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Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning

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Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning

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Government Agency: Californians for Green Nuclear Power, Inc.

General Comment

May 3, 2022

Please include this email and attachments as a comment for the May 4, 2022 NRC Public Meeting set for San Luis Obispo, California.

Since early 2017, nonprofit intervenor Californians for Green Nuclear Power, Inc. (CGNP) has been sharply critical regarding the State of California plan to close California's largest generator by far and replace it mostly with Wyoming coal-fired generation.

This State of California plan is not in the public interest. Instead it serves narrow private interests. CGNP's criticisms have included numerous filings before regulatory and oversight bodies at the local, state, and federal level.

Per the three attachments, decision makers finally appear to be paying attention to CGNP.

CGNP sincerely looks forward to an upcoming announcement regarding the dissolution of the Diablo Canyon Decommissioning Panel as the plant continues to supply safe, reliable, cost-effective and vital emission-free power (and desalinated water) to California.

Sincerely,

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Attachments

Experts Weigh in on Seismic Safety at Diablo Canyon in Letter to Newsom 05 02 22

With Emissions Soaring Democratic Governors Sour On Plans To Shut Down Nuclear Power

Closing Diablo Canyon spurs fears over replacement power 04 05 22



Carbon Free
California

Experts Weigh in on Seismic Safety at Diablo Canyon in Letter to Newsom

An extensive review of the Diablo Canyon Nuclear Power Plant finds plant could safely withstand extreme seismic activity

<https://carbonfreeca.org/experts-weigh-in-on-seismic-safety-at-diablo-canyon-in-letter-to-newsom/>

(April 29, 2022) – Today, a group of experts in seismic issues associated with nuclear power plants [delivered a letter](#) to Gov. Gavin Newsom assuring him that an extensive review of the Diablo Canyon Nuclear Power Plant (DCNPP) found that the facility was “built to withstand with significant extra margins the largest earthquakes that the US Nuclear Regulatory Commission requires it to withstand.”

The letter concludes, “In summary, DCNPP does not pose a seismic danger, and thus the seismic issue should be taken off the table when considering increasing DCNPP’s useful life and operation.”

[Full text of the letter](#) can be found below:

April 29, 2022

*Honorable Gavin Newsom
Governor, State of California
1021 O Street, Suite 9000
Sacramento, CA 95814*

Dear Governor Newsom:

The Diablo Canyon Nuclear Power Plant (DCNPP) has been back in the news with your recent comments to the Los Angeles Times potentially opening the door for extending the plant’s operations. One of the issues raised is whether it is safe to continue to operate the plant given its location and the underlying geology.

We write as experts in seismic issues associated with nuclear power plants, who are also very familiar with the Diablo Canyon site. It is our opinion, and the opinion of the expert community, that, whatever the economic or environmental merits of continuing the plant’s operation may be, the seismic issue should be taken off the table: the plant does not pose a seismic danger as determined by a thorough analysis of the seismic risks.

Following the Fukushima accident in 2011, the Nuclear Regulatory Commission (NRC) reviewed the Diablo Canyon Nuclear Power Plant's ability to withstand external events (e.g., earthquakes, tsunamis, floods, tornadoes, wildfires, hurricanes) of exceptionally rare and severe magnitude ('beyond design basis events').

Using NRC's state-of-the-art seismic requirements, DCNPP was subject to a series of detailed new seismic evaluations specific to the Diablo canyon site. These assessments included:

- Development of a state-of-the-art new seismic hazard assessment for the DCNPP site;*
- Development of the plant seismic risk model to assess plant safety if exposed to an extreme seismic or flooding event;*
- Development of seismic failure probabilities correlated to the new seismic hazard for all DCNPP safety related and key non-safety related structures, systems and components;*
- Development of seismic risk estimates for the Diablo Canyon Nuclear Power Plant that are well within the limits established by the Nuclear Regulatory Commission as demonstrating a nuclear plant to have adequate safety;*
- Proximity of DCNPP to various faults and DCNPP site's high elevation with respect to sea level were taken into account in the seismic and flood protection analyses, respectively.*

After nine years of assessment the NRC's conclusion, [as embodied in an NRC letter dated 8th May 2020\[1\]](#), is that "existing seismic capacity or effective flood protection [at Diablo Canyon] will address the unbounded reevaluated hazards." That is, Diablo was designed and built to withstand with significant extra margins the largest earthquakes that the US NRC requires it to withstand. Further, "The staff confirmed that the conclusions in the various staff assessments continue to support a determination that no further regulatory actions are required for Diablo Canyon." That is, no seismic retrofits are necessary.

