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Extend the Reliable Carbon-Free Diablo Canyon Nuclear Power Plant Beyond 2025

Additional submitted attachment is included below.



Nuclear New York

Independent Advocates for Reliable Carbon-Free Energy
3961 47th St, Sunnyside, NY 11104
NuclearNY.org • info@NuclearNY.org

Date: August 10, 2022

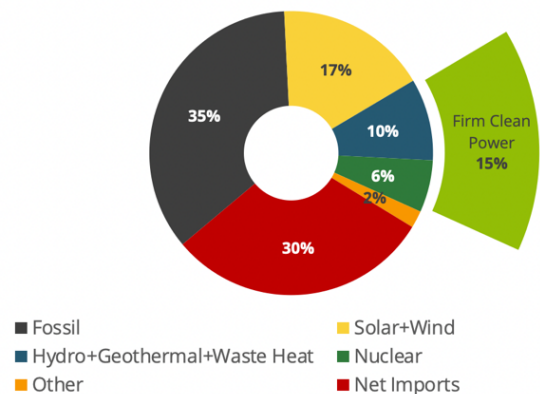
To: California Energy Commission:

SUPPORT THE CONTINUED SAFE OPERATION OF DIABLO CANYON NUCLEAR POWER PLANT BEYOND 2025

Given the increasingly evident impacts of anthropogenic global warming,¹ we support California's commitment to reach statewide carbon neutrality and 100% carbon-free electricity generation.² At the same time, the New York Independent System Operator (NYISO), our state's non-profit grid operator, asserts that "The path to a greener grid must remain a reliable one" in Power Trends 2022.³ NYISO emphasizes that, "higher than expected demand and extreme weather could threaten reliability and resilience in the future." For a successful transition "we must build and interconnect technologies that fill in reliability gaps and mimic the reliability attributes of our existing fleet of generation."

While California's electricity needs are met largely with fossil combustion (both in-state and out-of-state), a third is Californian carbon-free generation (17% solar + wind; 10% hydro + geothermal + waste heat; and 6% nuclear). However, wind and solar electricity are not dispatchable sources. Only 15% of California's electricity needs are met with 'Firm Clean' resources — generators able to provide power on-demand regardless of the time of day or weather — that ensure grid reliability. The Diablo Canyon Nuclear Power Plant, California's remaining nuclear source, is responsible for at least 40% of the state's Firm Clean generation and prevents 7 million tonnes of CO₂ annually emissions, or over 12-15 million tonnes of greenhouse gasses.⁴ As droughts are threatening the reliability of Californian hydro generation, Diablo Canyon becomes ever-more critical to grid reliability.

California Electricity Mix 2021



Source: California Energy Commission

Intermittency of solar and wind generation is not a trivial matter. The electric grid requires absolute moment-to-moment continuity in power supply in-line with demand. System-wide failures during the cold snap in February 2021 resulted in deadly, days-long blackouts. Power failures due to cold weather are estimated to have caused 52 fatalities and about \$195 billion dollars' worth in Texas and the South-Central U.S. The state's two nuclear plants performed the best by far under the toughest conditions.⁵

¹ Intergovernmental Panel on Climate Change, Sixth Assessment Report. <https://www.ipcc.ch/assessment-report/ar6/>

² Executive order B-55-18 and Senate Bill 100 of 2018.

³ New York Independent System Operator, Power Trends 2022 <https://www.nyiso.com/power-trends>

⁴ Based on methane leaks ranging from 2.3% to 3.5%. Methane is a greenhouse gas with a warming potential 86x that of CO₂, over a 20-year horizon.

⁵ University of Texas at Austin, Energy Institute. The Timeline and Events of the February 2021 Texas Electric Grid Blackouts. July 2021. <https://energy.utexas.edu/ercot-blackout-2021>

Jurisdictions that have invested heavily in wind and solar while ignoring or shutting down nuclear capacity have experienced significant increases in the cost of electricity. For example, Germany's electricity is twice as expensive as France's, despite French electricity being 6 times as clean (France gets 70% of its electricity from nuclear power; Germany got 29% of its electricity from coal and lignite). California has seen its retail electricity prices climb 80% higher than the average of the remaining contiguous states, exacerbating poverty and undermining "just transition" goals of California's energy policy.⁶

Electric systems with intermittent renewable sources are materially costlier than balanced portfolios that included nuclear energy, as many studies of decarbonizing California have found.⁷ Claims of 'grid parity' of intermittent renewables do not consider the cost of operating a reliable electric system, which rise exponentially at higher levels of intermittent penetration. "Wind and solar output exhibit seasonal episodes of both sustained oversupply and undersupply that overwhelm any conceivable storage strategy. Battery storage technologies may have a role in managing shorter-term imbalances but are unlikely to solve the very large seasonal swings in generation output under high-penetration [intermittent generation] scenarios."⁸ Such costs would have material economic repercussions to rate-payers and tax-payers, and are unlikely to be politically viable.

An abundant, affordable, reliable, and resilient electric grid is the backbone of every prosperous modern society. In order to meet California's climate goals with reliable, cost-effective carbon-free energy sources, we urge that you reverse the 2016 decision⁹ to prematurely shutter Diablo Canyon Power Plant Units 1 and 2 in November 2024 and August 2025, respectively. You may also be aware that this reversal must take effect this fall in order to procure new fuel and undertake any plant modifications or repairs before 2025. This will ensure the reliable operation of Diablo Canyon into the future.

Throughout the nation and the world, support for nuclear power is on the rise. This year, after extensive study, the European Commission recognized nuclear as environmentally sustainable, a designation intended to promote capital investment. Advanced industrial nations like France, the U.K, Netherlands, and Canada have committed to expanding nuclear energy. A 2021 survey by ecoAmerica, an independent non-profit building climate leadership, found that American support for nuclear power has grown from 49% in 2018 to 59% by 2021, with Democrats' support fast catching up with that of Republicans.¹⁰ As young people are looking for measurable climate action over unkept promises, we implore you to make the right choices for a prosperous California and a sustainable planet.

Thanking you for your commitment to people and the planet,

Signed,

Isuru Seneviratne
Keith Rodan
Dr. Leonard Rodberg

Charlie Feuerman
Dietmar Detering, PhD
Carl Perez

Ethan Bodnaruk

⁶ Robert Bryce, The High Cost of California Electricity Is Increasing Poverty, FREOPP. 2020. <https://freopp.org/the-high-cost-of-california-electricity-is-increasing-poverty-d7bc4021b705>

⁷ Stephen Brick, Samuel Thernstrom, Renewables and decarbonization: Studies of California, Wisconsin and Germany, *The Electricity Journal*, Volume 29, Issue 3. 2016, <https://doi.org/10.1016/j.tej.2016.03.001>

⁸ *ibid.*

⁹ California Public Utilities Commission Decision D.18-01-022

¹⁰ ecoAmerica. Energy Attitudes: Americans Support Clean Energy. American Climate Perspectives Vol. V 2021. https://ecoamerica.org/wp-content/uploads/2021/11/acps-2021_energy-attitudes-report.pdf