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Additional submitted attachment is included below.

February 2, 2023

Mr. Siva Gunda, Vice Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

Docket 21-ESR-01
Submitted via electronic comment system

RE: Comments of the Union of Concerned Scientists and the Natural Resources Defense Council on the SB 846 Assessment: Prudency of Extending Diablo Canyon

The Union of Concerned Scientists ("UCS") and the Natural Resources Defense Council ("NRDC") appreciate the opportunity to submit these comments on the "SB 846 – Diablo Canyon Extension and Clean Energy Reliability Investment Plan", presented at the California Energy Commission ("CEC") workshop on January 20, 2023.[1] These comments focus on the CEC's assessment to determine the prudency of extending the retirement dates for the Diablo Canyon nuclear power plant.

UCS and NRDC thank the CEC for all their work on the Diablo Canyon extension analysis. However, we have multiple concerns with the assumptions used in the study and the conclusions drawn from this analysis. In these comments, UCS and NRDC offer two specific pieces of feedback on the Diablo Canyon extension analysis, which are summarized below:

1. **Study Assumptions**: The CEC's analysis overstates the reliability risk by ignoring the potential impacts of additional procurement likely to be ordered by the California Public Utilities Commission ("CPUC") and by excluding many emergency resources from its analysis.
2. **Reliability Standard and Prudency Determination**: Before making a determination about the prudency of extending Diablo Canyon, the CEC must specify the reliability standard it seeks to achieve.

Study Assumptions

As noted in the CEC's Diablo Canyon extension analysis, California's grid has been on the brink of implementing rotating outages the past two summers, and the state did implement them in August 2020. It has been, and continues to be, abundantly clear that California's grid requires a large amount of additional capacity to ensure an adequate level of grid reliability. However, the CPUC has issued two significant procurement orders, and they are considering

[1] CEC, *Lead Commissioner Workshop on SB 846 Reliability Assessment and Clean Energy Reliability Investment Plan* (January 20, 2023). https://www.energy.ca.gov/event/workshop/2023-01/lead-commissioner-workshop-sb-846-reliability-assessment-and-clean-energy

another.[2] Together, these three orders would bring a total of 18.8 GW additional resources online by 2028, with 12.8 GW of those resources coming online by summer 2025, shortly after Diablo Canyon is currently scheduled to shut down. If the CPUC does go forward with the 4 GW order being contemplated, it would significantly reduce the CEC's anticipated "shortfalls" in 2026 and 2027 found in its Diablo Canyon extension analysis. The CEC should carefully consider whether CPUC approval of additional procurement would change any of the conclusions of this study.

Secondly, the CEC's Diablo Canyon extension analysis overstates the risk of a shortfall by excluding many emergency resources, such as additional imports from neighboring balancing authorities and some voluntary demand response. For example, the CEC analysis indicates there would be a multi-gigawatt shortfall if there were a "2022 Equivalent Event" in the next few years. However, California's grid did not in fact experience rotating outages during the 2022 event because additional measures were available to bolster grid reliability. The CEC analysis does implicitly include the impacts of some behind-the-meter emergency resources by examining a repeat of the September 2022 peak demand, which was not as high as it would have been without the use of behind-the-meter emergency measures. However, the CEC analysis excludes the impacts of in-front-of-the-meter and other behind-the-meter emergency resources (used outside of the peak demand period), and consequentially, the CEC presents an overly conservative picture of California grid reliability. The CEC analysis should attempt to quantify the potential impacts of these emergency measures to provide a fuller picture of grid reliability during extreme events.

Finally, the CEC's Diablo Canyon extension analysis states that one of the key themes is: "Ensuring additional capacity beyond planning standards is available to weather extreme climate events." While UCS and NRDC believe this is prudent at present, the CEC and the CPUC have already begun incorporating the impacts of climate change into planning processes. For instance, the CEC currently accounts for anticipated impacts of climate change in its Integrated Energy Policy Report ("IEPR") electricity demand forecasts,[3] and the CPUC has updated the historical weather data used in its probabilistic analyses to include more recent extreme weather events,[4] which may eventually lead to an increase in resource adequacy requirements. As the CEC's demand forecasts and the CPUC's resource adequacy requirements increasingly incorporate the impacts of climate change, the CEC must be careful not to overcompensate for climate impacts, which could lead to increased costs from maintaining an unnecessarily high level of grid reliability. The CEC should carefully assess

