



# Diablo Canyon Power Plant

The **Diablo Canyon Power Plant** is a nuclear power plant near Avila Beach in San Luis Obispo County, California. Following the permanent shutdown of the San Onofre Nuclear Generating Station in 2013, Diablo Canyon is now the only operational nuclear plant in California, as well as the state's largest single power station. It was the subject of controversy and protests during its construction, with nearly two thousand civil disobedience arrests in a two-week period in 1981.

The plant has two Westinghouse-designed 4-loop pressurized-water nuclear reactors operated by Pacific Gas & Electric (PG&E). Together, the twin 1100 MWe reactors produce about 18,000 GW⋅h of electricity annually (8.6% of total California generation and 23% of carbon-free generation), supplying the electrical needs of more than 3 million people.<sup>[5]</sup> The plant produces electricity for about 6 cents per kWh, less than the average cost of 10.1 cents per kWh that PG&E paid for electricity from other suppliers in 2014.<sup>[6]</sup>

Though it was built less than a mile from the Shoreline fault line, which was not known to exist at the time of construction, and is located less than three miles (4.8 km) from the Hosgri fault, a 2016 NRC probabilistic risk assessment of the plant, taking into account seismic risk, estimated the frequency of core damage at one instance per 7.6 million reactor years.<sup>[7]</sup> The plant is located in Nuclear Regulatory Commission Region IV.

In 2016, PG&E announced that it plans to close the two Diablo Canyon reactors in 2024 and 2025, stating that because California's energy regulations give renewables priority over nuclear, the plant would likely only run half-time, making it uneconomical.<sup>[3]</sup> (Nuclear plants are used for base load in order to spread their large fixed costs over as many kWh of generation as possible.)<sup>[3]</sup> In 2020, experts at the California Independent System Operator (CAISO) warned that when the plant closes the state will reach a "critical inflection point", which will create a significant challenge to ensure reliability of the grid without resorting to more fossil fuel usage, and could jeopardize California's greenhouse gas reduction targets.<sup>[8][9][10]</sup> In 2021 the California Energy Commission and CAISO warned that the state may have summer blackouts in future years as a result of Diablo's closure coinciding with the shutdown of four natural gas plants of 3.7GW total capacity, and the inability to rely on imported electricity during West-wide heat waves due to reduced hydroelectric capacity (from the decades-long drought) and the closure of coal plants.<sup>[11]</sup> A 2021 report from researchers at MIT and Stanford states that keeping Diablo Canyon running until 2035 would reduce the state's carbon emissions from electricity generation by 11% every year, save the state a cumulative \$2.6 billion (rising to \$21 billion if kept open until 2045), and improve the reliability of the grid.<sup>[12][13][14][15]</sup> Full decommissioning of the plant is estimated to take decades and cost nearly \$4 billion.<sup>[16]</sup>

## Operation

Diablo Canyon Power Plant is on approximately 750 acres (300 ha) of land located just west of Avila Beach, California.<sup>[1]</sup> The power-producing portion of the plant occupies around 12 acres (4.9 ha). PG&E owns a total of 12,820 acres (5,190 ha) of land at the site.<sup>[16]</sup>

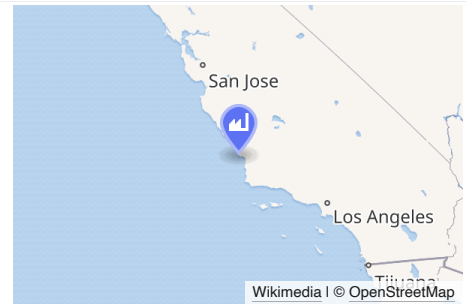
### Unit One

Unit One is a 1138 MWe pressurized water reactor supplied by Westinghouse. It went online on May 7, 1985, and is licensed to operate through November 2, 2024.

