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Hon. Gavin Newsom
Governor, State of California
State Capitol, Governor's office
Sacramento, CA 95814

Dear Gov. Newsom —

I write to support and amplify the Feb. 1 letter from 79 climate and energy scientists urging you to reverse the planned closures of the Diablo Canyon reactors.

Most of the Feb. 1 signatories are academics — and distinguished, at that — and Californians. I am neither. But I have an immersive history with fossil fuels and nuclear power, both nationwide and in your state, which I describe at the end of this letter, that I believe merits attention.

Shutting Diablo Canyon will set back California's leadership in phasing out its carbon emissions, to the detriment of the state's stature as a global standard-bearer for climate.

Contrary to shutdown proponents, the carbon damage from closing Diablo will not be wiped clean as state policy and investment ramp up new wind farms and additional solar buildings and arrays and extra energy efficiency to try and fill Diablo's place. The reason is straightforward: our climate emergency demands that every one of those green additions must directly replace fossil fuels — *which they cannot do so long as they are replacing Diablo Canyon*.

This point is central but may not be fully understood. Yes, we know that Diablo provides some 2200 MW worth of round-the-clock climate benefit, by obviating the need to draw equivalent electricity from fossil fuel generators. What we must now face is that with the reactors shut, the next 2200 MW of renewables and efficiency (actually, more like 4400 or 6600 if not more, due to differences in operability) *cannot provide any new, additional climate benefit because they must serve as stand-ins for Diablo's missing climate benefit*.

The axiom that new green energy can't replace both Diablo Canyon and fossil fuels wasn't always so clear to me. Perhaps my years studying power-system planning bound me too tightly to the paradigm that all kilowatts or kilowatt-hours are interchangeable. Alas, this dictum, though apt for counting the resources needed to keep the lights on, doesn't hold for suppressing carbon emissions. It is precisely because already-existing reactors are just as potent as renewables at keeping fossil fuels in the ground that shuttering the one requires the other to make up for its carbon reductions; which disqualifies the new renewables from achieving the *additional* carbon reductions we count on them to provide.

While this condition isn't permanent, it won't be transitory. Not until the California grid, and every grid with which it interconnects, has reached the point where the replacement kilowatt-hours come from zero- or very-low-carbon sources without Diablo Canyon, can it be said that

Diablo's climate benefit is superfluous. Until then — until the grid is 100% carbon-free — it will continuously emit more carbon than it would with Diablo Canyon operating.

As you know, that moment is not just around the corner. Fully half of California's electricity in 2020 came from burning carbon fuels. It's heartening that this share is 12 points less than five years earlier, and that most of the shrinkage was enabled by increased solar-photovoltaic electricity. But that solar-PV rise, around 15.5 billion kWh annually, is no greater than the amount of carbon-free electricity that shutting Diablo Canyon will take away from California and the world (16.3 billion kWh a year, based on 2020 production).

And — with apologies for belaboring this key point — we cannot blithely expect that California can replace Diablo's climate benefit by repeating its 2015-2020 solar gain during 2020-2025 or 2025-2030 or 2030-2035, for the simple reason that you, we, all of us *are depending on those very gains to push fossil fuels out of the state's buildings, vehicles and power grid*. Like the proverbial rodent devoured by the snake, the need to resort to increased fossil kilowatt-hours will persist in the grid, but with the digestive process taking decades, during which the carbon cost of shutting Diablo will persist and accumulate.

Some may counter that my argument, painted in broad strokes, elides fine points of grid management or electric "resource procurement" or other subtleties. One such objection holds that Diablo's "must-run" imperative ill-suits it to the emergent grid of flexible, distributed resources that continuously match power to load and vice-versa. But that argument actually cuts the other way, seeing as how Diablo's baseload output can, as needed, be dedicated to recharging the burgeoning number of electric storage batteries that the brave new grid requires for stability and sufficiency.

In the interest of brevity, I leave other objections to a future conversation, and also commend to you the Feb. 1 letter's clear-eyed treatment of Diablo Canyon's operational risks. Here, in the next paragraph, is my "history" to which I alluded earlier:

I was an expert witness for the California Public Utility Commission's Division of Ratepayer Advocates in the 1988 CPUC proceeding that barred Pacific Gas & Electric from fully recovering its cost overruns in building Diablo Canyon. Earlier, my book *Power Plant Cost Escalation* definitively tied the U.S. nuclear power industry's spiraling costs to its seemingly never-ceasing blunders that destroyed public trust, from the mid-1970s until around 1990, and established me as a leading voice questioning the cost-effectiveness of nuclear power in America. After the 1979 Three Mile Island reactor meltdown, my work earned me a place at the podium at the national anti-nuke rally at the U.S. Capitol. More recently, my 2019 report *California Stars* quantified the bounty from the state's four-decades-and-counting visionary energy governance: if the rest of the nation had improved its green-energy productivity as quickly as California did since 1975, U.S. carbon emissions would today be almost 25 percent lower.

My message to you is this: the green energy that California has pioneered for nearly half-a-century cannot actually begin replacing Diablo's considerable climate benefits until the California grid is fully zero-carbon; barring revelation of heretofore unforeseen hazards, the exigency of the climate crisis requires deferring Diablo Canyon's closure to that time.

Sincerely,

CHARLES KOMANOFF