As an additional level of protection in response to the Fukushima event, DCNPP (along with all other nuclear plants in the US) has been retrofitted with special equipment and procedures known as FLEX. FLEX is meant to ensure reliable cooling of the reactor core and spent fuel pool under a hypothetical scenario in which all design-basis safety systems have been disabled by a severe external event.

The above conclusions and findings are not surprising, in fact expected, considering that the DCNPP evaluations are based on information from extensive and continual geosciences investigations since the early days of planning of the project, and several major plant evaluations, including the Long-Term Seismic Program, that have been conducted along the way after receiving the operating license. As a

result of these evaluations, a number of voluntary safety-enhancements above and beyond regulatory requirements have been made.

In summary, DCNPP does not pose a seismic danger, and thus the seismic issue should be taken off the table when considering increasing DCNPP's useful life and operation. We would be happy to discuss this matter further with state officials and others to better inform the public debate.

Sincerely,

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About Carbon Free California

Carbon Free California is funded by California-based entrepreneurs and brings together leaders from business, labor and the technology sector to focus on creating a pathway to a carbon-free future and securing the clean, reliable energy needed to power the world's fifth-largest economy. Carbon Free California believes the state must pursue all forms of emission-free energy to address the climate crisis and achieve our urgent emission reduction goals. Extending the operation of the Diablo Canyon Nuclear Power Plant will bolster the grid with reliable carbon-free energy and enable the state to transition to increasing shares of wind and solar power, while avoiding disruptive and costly rolling blackouts. Carbon Free California receives no funding from utility or nuclear industry interests.

With Emissions Soaring, Democratic Governors Sour On Plans To Shut Down Nuclear Power

The governors of Michigan and California have signaled their support for President Joe Biden’s nuclear agenda.



By
Alexander C. Kaufman

May. 3, 2022, 05:45 AM EDT

https://www.huffpost.com/entry/nuclear-power_n_627050e0e4b01131b125d9b4

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Virtually every place that shuts down nuclear plants — from San Diego to New York City, Germany to South Korea — replaces them with fossil fuels, swapping an abundant source of zero-emissions electricity for the very energy sources roasting the planet.

But with gas prices and emissions on the rise, two governors are rethinking plans to shut down major nuclear power stations.

With just weeks to go before the Palisades Nuclear Generating Station becomes the next U.S. plant to shutter, Michigan Gov. Gretchen Whitmer (D) [formally asked](#) the Biden administration on April 20 for federal funding to keep the reactors running.

On Friday, California Gov. Gavin Newsom (D) [told the Los Angeles Times](#) he also wanted federal money to keep Diablo Canyon, his state's last remaining nuclear plant, open past its 2025 closure date.

The announcements mark a shift in the politics of atomic power. At a time when planet-heating gas pollution is surging and efforts in Congress to cobble together a historic clean-energy spending plan have faced repeated setbacks, nuclear energy is becoming more appealing, even among Democrats whose party has historically championed closing down reactors.

Nuclear energy is by far the most efficient and reliable electricity source humans have ever harnessed. Nuclear reactors produce power 24/7 on vastly less acreage than wind and solar, regardless of weather conditions. Atomic energy is also safer than fossil fuels, which not only cause global warming but lace the air with deadly, disease-causing particles.

But connections to nuclear weapons and rare but catastrophic disasters like the meltdowns in Chernobyl in 1986 and Fukushima in 2011 have long stoked opposition to reactors. Natural gas, made cheap by the U.S. drilling boom, [gobbled](#) up nuclear companies' share of the electricity market, while state regulators have made increasingly challenging demands of plant operators, making it even harder to compete.



California Gov. Gavin Newsom, left, and Michigan Gov. Gretchen Whitmer are both asking for federal money to keep nuclear plants in their states open.

