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Dear the California Coastal Commission,

I am a professor of Civil & Environmental Engineering and Director of the Atmosphere/Energy Program at Stanford University. I work on developing clean, renewable energy plans for states and countries and have also been tracking California's main grid (CAISO) electricity data every day for the past several years. Earlier this year, in fact, our group published a paper on the progress of the CAISO grid toward transitioning to 100% clean, renewable electricity:

Jacobson, M.Z., D.J. Sambor, Y.F. Fan, A. Mühlbauer, and M.A. Delucchi, No blackouts or cost increases due to 100% clean, renewable electricity powering California for parts of 98 days, *Renewable Energy, 240*, 122262, doi:10.1016/j.renene.2024.122262, 2025. https://web.stanford.edu/group/efmh/jacobson/Articles/Others/25-CaliforniaWWS.pdf

In tracking California's data, it has become clear that Diablo Canyon nuclear (which feeds to the CAISO grid) does not help at all in keeping the grid stable and, in fact, hinders and increases the cost of a transition. The reason it does not help at all is because it provides at most, 2.26 GW of power, and never more than that. The average grid demand in California is 24 GW, but during late summer, when blackout risks arise, that can rise to 50 GW or more. As such, Diablo Canyon is doing nothing to provide the additional 26 GW of power during times of blackout risk.

On the other hand, the maximum possible solar output (nameplate capacity) on the CAISO grid today is 21.75 GW, ten times that of Diablo Canyon nuclear. And the maximum battery discharge rate is 11.2 GW, five times that of nuclear. And both solar and batteries are growing rapidly (solar output is 43% higher and battery output is 200% higher than in 2023). Solar and batteries are replacing gas on the grid (fossil gas output is 37.4% lower than in 2023). Solar obviously increases output in summer, when blackout risks occur. Excess solar during the day is stored in batteries, which are then used at night (and discharged for four hours at their peak discharge rate).

Clearly, growing solar and batteries has worked to keep the grid stable, as California has had no blackout since 2020, and the spot price of electricity on the CAISO grid in 2024, for example, was 50% lower than in 2023 (paper above), indicating it is easier to match demand with more solar and batteries.

What is needed are policies growing renewables even faster. For example, if solar and battery output double, a combination of all renewables will come close to being able to meet peak summer demand with virtually no gas. Diablo Canyon is hindering the growth because it is so inflexible that, when we have too much solar on the grid (e.g., when the solar can't be stored in batteries or exported), it is curtailed. Curtailment has gone up every year with the growth of solar (as shown in Figure 6 of the above paper) BECAUSE Diablo Canyon continues to run during times of high solar.

On top of that, part of the reason for California's high electricity costs (aside from utilities passing-on to customers the costs of the San Bruno and Aliso Canyon gas disasters, the costs of wildfires caused by transmission line sparks, the costs of underground transmission lines, the costs of upgrading the aging transmission system, and the high cost of fossil gas in California), is the cost of keeping Diablo Canyon nuclear open.

Renewable growth in California has kept prices down, which is obvious by looking at cost statistics from other states with lots of renewables. Of the 11 states with the highest percent of their electricity demand met by wind-water-solar (WWS) between mid-2024 and mid-2025 (starting with South Dakota at 120% of demand met by WWS (88% wind, 30% hydro, 2% solar), 10 of those states have electricity prices at least 2 cents/kWh below the U.S. average:

https://web.stanford.edu/group/efmh/jacobson/WWSBook/WWSPctDemandVsPrice.pdf

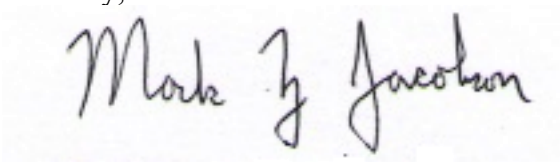
California is ranked only #12 in terms of the percent of electricity demand met by WWS, and its high prices are for the reasons mentioned above, including due to Diablo Canyon.

Finally, Diablo Canyon is monopolizing the transmission lines to the coast. Closing Diablo Canyon will allow a much larger growth of offshore wind by freeing up transmission.

For these reasons: (a) Diablo Canyon does nothing at all to meet additional demand during summer, (b) Diablo Canyon increases curtailment of solar, wasting solar resources, (c) Diablo Canyon contributes to high California electricity prices, and (d) Diablo Canyon prevents the potential large-scale growth of offshore wind off of California, I strongly urge you to vote to shut down Diablo Canyon nuclear.

Thank you for considering this request.

Sincerely,



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