### Diablo Canyon Power Plant



Diablo Canyon Power Plant



<b>Country</b>	United States
<b>Location</b>	San Luis Obispo County, California
<b>Coordinates</b>	<span><span><span><span><span>35°12′39″N</span> <span>120°51′22″W</span></span></span><span><span>﻿</span> / <span>﻿</span></span><span><span></span></span></span></span>
<b>Status</b>	Operational
<b>Construction began</b>	Unit 1: April 23, 1968 Unit 2: December 9, 1970
<b>Commission date</b>	Unit 1: May 7, 1985 Unit 2: March 13, 1986
<b>Decommission date</b>	2030 <i>(planned)</i>
<b>Construction cost</b>	\$11.556 billion (2007 USD) <sup>[1]</sup> (\$16.4 billion in 2023 dollars <sup>[2]</sup> )
<b>Owner(s)</b>	PG&E Corporation
<b>Operator(s)</b>	Pacific Gas and Electric Company
<b>Employees</b>	1,500 <sup>[3]</sup>
<b>Nuclear power station</b>	
<b>Reactor type</b>	PWR
<b>Reactor supplier</b>	Westinghouse
<b>Cooling source</b>	Pacific Ocean
<b>Thermal capacity</b>	2 × 3411 MW <sub>th</sub>
<b>Power generation</b>	
<b>Units operational</b>	1 × 1138 MW 1 × 1118 MW
<b>Make and model</b>	WH 4-loop (DRYAMB)
<b>Nameplate capacity</b>	2256 MW

<sup>[17]</sup> In 2006, Unit One generated 9,944,983 MW⋅h of electricity, at a nominal capacity factor of 99.8 percent.

## Unit Two

Unit Two is a 1118 MWe pressurized water reactor supplied by Westinghouse. It went online on March 3, 1986, and is licensed to operate through August 20, 2025.<sup>[17]</sup> In 2006, Unit Two generated 8,520,000 MW⋅h of electricity, at a capacity factor of 87.0 percent.

## Cooling

The plant's once-through cooling system (OTC) draws water from the Pacific Ocean to condense steam driving its turbines. Unlike evaporative cooling systems used at other plants, Diablo Canyon's OTC is designed so all water can be recycled, and to assure minimal impact on ocean ecosystems. Reactors can be throttled back during heavy storm surges to prevent an excess of kelp from entering the cooling water intake, and power is limited during operation so that water returned to the ocean is no more than 20 °F (11 °C) warmer than ambient temperature.

All thermal power stations in California using OTC systems for cooling employ various filtering capabilities to prevent larvae and other aquatic objects from being drawn into impacts with the grids on the intake tubes, known as entrainment.<sup>[18]</sup> The Diablo Canyon facility was ranked 13th in estimated power station bio-fouling and egg larvae damage in the state of California in 2013; the less productive fossil gas power units 6 & 7 at Moss Landing Power Plant were ranked as having a far higher impact on fish larvae.<sup>[19]</sup> In 2014, the California Water Board released a white paper detailing the costs to convert Diablo Canyon to utilize cooling towers instead of the once-through cooling cycle.<sup>[20]</sup> These upgrade cost estimates have been the subject of controversy and debate, with some arguing instead for construction of an artificial reef to better offset the environmental impact of diminished larvae spawning.<sup>[18]</sup>

## Cost of generated electricity

The plant produces electricity for about 6 cents per kWh, less than the average cost of 10.1 cents per kWh that PG&E paid for electricity from other suppliers in 2014.<sup>[6]</sup>

## Labor

There are approximately 1,200 employees of Pacific Gas & Electric and 200 employees of subcontractors at the Diablo Canyon site.<sup>[21]</sup> Several unions represent the workforce at Diablo, among them the International Brotherhood of Electrical Workers (IBEW) and the International Association of Machinists. The routine outages for maintenance, and the complex process of refueling, create more than 1,000 temporary jobs, according to PG&E.<sup>[22]</sup>