GETTY IMAGES

There are some efforts to stave off shutdowns. Last September, Illinois approved nearly \$700 million in new subsidies to keep the state's nuclear fleet afloat in the decade ahead. In November, President Joe Biden [signed](#) into law the bipartisan infrastructure deal that established a \$6 billion fund to bail out financially troubled reactors.

But nuclear power in the U.S. is in trouble. Twelve nuclear reactors in the U.S. have closed permanently since 2012, and another seven are scheduled to shut down by 2025, according to a Congressional Research Service [report](#). Together, they make up more than 7% of the country's nuclear capacity.

California's Unique Issues

Money from the new fund to bail out reactors could make a practical difference in Michigan, where owner Energy Nuclear has long operated the Palisades plant at a loss. The relatively modest-sized, single-reactor station on the east coast of Lake Michigan had struggled to find buyers for its electricity as more gas plants and wind turbines came online. In January, it won federal regulators' [approval](#) to sell Palisades to Holtec International, a company that decommissions reactors.

But an application from California for federal money to save its last remaining nuclear plant would mark more of a symbolic change in the Golden State.

The state banned the construction of new nuclear reactors in 1976. But since the two reactors at Diablo Canyon, which were already under construction, came online in 1987, the plant profitably produced nearly one-tenth of California's electricity from its isolated location near San Luis Obispo.

Environmentalists campaigned to close the plant for decades before climate change became the defining issue in drought- and wildfire-prone California. Some feared Diablo Canyon, located near a volatile fault line, could set off a disaster in an earthquake. On the other side of the Pacific, an earthquake played a key role in triggering the accident that irradiated the area around the Fukushima-Daiichi plant 11 years ago.

Other critics complained that the plant hurt aquatic animals because its system for cooling reactors with seawater spewed out warmed water that made the coastal area immediately near the plant less habitable for certain species.

In 2016, when Newsom was the state's lieutenant governor, he helped broker a deal between environmentalists, the reactor's owner, Pacific Gas & Electric and the union representing its workers to shut the plant down. Under the agreement, its first reactor is set to come offline in 2024, with the second following the next year.



Aerial view of the Diablo Canyon, the only operational nuclear plant left in California, due to be shut down in 2024.

GEORGE ROSE VIA GETTY IMAGES

But in the years that have followed that deal, the effects of climate change have become more visible and have taken a toll on the state’s electricity grid. Wildfires, some sparked by electrical equipment, caused rolling blackouts across the state. Hydroelectric dams that provided close to 13% of California’s power started facing shortages as drought dried reservoirs to new crisis levels. And the limited progress the power sector had made toward slashing emissions under the Obama administration’s climate regulations slowed after President Donald Trump took office and pushed to increase fossil fuel use.

In 2020, California regulators [delayed the enforcement](#) of new rules banning gas-fired plants from spewing warmed coolant water into waterways — the same problem for which the state went after Diablo Canyon — in a bid to avoid blackouts.

Last week, Newsom said California “would be remiss not to” file an application, due May 19, for federal funding to keep the plant open.

In an email, Newsom spokesperson Erin Mellon cautioned that the “governor does not have authority over Diablo Canyon’s license,” but added that the “Governor is in support of keeping all options on the table to ensure we have a reliable grid.”

Preventing a closure would require PG&E to apply to relicense the plant, then win approval from state and federal regulators. The process would likely take years. PG&E spokesperson Suzanne

Hosn said in an email that the company was “always open to considering all options to ensure continued safe, reliable, and clean energy delivery to our customers.”

“We always knew this was a political decision, not a financial decision. So I think it’s huge in that this opens the door.”

- Isabelle Boemeke, pro-nuclear advocate

A [2021 study](#) by researchers at MIT and Stanford University found that retrofitting Diablo Canyon to keep it operating until 2035 would reduce power sector emissions in California more than 10% below 2017 levels and save the state \$2.6 billion in power system costs. If operated until 2045, those savings increase to \$21 billion.

“We always knew this was a political decision, not a financial decision. So I think it’s huge in that this opens the door,” said Isabelle Boemeke, a pro-nuclear advocate in California who founded the group Save Clean Energy. “It’s just the beginning in terms of everything that needs to happen.”

