliver Idaho wind to California in time. Further, if RESOLVE modeling inputs and assumptions are corrected for Idaho wind, results show that ~1800 MW from Idaho would be included in the 38 MMT base scenario starting 2025 (see section E below for more details).

For battery storage projects, which is typically the fastest technology that can be brought online, it generally takes at least 12-14 months after final Commission approval of a procurement advice letter to achieve Commercial Operations Date (COD). A developer typically provides Notice-to-Proceed for construction only after procurement, contracting, and regulatory approvals are complete; and typically it takes at least 12 months after a Notice-to-Proceed to complete construction, testing, commissioning and the CAISO New Resource Implementation process needed to bring a utility scale resource online. While Community Choice Aggregators (CCAs) may not be subject to the Commission approval process, they still have solicitation and local approval processes that take time. If the Commission issues a final Decision on the PSP in December 2021, and if LSEs ambitiously filed for project approvals the next day, the earliest a new project is likely to come online is Summer 2023. The Commission could authorize a Tier 1 or Tier 2 advice letter, instead of the typical Tier 3 advice letter that typically takes 6 months for approval, to potentially get a Spring 2023 online date. Given recent supply chain and Covid-related project delays, LS Power suggests the Commission authorize an accelerated approval process for 2023 supply in order to give supply a reasonable chance to get online by summer 2023.

Project implementation schedules are already tight, and many long lead-time items (for example global shipping delays for materials or time to build interconnection facilities) are controlled by third parties and currently experiencing delays. Additionally, there is a global battery supply shortage that is expected to impact 2022 supply availability² and potentially beyond, again an item that is beyond the control of project developers or LSEs. While some

² Spector, Julian. "The grid battery boom has triggered a supply shortage." Canary Media. July 19, 2021. <https://www.canarymedia.com/articles/the-grid-battery-boom-has-triggered-a-supply-shortage/>

developers may be able to come online early, given supply chain limitations and existing contractual arrangements, there should not be a requirement to accelerate timelines

D. The Commission should closely coordinate with CAISO to support development of OOS wind and the transmission to deliver it.

23. Comment on whether and how the Commission should act to support the development of OOS renewables/wind and the transmission to deliver it. Be as concrete and specific as possible in your recommendations.

LS Power appreciates the Commission's close consideration of how to support transmission development to deliver OOS renewables/wind. OOS wind is an important component of California's clean energy resource portfolio, being able to deliver energy during the net peak hours to complement in-state solar, supplement in-state battery projects, provide diverse production profiles to in-state wind and enable more fossil fuel generation retirement resulting in a greater reduction in GHG emissions. The Commission should encourage LSEs to procure diverse resources such as OOS wind to improve grid reliability and resiliency. IRP modeling work conducted to date support inclusion of OOS renewables/wind in the Base Case portfolio. Therefore, transmission solutions that allow delivery of these resources from OOS locations to CAISO load should be properly evaluated in CAISO's TPP. The TPP study should not only look at needs for in-state transmission, but also what transmission will be required to deliver these resources to existing CAISO boundary stations. Further, all benefits of these new transmission projects should be carefully evaluated in CAISO's TPP process such that projects that do provide benefits to California (economic, policy, reliability) can be approved as part of CAISO's 2021-22 Transmission Plan.

As the Ruling notes, CAISO is conducting a study in the 2021-22 TPP of OOS transmission options to deliver OOS wind. While the results of this TPP analysis may be released after the proposed decision on the PSP, LS Power suggests the best approach for the current TPP cycle is to coordinate closely with CAISO on results of its analysis and for the Commission in the final PSP decision to support development of one or more new transmission projects if results show overall benefits to California. LS Power encourages CAISO and the Commission to look comprehensively at benefits of transmission projects, including reliability and economic benefits in addition to policy benefits to deliver IRP portfolios. LS Power suggests OOS transmission projects should be compared with the following criteria at a minimum:

- Project readiness and expected in-service date, and the associated economic and reliability benefits that come with advanced development projects that can move forward quickly,
- Transmission project cost including interconnection facility costs and network upgrades, and potential downstream upgrades (within CAISO) required to facilitate delivery of OOS wind,
- Unit cost of delivery of the 1062 MW of OOS wind (\$/MW) to existing CAISO Balancing Area Authority (BAA), including cost and availability of long-term firm transmission rights (or transmission upgrades outside CAISO BAA) required to bring the OOS wind into CAISO BAA (from the source to the CAISO boundary station),
- Resource adequacy eligibility and CAISO's long-term access to the OOS resources

- Economic benefits from production cost modeling and additional benefits from the TEAM methodology,
- GHG emission reduction benefits, including access to OOS wind and other renewable energy and storage projects, and
- Economic, resiliency and reliability benefits of the transmission project for CAISO ratepayers.

If an OOS transmission project shows clear combined benefits to Californians, the Commission should provide clear direction to CAISO in its PSP Decision to approve the project in this 2021-22 TPP to avoid delays in bringing new resources online. For example, LS Power’s Southwest Intertie Project –North (SWIP-North), could provide a ~1100 MW new transmission path to deliver OOS wind and other renewables from Idaho and Nevada into CAISO. SWIP-North is an advanced development project, and if approved in the current 2021-22 TPP it could be online by the end of 2024.

E. Competitive out-of-state wind locations should be considered fairly by updating the outdated RESOLVE model inputs and assumptions for Idaho wind capacity factor and capital cost, and capital cost of associated OOS transmission

3. Comment on the appropriateness of the scenarios and sensitivities developed in RESOLVE to be considered as the preferred portfolio. Suggest any alternative sensitivities or changes to the analysis.

Out-of-state wind inputs and assumptions in the RESOLVE are currently based on old information and do not reflect current commercial realities for Idaho wind. In addition, capital

cost assumptions for OOS transmission required to deliver Idaho wind are inaccurate. LS Power's understanding is that the RESOLVE model used for the PSP did not include Idaho wind as an option and only made New Mexico and Wyoming available. LS Power also understands the Commission will be updating inputs and assumptions for RESOLVE in the near future, and LS Power will be participating to ensure appropriate values are included for Idaho wind and transmission. For the purposes of the PSP, however, LS Power suggests the Commission and LSEs continue to consider all competitive OOS wind locations that are able to provide energy and capacity at similar cost levels when combined with new transmission. Additionally, CAISO is currently conducting an analysis of OOS wind and transmission projects in its 2021-2022 TPP. This analysis should provide important information on economic, policy, and reliability benefits of transmission to deliver OOS wind into California. Further, it is critical that OOS wind and transmission project assumptions are updated in the RESOLVE model so that they are appropriately included as resources to be evaluated in the TPP.

To illustrate the effectiveness of Idaho wind in helping resolve mid-term reliability needs, LS Power ran a scenario in the RESOLVE model with realistic inputs and assumptions for Idaho wind and the cost for required new OOS transmission. LS Power made three primary changes to the model: 1) updated the average capacity factor to 38% (from 32%) based on onshore wind Class 6 resources in NREL 2020 Annual Technology Baseline, 2) changed the first available year to 2024 (from 2026) based on current development timeline, and 3) updated the Transmission cost for delivery to the California border to \$58/kW-year (from \$110/kW-

year) based on an estimated capital cost of \$650 million³ for SWIP-North transmission project. **These changes resulted in RESOLVE model selecting 1,893 MW of Idaho wind starting in 2025 and a system cost savings of \$360 million (net present value 2022-2045, in 2020 U.S. dollars) compared to the Core Scenario.** LS Power has two wind projects representing more than 2,000 MW of nameplate capacity under development in Idaho and the SWIP-North transmission project to deliver Idaho wind into CAISO, and therefore can attest that these updated inputs are in line with current commercial realities. This example RESOLVE model case is available to be shared with the Commission upon request.

If the Commission does not update the RESOLVE model to fairly characterize Idaho wind and associated transmission for the PSP, LS Power suggests that the Decision should include an explicit acknowledgement that OOS wind could contribute to the portfolio earlier. As noted above, this is particularly important to ensure CAISO TPP models include OOS wind for transmission planning needs.

