



Submit comment on Draft 20-Year Transmission Outlook

20-Year transmission outlook

[Comments entered online into CAISO template]

1. Please provide your organization’s overall comments on the Draft 20-Year Transmission Outlook Feb 7, 2022 stakeholder call discussion: *

CalWEA very much appreciates this holistic planning effort. To identify an efficient plan, it is essential to plan simultaneously for all system needs. To further promote efficiency in transmission planning, the CAISO should also take the opportunity to reform its study methodology to reflect the evolution from fossil fuels to clean resources that require updated planning tools.

It is important to recognize that a 20-year plan will almost certainly remain conceptual, given a multitude of uncertainties that will unfold in that timeframe. Nevertheless, improvements can and should be made so that the final 20-year Transmission Outlook is the best representation possible of current understandings and expectations.

To make real progress towards the long-term plan, it will be essential to develop a stronger bridge between 20-year planning and the annual 10-year TPP cycle than is provided in the draft Outlook, one that provides a firm basis for moving forward with elements of the 20-year transmission plan in the near term. CalWEA outlines a plan to make such progress below.

2. Comment on chapter 1 Introduction: *

Chapter 1 appropriately highlights the need for CAISO to “get in front” of the acceleration of clean energy development. The chapter states that the 20-year outlook provides a baseline to “establish expectations for longer-term planning. What is missing is any roadmap for making progress on that baseline in the near-term, which is necessary to truly “get in front” of resource development by building the transmission necessary to enable achievement of the transition to clean energy. In response to question 6 below, CalWEA recommends and describes such a roadmap, while recognizing that, as stated in Chapter 1, “resource planning decisions and procurement decisions will differ over the years ahead from the assumptions used to establish this baseline.”

3. Comment on chapter 2 Coordination with State Agencies: *

No comments.

4. Comment on chapter 3 Process and Inputs: *

- a. It is not clear why the 2040 Starting Point (“SP”) Scenario differs so much from the resources in the SB 100 resource plan. Our understanding is that, for example, the SB 100 2045 scenario included 3.2 GW of long-duration storage (vs. 4 GW in the SP Scenario), 4.3 GW of

wind (vs. 2.2 GW in the SP Scenario) and 7.6 GW of OOS wind (vs. 12 GW in the SP Scenario).

We are particularly puzzled by the fact that in-state wind and utility solar do not grow between 2031 and 2040. Also, the 2040 in-state wind figure is significantly lower than the 3.5 GW of additional wind included in the CPUC's recently adopted Preferred System Plan by 2025.

CAISO should better explain how it arrived at these figures. The report should also include the comparable figures from the SB 100 2040 RESOLVE model in Table 3.1-3.

- b. As noted in section 3.1.1, the SB 100 Core scenario includes 33 GW of behind the meter PV. The Outlook report should note that, unlike the other resources included in the SB 100 resource scenario, BTM PV was not evaluated in the SB 100 RESOLVE model on its merits. Rather, 33 GW of BTM PV was hard-wired into the model. Thus, compared to other resources, this resource level is particularly subject to change. Indeed, that figure will be significantly affected by a pending CPUC decision on its net energy metering policy.
- c. Similarly, the Outlook report should note that the SB 100 RESOLVE model artificially capped the amount of offshore wind at 10 GW. Cost-effective levels could be higher.
- d. The report should revise the assumed locations for the 10 GW of offshore wind. While these locations remain uncertain, it appears fairly likely that development will not occur off the coast at Diablo Canyon given that, while the U.S. Navy has acceded to development off Morro Bay, it has not yet acceded to offshore wind development off the coast at Diablo Canyon due to its military operations there and, in fact, has historically expressed very strong reservations about the impact that such development would have on its military operations.¹ Therefore, the Diablo Canyon offshore wind capacity should be located off the North Coast. We note that additional offshore wind off the North Coast should make transmission development in Northern California more cost-effective on a per-MW basis. It is also possible that Morro Bay 500-kV switchyard could accommodate as much as 4 GW.
- e. All of these assumptions should be improved as much as possible for the final 2022 20-Year Outlook, along with the development of three distinct resource futures discussed below in response to question 6.

5. Comment on chapter 4 Integration of Resources: *

No comments (but see our comments regarding offshore wind, above).

6. Comment on chapter 5 High-Level Assessment: *

- a. **CalWEA supports the storage assumption in the on-peak deliverability assessment.** In assessing the scenarios, CAISO has made one significant change to the methodology it uses to determine deliverability: it has assumed that energy storage resources are fully charged, but not producing in the peak consumption study, which corresponds to the Secondary System Need (SSN) test in the CAISO's on-peak deliverability assessment. CalWEA applauds this modification, which recognizes that when solar generation is

¹ See, e.g., "Outreach on Additional Considerations for Offshore Wind Energy off the Central Coast of California." https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/UPDATED-NOA-Outreach-on-Additional-Considerations_0.pdf

abundant, flexible resources are likely to have low output, or even negative (charging) output, to get ready for later hours when fast net-load ramping requirements (corresponding to the HSN scenario) come about. This realistic assumption will promote more efficient grid utilization although, as explained next, it does not go far enough.