But opponents of nuclear power say salvaging the power station would divert resources away from efforts to slash energy use and increase renewable electricity generation.

“My worry is that if you create this false prospect that somehow Diablo Canyon stays around, you reduce pressure on everyone involved to accelerate the acquisition of new zero-carbon sources,” said Ralph Cavanagh, the energy co-director at the Natural Resources Defense Council and a key supporter of closing the plant. “Diablo Canyon is a false hope and a false prospect.”

The state has many options to import clean power from neighboring states if its own development of new sources lags, Cavanagh said. He added that the labor union representing the workers at the plant supported its closure. But on Friday, the union, now under new leadership, issued a public statement of support for keeping Diablo Canyon open.

“Californians are facing big challenges, from COVID to the impacts of extreme drought,” IBEW 1245 business manager Bob Dean wrote in a [press release](#). “A shortage of electric power supply and rolling blackouts must not be added to this list.”

Political Smoke Signals, And Problems With Federal Funding

The White House’s \$6 billion bailout fund limits eligibility to plants that are losing money in the face of competition from gas and other energy sources. That means Diablo Canyon, which is not losing money, would likely not qualify.

Paris Ortiz-Wines, a California-based organizer with the pro-nuclear group Stand Up for Nuclear, said Newsom was likely using the federal program as a way to signal his willingness to support the Biden administration’s efforts to keep reactors running.

“There’s some game being played,” she said. “Diablo Canyon does not need the federal funding, but I do think it’s in the political conversation right now, so it’s a safe way to make his announcement.”



The Colorado Fire burns down toward the Bixby Bridge in Big Sur, California, early Saturday morning, Jan. 22, 2022.

MEDIANEWS GROUP/THE MERCURY NEWS VIA GETTY IMAGES VIA GETTY IMAGES

Mark Nelson, a nuclear engineer and consultant who advocates for atomic power, said the move by Whitmer put pressure on Newsom. While Whitmer had not played the active role Newsom did in setting the stage for the next U.S. nuclear closures, the Michigan governor had remained silent throughout the process, according to the Mackinac Center for Public Policy, a think tank that [pushed](#) to keep Palisades open. Both governors are widely discussed as potential Democratic presidential candidates.

“What he sees is another ambitious Democratic governor that’s pretty young going along with Biden’s desire, Sen. Joe Manchin’s desire and [Energy Secretary Jennifer] Granholm’s desire to save a nuclear plant,” Nelson said. “He wants to show, ‘I, too, can go along with the program if the program is nuclear.’”

A spokesperson for Whitmer did not respond to a request for comment on Monday.

But Chris Gadomski, the lead nuclear analyst at the energy consultancy BloombergNEF, warned that the eligibility requirements of the federal fund would make it difficult for many utilities to apply. Natural gas prices have more than doubled since the legislation creating the fund was debated, meaning reactors that financially struggled in years past might have more balanced books now that higher costs are making nuclear power more competitive.

“The way the rules are written, you have to be losing money to be eligible for support,” he said. “So now you have a problem: How can you close down nuclear plants when gas prices are so high? But when that’s the case, you have to change the rules.”

Nelson said he would be “utterly unsurprised if not a penny were disbursed” from the federal fund. But he still sees it as progress toward saving the country’s existing reactors and, eventually, building more.

“Nuclear plants are closing because they don’t know that they have long-term revenue, yet this is being addressed by an extremely short-termist program,” Nelson said. “I don’t look at the \$6 billion as anything other than a very powerful, attractive sign of nuclear being in favor among Democrats.”

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California Fires

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[Alexander C. Kaufman](#)

Senior Reporter, HuffPost

Closing Diablo Canyon spurs fears over replacement power



BY **GENE NELSON** POSTED 04.05.2022 GENE'S EMAIL: GOVERNMENT@CGNP.ORG

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[HTTPS://TINYURL.COM/DCPP-VERSUS-COAL](https://tinyurl.com/dcpp-versus-coal)

[HTTPS://CAPITOLWEEKLY.NET/CLOSING-DIABLO-CANYON-SPURS-FEARS-OVER-REPLACEMENT-POWER/](https://capitolweekly.net/closing-diablo-canyon-spurs-fears-over-replacement-power/)

California's power is expensive and polluting – but doesn't have to be.

