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Vice President, Infrastructure & Operations Planning

February 2, 2023

VIA EMAIL

Dear Vice Chair Siva Gunda,

The ISO has been conducting probabilistic production cost modeling analysis for purposes of participating in CPUC integrated resource planning activities, summer preparedness activities, and to support the Energy Commission’s study requirements associated with several legislative reporting requirements.

This letter summarizes the ISO’s current results so that they may be considered in the Energy Commission’s report on the prudence of extending the operation of the Diablo Canyon Power Plant to at least 2030, as dictated by SB 846 (PRC 25233.2(c)). As circumstances continue to evolve, this letter also sets out several planned next steps.

Current Study Results

The ISO’s most comprehensive analysis across the 2023-2026 timeframe is based on the preferred system plan of CPUC Decision (D.) 22-02-004 and the Energy Commission’s California Energy Demand 2021 forecast.

The ISO’s probabilistic production cost modeling analysis, conducted using the PLEXOS software tool, found:

Table 1 - All Capacity Values in MW

	2023	2024	2025	2026	2032
Calculated loss of load expectation (LOLE) with a target of less than 0.1, or less frequent than 1 day in 10 years.	0.064 or 1 in 15.6 years	0.018 or 1 in greater than 50 years ¹	0.130 or 1 in 7.7 years	0.126 or 1 in 7.9 years	0.142 or 1 in 7.0 years
Surplus or shortfall in effective capacity to achieve the 1 day in 10 years target performance for the preferred system plan	Surplus of 531 MW	Surplus of 1,493 MW	Shortfall of 1,029 MW	Shortfall of 1,146 MW	Shortfall of 509 MW

Note that the resource portfolios studied in this analysis did not include the Diablo Canyon Power Plant generating units beyond their originally planned retirement dates in 2024 and 2025. The analysis also did not include the remaining once-through-cooling gas fired generation beyond the existing extensions of their once-through-cooling compliance dates,

¹ As the relevant load information used to develop load distribution curves only has a finite number of actual years’ load and resource performance history to base models upon, differentiating between more extreme probabilities beyond a 1 in 50 performance level is not reasonable or helpful.

currently set for December 31, 2023. Additionally, these results do not take into account emergency measures that would be taken in the event of a supply shortfall to maintain service to customers. Therefore the probabilities refer to the risk of entering these emergency conditions, not the actual loss of firm load due to a supply shortfall. These results reflect normal distributions of conditions and may not reflect more extreme conditions that fall outside traditional production cost modeling loss of load expectation (LOLE) analysis.

With these probabilistic production cost modeling results established, the ISO then determined the net qualifying capacity (NQC) of the preferred system plan, which was based on installed capacity, and adjusted the total capacity amount in each year by the surplus or shortfall amounts to determine the actual amount of new NQC needed to achieve precisely the 1 in 10 LOLE performance target.