- b. **Further modifications to CAISO’s deliverability assessment should be made.** While we very much appreciate that CAISO has made its on-peak deliverability assessment more realistic, we encourage CAISO consider eliminating the peak consumption (SSN-equivalent) study altogether. Using the SSN scenario has little to do with delivering resources to load when RA capacity is really needed – during the evening net-peak-load condition (represented by the HSN scenario). The SSN scenario is, instead, focused on avoiding renewable generation curtailment during times of high production from variable energy resources when gross load is also expected to be high but when system need for RA capacity is not critical at all. Hence, applying the SSN condition will make resources that can offer capacity at the time of high system need for capacity to be deemed Energy Only, thus depriving the state legitimate sources of RA capacity.

It is important that, as we plan for a major transformation of the grid, we promote the efficient use of the grid, which will significantly reduce the upgrades and associated costs required to interconnect the same amount of capacity. CalWEA has explained at length elsewhere why the eliminating the SSN test, as well as reforms to the HSN test, are central to that goal.² This reformed methodology should be applied in this and future 20-year outlooks, as we reimagine the future grid. Instead, the methodology – albeit with an important modification -- continues to use a methodology that was designed around fossil and nuclear fuels rather than the resources and technologies that we are now designing the grid for. The \$30 billion estimated cost of the plan could be lowered with more appropriate planning assumptions and a reformed deliverability methodology.

- c. **Out-of-state transmission assumptions.** CalWEA agrees with the CAISO’s assumption (stated in response to a question on the February 7 stakeholder call) that OOS transmission project costs should be included in the analysis, even if covered by developers, to promote apples-to-apples comparisons among alternatives. As stated by CAISO, ratepayers will pay for these transmission costs one way or another, and total costs should be included in the CPUC’s assessment of total resource costs in its IRP analyses. This should be explained in the final Outlook report. (In all cases, however, OOS Tx developers should carry the risk of development costs.)
- d. **System upgrade detail.** The estimated interconnection costs for offshore wind and out-of-state wind are identified as \$8.11B and \$11.65B, respectively. At the same time, many of the transmission system upgrades totaling \$10.74B are also attributed, in part, to the delivery of offshore wind and out-of-state wind. It would be useful if the CAISO could provide more information regarding the resource mix driving these system upgrades.
- e. **Roadmap to near-term progress.** CalWEA appreciates that this conceptual 20-year plan will provide improved inputs for resource planning processes conducted by the CPUC and CEC. To that end, it is important that the report be adjusted to reflect more accurate and realistic assumptions (as discussed in response to question 4) as much as possible.

² See CalWEA’s October 18, 2021, joint submission with the California Energy Storage Alliance to the CAISO’s Policy Initiatives Catalog, also available [here](#) .

As importantly, however, this 20-year planning effort should be aimed more firmly at advancing, in the near-term, elements of the plan that will almost certainly be needed to achieve the state's SB 100 goals. Along these lines, the draft Outlook states only that "The expanded planning horizon is intended to provide... a longer-term context and framing of pertinent issues in the CAISO's ongoing annual 10-Year Transmission Plan." (At p. 56.) This is an insufficient response to, as the draft Outlook states, the "unprecedented need for new renewable resources over the next 10 to 20 years."

While any single 20-year plan must realistically remain conceptual, given a multitude of uncertainties that will unfold in that timeframe, incremental, but real, progress towards the long-term plan could and should still be made. To do that, some upgrades should be selected in each annual TPP cycle that will build towards the 20-year plan. To identify those upgrades, CalWEA recommends that the CAISO work with the CPUC and CEC to develop a least-regrets (essentially no-regrets) 20-year planning process in which three significantly different, but plausible, 2040 resource scenarios be created for which actual (rather than conceptual) transmission plans are independently developed. Those upgrades that are common to all three scenarios should move forward in the annual TPP cycle for presentation to the CAISO board for approval. Those upgrades that are common to two out of the three scenarios should be closely monitored as part of annual TPP cycle as replacement (potentially more costly replacement) solutions to address reliability, economic and/or policy upgrades that are identified in the TPP. This least-regrets process would ideally be outlined in the final 2022 20-year Outlook and apply in the subsequent IRP and TPP cycles.

A clear process that will lead to the selection and approval of incremental upgrades needs to be included in this plan if the state is to make near-term and steady progress towards integrating the clean energy required to meet the very challenging SB 100 targets.