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November 10, 2022
Mr. Siva Gunda, Vice Chair
California Energy Commission
715 P Street
Sacramento, CA 95814

TRANSMITTED BY EMAIL

Re: San Luis Obispo Mothers for Peace Comments on 21-ESR-01 Workshop held on October 28, 2022
Docket Number 21-ESR-01
Project Title: Energy System Reliability
TN #: 246603

Topic: Clean energy resources that may support grid reliability

SB 846 provides a complicated set of directives involving multiple state agencies - all asking: Will Californians need the energy produced from the Diablo Canyon nuclear facility following the previous closure targets of 2024 and 2025? Is that need great enough to justify the high costs of repairs and upgrades necessitated by PG&E's deferred maintenance since 2018? Given its age and recent operational history, will Diablo Canyon be a reliable source of energy? How would the costs of continued operation compare to alternative sources of clean energy? What is the current understanding of the seismic risk? Would the health and safety of surrounding communities be adequately protected? How/where would the additional high level radioactive waste be stored? Can the continued use of once-through cooling be justified?

Regarding the need for the energy from Diablo Canyon, San Luis Obispo Mothers for Peace is not convinced. In the most recent 10-day spate of extreme heat in early September 2022, for example, battery storage, demand response, and conservation by citizens from across the state prevented power outages, not Diablo Canyon.

There are still supply chain and transmission line availability issues snagging the progress on meeting the goal of the California Public Utilities Commission's 2021 order for power providers in the state to collectively procure 11.5 GW of new clean energy resources. But three years remain for additional procurement before the licenses for the 2.2 GW Diablo plant expire. When the CPUC announced the order for the procurement, CPUC Commissioner Clifford Rechtschaffen stated, "This is enough to power about 2.5 million households in the state, and all this will be coming from renewable or zero-emitting resources."

The procurement of resources, according to the CPUC, goes something like this:

2,000 MW by 2023
6,000 MW by 2024
1,500 MW by 2025
2,000 MW by 2026

This totals 11,500 additional MW of clean, carbon, and radiation-free renewable power for the State of California – all without Diablo Canyon’s toxic radioactive energy and waste.

Further, last March, the CAISO approved a transmission plan that includes 23 projects, estimated to cost nearly \$3 billion, "to cope with the dramatic increase in renewable generation and forecasted load growth in its footprint."

What is more, according to Peter Skala, CPUC Director of Electricity Supply, Planning, and Cost, "the State has ordered an unprecedented amount of new clean energy procurement—11.5 gigawatts—to replace the retirement of Diablo Canyon (along with other aging gas plants that are retiring). This includes wind, solar, batteries, geothermal, and long duration storage that will be online starting in 2023." And "the CPUC and the California Independent System Operator are assessing various options for connecting out-of-state wind and geothermal resources to the California grid through formal transmission and resource planning efforts."

The analysis and recommendations in "Pathway to a Clean and Reliable Grid for California - without Diablo Canyon" written in August 2022 by Eric Veium, CEM, CEP, and Chair of San Luis Obispo Climate Coalition and Robert Freehling, Energy Policy Consultant, make a clear case that California is prepared to close Diablo by 2025. To wit: The recent growth of renewable energy and battery storage "has not been an accident; it is the product of years-long planning by multiple agencies, at the state and local level, that support implementation of California’s policies. It is very important that new action by the governor and legislature be carefully directed to support implementation of the state’s clean energy and climate programs, all which have been planned assuming retirement of Diablo Canyon. Continued operation of Diablo Canyon puts this move to cleaner energy resources at risk, and would divert billions of dollars from them."

Taking this planning and growth of renewable energy and battery storage into consideration, think of how quickly and more efficiently California’s energy policies could come to fruition if the \$1.4 billion in loan money from the state were steered toward developing and obtaining renewable resources instead of propping up an aged nuclear plant located on at least four active earthquake faults.

Will Diablo Canyon be reliable? Will costs be reasonable? PG&E has failed to meet the CPUC’s "reasonable manager" standard when it caused 149.2 days of unplanned outages resulting in \$178.6 million in replacement power costs. Under SB 846, ratepayers are liable for up to \$300 million per year in replacement power costs for

Diablo Canyon outages even when PG&E fails to meet the reasonable manager standard. Again, an additional \$300 million per year to subsidize two nuclear reactors that are unreliable actually rewards PG&E for maintenance negligence. Mothers for Peace finds Diablo Canyon unreliable and the costs unreasonable.

Decisions to keep Diablo running past 2025 should not be made in a vacuum without considering the history and track record of aging reactors like Diablo Canyon.

According to former U.S. Nuclear Regulatory Commissioner, Peter Bradford, in his comments to the CEC on August 12, 2022, “Though many people believe that operating an existing nuclear power plant provides a relatively inexpensive source of electricity, this is not the case. Aging reactors encounter inefficiencies, malfunctions and necessary investments that can render them neither cheap nor reliable. A dozen (of 104) US nuclear power plants – including San Onofre in California – have closed in the last eight years precisely because their output became too expensive to be sold in the power markets in which they operated.”

Amory B. Lovins, physicist and adjunct professor at Stanford University, comments to the CEC also underscore the lack of evidence that aging nuclear plants make a sensible business case, and he reminds us that none of California’s grid, electricity, or energy regulatory agencies, including PG&E, recommended extending the life of Diablo: “It was already clear well before 2016 that neither new nor existing nuclear plants have a business case or an operational need. That is far more obviously true in 2022—most of all from the excellent international performance of high-variable-renewable grids, even without adding bulk storage. No responsible party in California, therefore, thought it worth analyzing or suggesting an extension in Diablo Canyon’s planned phaseout when the initial 40-year licenses expire. Tellingly, none of the five main California utilities’ post-2016 decarbonization plans—the most ambitious published by PG&E itself in June 2022—recommended extending Diablo Canyon’s operating life. Neither did the latest plans by any of California’s grid, electricity, or energy regulatory agencies. Neither did a major independent analysis, published in May 2022 as a roadmap for 85% carbon-free electricity by 2030 with stress-tested reliability. Instead, it found that despite planned Diablo Canyon and gas-plant retirements, California could meet an August 2030 peak load of 22%, or more than 10 GW, above the equivalent 2020 peak... After decades of contrary evidence, the burden of proof that there’s a dangerous capacity gap and that Diablo life extension could cost-effectively, practically, and reliably fill it seems impossible to bear.”

Again, referencing the analysis by Veium and Freehling, “Diablo Canyon, as a large inflexible resource, is poorly suited to serve as a reliability resource during peak and net peak periods. Diablo Canyon has the two largest generators on the CAISO grid, making it one of the highest risks to system reliability. According to CAISO’s final root causes analysis for the August 2020 heat wave, an unplanned outage at Diablo Canyon during peak/net peak periods is “the most severe single contingency” to the stability of the entire western grid.” Furthermore, it is expensive. “According to PG&E’s testimony to the CPUC, and contrary to the flawed MIT/Stanford study, Diablo Canyon costs 7 to 9 cents per kilowatt-hour, which is more than double the cost of replacement energy that would avoid similar greenhouse gas emissions.

According to the CPUC report to the legislature, recent renewable energy procurement in the state's RPS program has averaged about 3 to 4 cents per kilowatt-hour."

San Luis Obispo Mothers for Peace concludes that California should use its focus and financial resources for the development and implementation of demand response, battery storage, renewable energy, conservation, and efficiency. California's ratepayers and taxpayers will be better served if Diablo Canyon closes on or before the expiration of its current licenses in 2024 and 2025, respectively.