The state of California plans to replace Diablo Canyon Nuclear Power Plant (DCPP) mostly with Wyoming coal-fired generation. The source of the replacement power will remain hidden until 2025, when Californians can't stop the state.

As a nonprofit intervenor before the California Public Utilities Commission (CPUC) since 2016, Californians for Green Nuclear Power (CGNP) has uncovered four obscure clues in CPUC filings that confirm the state's plan. CGNP's thousands of pages of filings provide the details.

While Diablo Canyon is compact, it's annual production is the equivalent of five Hoover Dams.

The first clue is the engineering requirement that since Diablo Canyon Nuclear Power Plant is a reliable 24/7 generator, any incremental replacement generation must have similar reliability. Otherwise, rolling blackouts occur.

Engineers use the term "dispatchable" (under human control) to describe Diablo Canyon's power. Dispatchable generators that supply power like Diablo Canyon are powered by natural gas or coal. The ongoing drought means building new dams is impractical. While Diablo Canyon is compact, it's annual production is the equivalent of five Hoover Dams.

Californians demand that California's coal plants be shut down and they object to new plants powered by natural gas.

Widely-promoted solar and wind aren't dispatchable. The sun doesn't always shine and the wind doesn't always blow with sufficient force. Natural gas fills in for solar and wind's substantial intermittencies. Batteries are extremely expensive — and could optimally be reserved for vehicles to improve air quality, instead of displacing natural gas in power plants.

Those constraints imply that California's replacement generation must be located mostly out of state. There are many generators that could produce additional power to replace Diablo Canyon located in or near the nation's biggest coal deposits in Wyoming.

“Unspecified imports” sounds nicer than coal. Unfortunately, this term mostly applies to out-of-state coal power.

The second clue is the requirement that a new transmission network needs to be built to send the power about 1,000 miles from Wyoming to California.

Such a large network, first announced in 2007, is the Energy Gateway. The network's mastermind, Warren Buffett, stated in his 2021 letter to shareholders the network would cost \$18 billion by 2030. Oregon and Washington state have already announced upcoming bans against out-of-state coal power. Thus, by California utility law, most of this transmission cost will be borne by Californians.

Third clue: A California legal euphemism “unspecified imports,” which sounds nicer than coal, was created in 2009. Unfortunately, this term mostly applies to out-of-state coal power.

The term appears twice on page 16 in the CPUC's June 24, 2021 procurement decision in R2005003. Between 4,000 and 5,000 megawatts (MW) of generation capacity is stipulated. In order to convert this to more familiar kilowatt-hours (kWh) on your power bill, the capacity factor, or percentage ON time is used. California nuclear power has a capacity factor of 90% and there are 8,766 hours in a year. The product of 5,000 MW times 8,766 hours times 90% is 40 billion kWh.

The fourth clue is the increased air pollution from burning coal.

How can California's leaders evade this problem? The answer requires models they can manipulate. On page 104 of the CPUC's R2005003 Preferred System Portfolio adopted on Feb. 10, 2022 is the sentence, “Criteria pollutants were counted from generation within California only, and not from unspecified imports.” This means toxic air pollution from out-of-state coal power is artificially zeroed.

The increased demand for U.S. natural gas to supply Europe after Russia's invasion of Ukraine means increased gas costs for utilities, resulting in pressure to burn more coal. Since nuclear plants like Diablo Canyon don't emit air pollution, they should remain online instead.

With the increased transmission costs, in 2025 Californians could have the worst of both worlds with significantly higher toxic pollution released into the environment — while paying more for this emission-laden power from Wyoming.

Beginning to reverse California's harmful energy policies means continuing operation of safe, reliable and cost-effective zero-emission Diablo Canyon well beyond 2025.

Editor's Note: Gene Nelson has a Ph.D. in radiation biophysics and served as a science and engineering professor at 3 colleges and a university. He helped found CGNP in 2013, and has been CGNP's Legal Assistant since 2016.