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[2] CPUC Decision 19-11-016 ordered procurement of 3,300 MW; CPUC Decision 21-06-035 ordered procurement of an additional 11,500 MW; and a proposed decision issued January 13, 2023 in Rulemaking 20-05-003 contemplates procurement of an additional 4,000 MW: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M501/K102/501102663.PDF

[3] CEC, *Final 2021 Integrated Energy Policy Report: Volume IV: California Energy Demand Forecast* (February, 2022). https://efiling.energy.ca.gov/GetDocument.aspx?tn=241581

[4] CPUC, *Slice of Day – Loss of Load Studies and Translation for RA proceeding* (August 17, 2022), slides 14-6. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/resource-adequacy-homepage/resource-adequacy-compliance-materials/resource-adequacy-history/8-17-2022-planning-reserve-margin/workshop-4_ed_220817.pdf

the various impacts of climate change and compensate only for those that are unaccounted for in existing planning processes.

Reliability Standard and Prudency Determination

The industry-standard grid reliability target is to ensure that electricity supply shortfalls happen only once every ten years. Recent modeling from the CPUC indicates that California's grid meets the 1-in-10 loss-of-load expectation ("LOLE") standard,[5] and the CEC acknowledges this in their analysis, stating, "Preliminarily LOLE analysis suggest that the current levels of authorized procurement for 2023 and 2024 meet a 1-in-10 LOLE."[6] As noted previously, the CPUC has already begun incorporating some impacts of climate change into its LOLE modeling, but the full scale of climate impacts is likely still unaccounted for, and the CEC may be right to suggest additional resources are required to maintain grid reliability.

However, the CEC's Diablo Canyon extension analysis relies on a simplistic stack analysis and offers little to no information about the probabilities of the events examined in the analysis. For instance, the CEC analysis includes examination of scenarios with 40% of new resource procurement delayed, combined with a 4 GW reduction in transmission capacity due to wildfire, all during an extreme heat event.[7] This type of event is extraordinarily rare, and the CEC analysis gives no indication of the probability of such an event occurring, nor does the CEC indicate whether the state should plan for the grid to withstand such an event. In fact, the CEC analysis includes no information pertaining to their desired reliability standard (i.e., whether the CEC wishes to achieve a true 1-in-10 LOLE standard that fully accounts for climate change impacts or whether the CEC believes California should plan for an even higher level of grid reliability), and the CEC gives no indication of what level of additional resources are required to achieve a sufficiently reliable grid.

To this end, the CEC must clarify its reliability threshold before making a determination about the prudency of extending operations of Diablo Canyon. The CEC was charged with making,

> …a determination in a public process, whether the state's electricity forecasts for the calendar years 2024 to 2030, inclusive, show potential for reliability deficiencies if the Diablo Canyon powerplant operation is not extended beyond 2025, and whether extending operations of the Diablo Canyon powerplant to at least 2030 is prudent to ensure reliability in light of any potential for supply deficiency…[8]

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[5] CPUC, *Energy Division Study for Proceeding R.21-10-002: Loss of Load Expectation and Slice of Day Tool Analysis for 2024* (January 20, 2023), p. 4-5. https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M501/K409/501409211.PDF

[6] CEC, *SB 846 – Diablo Canyon Extension and Clean Energy Reliability Investment Plan* (January 20, 2023), slide 12. https://efiling.energy.ca.gov/GetDocument.aspx?tn=248455

[7] *Ibid*, slides 42-43.

[8] Public Resource Code §25233.2(c).

In order to make such a determination, the first step is to determine what constitutes a "reliability deficiency," but the CEC's analysis fails to do even that.

Conclusion

In summary, UCS and NRDC believe that the CEC's Diablo Canyon extension analysis overstates the reliability risk by excluding additional procurement that is likely to be ordered by the CPUC and by excluding consideration of many emergency resources that help maintain grid reliability during extreme events. Most importantly, before making any determination regarding the prudency of extending Diablo Canyon, UCS and NRDC believe the CEC must clarify the reliability threshold it seeks to achieve.

Thank you for your consideration of these comments.

Sincerely,

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