F. Busbar mapping should map OOS wind at the resource location, not the CAISO boundary

11. Comment on the busbar mapping approach.

LS Power generally agrees with the busbar mapping approach, except for OOS wind. The current approach has area-level resources allocated to the point of interconnection substation respecting where the resource is injected into the CAISO system (the CAISO boundary station). LS Power suggests that OOS wind should be mapped to its resource interconnection location

³ The SWIP-North cost estimate of \$650 million is in 2021 U.S. dollars, converted to \$58/kW-year in 2018 U.S. dollars for RESOLVE model comparison purposes (to be consistent with the original \$110/kW-year in 2018 U.S. dollars for transmission cost of Idaho wind).

(i.e. Idaho, New Mexico, or Wyoming point of interconnection) to more appropriately consider how the resource will get to the CAISO boundary, and what will be the scope and cost of new transmission upgrades to deliver to the CAISO boundary including cost of any firm transmission required. Correctly modelling this will help understand impacts between resource locations and the CAISO boundary in addition to potential downstream impacts within CAISO.

G. The 38 MMT Core Portfolio should be used as the reliability and policy-driven base case in the TPP.

7. Comment on the proposal to use the 38 MMT Core Portfolio as the reliability and policy-driven base case in the TPP.

LS Power supports using the 38 MMT Core Portfolio as the reliability and policy-driven base case in the TPP. Significant new transmission will likely need to be constructed to facilitate achieving this portfolio. It is important for CAISO to plan the transmission system to accommodate these significant resource levels in order to have adequate transmission to deliver the necessary energy and capacity and maintain system reliability. Competitive procurement of transmission should be used to the maximum extent possible to control costs. The Commission should coordinate with CAISO on non-transmission alternatives to be built.

9. Comment on whether and how the Commission should act to encourage specific non-transmission alternatives to be built, if identified as part of the CAISO TPP process, both for the two specific projects identified in the 2020-2021 TPP, as well as in general for future such opportunities.

LS Power suggests that the Commission continue coordinating with CAISO on non-

transmission alternatives, such as storage as a transmission asset. However, given the challenges noted and that transmission assets and interconnection rules fall under CAISO jurisdiction, LS Power does not suggest specific action to support these projects at this time. We understand there are several challenges implementing Storage as a Transmission asset, while still allowing this resource to participate in the markets. CAISO had a stakeholder initiative active a few years ago under which all these issues were being discussed. Unless these issues are fully flushed out in a stakeholder forum, we recommend no specific actions be taken at this time or else there could be unintended negative consequences on existing market participants.

H. Transmission for offshore wind should be a coordinated effort and follow the CAISO tariff.

21. Comment on whether and how the Commission should act to preserve transmission deliverability rights in the central coast area that could be utilized for offshore wind or other resources.

LS Power does not think the Commission should act to preserve transmission deliverability rights for offshore wind or other resources. These resources should be subject to CAISO transmission and interconnection processes and tariff requirements equally to all other resources and should not receive special treatment.

LS Power suggests that the Commission consider working with CAISO on a coordinating transmission planning approach for offshore wind, such as the plan recently adopted by the New Jersey Board of Public Utilities (BPU) related to transmission for offshore wind

development.⁴ New Jersey has an offshore wind goal of 7500 MW and is working to coordinate shared on- and offshore transmission facilities for projects, rather than individual generation interconnection lines for each project. This approach of coordinating transmission from multiple projects is expected to result in considerable ratepayer savings, minimize environmental impact, better grid stability, and significantly reduce permitting risk. A key component of New Jersey's process is conducting a competitive bid process to solicit innovative, low cost solutions for ratepayers.

III. Conclusion

LS Power appreciates the Commission's consideration of these comments.

Respectfully submitted September 27, 2021, at Pleasanton, California.

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⁴ New Jersey BPU Order 11-18-20-8D, Docket No. QO20100630,
https://publicaccess.bpu.state.nj.us/CaseSummary.aspx?case_id=2109468