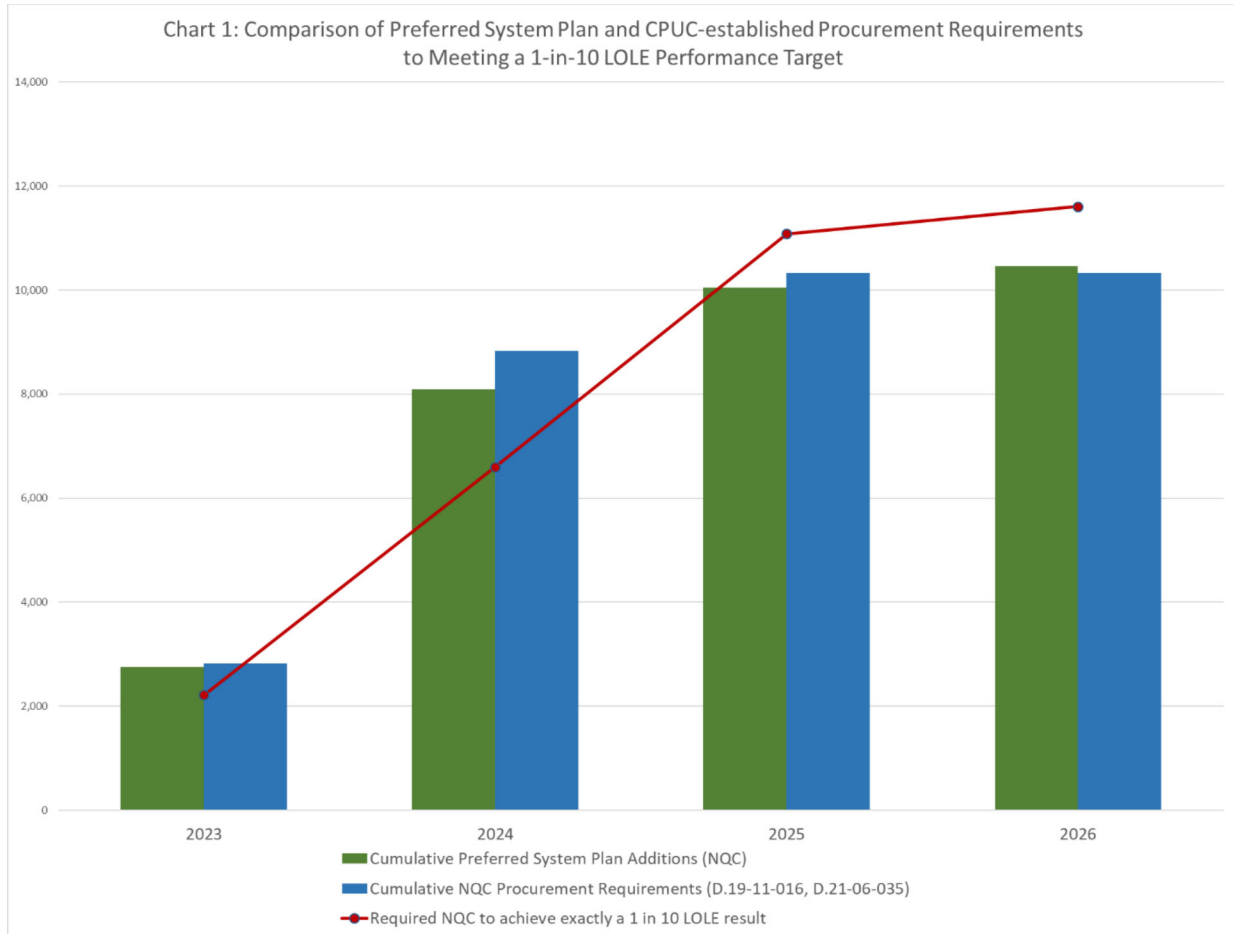
The ISO then compared the capacity needed to achieve a 1 in 10 LOLE target to the procurement requirements established and ordered by the CPUC for 2023 through 2026 in decisions D.19-11-016 and D.21-06-035, to assess the gap between those procurement requirements and the resources needed to meet the LOLE target. Table 2 below summarizes this analysis.

Table 2- All Capacity Values in MW

	2023	2024	2025	2026
Converting PSP “installed capacity” to “qualifying capacity”				
PSP New Additions converted to Net Qualifying Capacity	2,749	5,348	1,955	412
Cumulative new PSP Additions (NQC)	2,749	8,097	10,052	10,464
Calculation of Required Qualifying Capacity				
Surplus and shortfall of the PSP (from Table 1)	Surplus of 531	Surplus of 1,493	Shortfall of 1,029	Shortfall of 1,146
Required NQC to achieve exactly a 1 in 10 LOLE target	2,218	6,604	11,081	11,610
Established Procurement Requirements				
NQC Procurement Requirements (D.19-11-016, D.21-06-035)	2,825	6,000	1,500	0
Cumulative NQC Procurement Requirements	2,825	8,825	10,325	10,325
Surplus or shortfall in procurement requirements to meet 1 in 10 LOLE target	Surplus of 607	Surplus of 2,221	Shortfall of 756	Shortfall of 1,285

The ISO assumed in this analysis that the long lead time resources set out for 2026 in D.21-06-035 – with latitude to be extended up to 2028 – would not in fact materialize by 2026.

The comparison of the preferred system plan, the resource requirements already established for load serving entities by the CPUC, and the capacity additions needed to meet the 1 in 10 LOLE target is shown graphically in Chart 1.



The ISO notes that proposed decision posted on January 13, 2023 in CPUC proceeding R.20-05-003 would require an additional 2000 MW in each of 2026 and 2027 beyond the procurement requirement set out in Table 2 and Chart 1. The proposed decision also clarified that the long lead time resources authorized in D.21-06-035 should not be expected before 2028, consistent with the ISO’s assumption in this analysis.

Next Steps

The ISO intends to update its analysis with the Energy Commission's California Energy Demand Updated 2022 forecast results as well as with the updated procurement requirements when the proposed decision in R.20.05-003 becomes final. We look forward to continued collaboration on the planning and resource development activities necessary to achieving the state's clean energy goals reliably and economically. Thank you.

Sincerely,



Neil Millar
Vice President, Infrastructure and Operations Planning