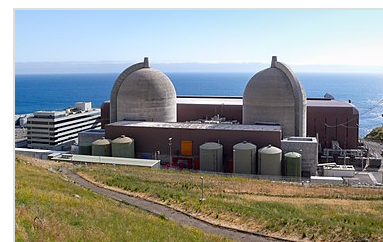
## History

Pacific Gas & Electric Company went through six years of hearings, referendums and litigation to have the Diablo Canyon plant approved. A principal concern about the plant is whether it can be sufficiently earthquake-proof; the site was deemed safe when construction began in 1968, but a seismic fault (the Hosgri fault) had been discovered several miles offshore by the time the plant was completed in 1973.<sup>[23][24][25][26][27]</sup> This fault experienced a 7.1 magnitude quake 10 miles offshore on November 4, 1927, and thus is capable of generating forces equivalent to approximately <sup>1</sup>⁄<sub>16</sub> of those felt in the 1906 San Francisco earthquake.<sup>[28]</sup>

The company updated its plans and added structural supports designed to reinforce stability in case of earthquake. In September 1981, PG&E discovered that a single set of blueprints was used for these structural supports; workers were supposed to have reversed the plans when switching to the second reactor, but did not.<sup>[29]</sup> Nonetheless, on March 19, 1982, the Nuclear Regulatory Commission decided not to review its 1978 decision approving the plant's safety, despite these and other design errors.<sup>[30]</sup>

In response to concern that ground acceleration, or shaking, could cause spillage of submerged fuel rod assemblies which could ignite upon exposure to air, PG&E and NRC regulators insist that the foregoing scenario is anticipated and controlled for, and that there is no basis to anticipate spillage.<sup>[31]</sup> The launch of additional seismic studies did not delay re-issuance of the operating licenses for the

<b>Capacity factor</b>	90.93% (2017) <div>87.25% (lifetime)</div>
<b>Annual net output</b>	17,718 GWh (2023) <sup>[4]</sup>
<b>External links</b>	
<b>Website</b>	Diablo Canyon Power Plant (https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant.page)
<b>Commons</b>	Related media on Commons



Diablo Canyon Power Plant, 2008. The light beige domes are the containment structures for Unit 1 and 2 reactors. The reddish-brown building is the turbine building where electricity is generated and sent to the grid. To the left is the Administration Building (black and white stripes).

two onsite units.<sup>[32]</sup>

The Nuclear Regulatory Commission's estimate of the risk each year of an earthquake intense enough to cause core damage to the reactor at Diablo Canyon was 1 in 23,810, according to an NRC study published in August 2010.<sup>[33][34]</sup>

In 2009, PG&E applied to the Nuclear Regulatory Commission (NRC) for 20-year license renewals for both reactors.<sup>[35]</sup>

In April 2011, in the wake of the Fukushima nuclear incident in Japan, PG&E asked the NRC not to issue license renewals until PG&E could complete new seismic studies, which were expected to take at least three years.<sup>[36][37]</sup>

On June 24, 2013, at 9:20 PM PDT, Diablo Canyon experienced a loss of offsite power to the startup transformers of both units due to a failure on the 230 kV transmission system. At the time, none of the startup transformers were loaded as both units were online and their electrical systems were at the time being powered by the plant's turbine generators. However, the emergency diesel generators were started with no load during the outage as a precaution in case either unit tripped offline while offsite power was unavailable. The electrical output of the plant via the 500 kV transmission system was not interrupted, allowing both units to remain online during the outage.

## Public participation and protest

Diablo Canyon was built and entered service in the midst of legal challenges and civil disobedience from the anti-nuclear protesters of the Abalone Alliance.<sup>[38]</sup> Over a two-week period in 1981, 1,900 activists were arrested and sent to jail for protesting at Diablo Canyon Power Plant, including musician/activist Jackson Browne. It was the largest arrest total in the history of the U.S. anti-nuclear movement.<sup>[38]</sup>

In spring of 2011, State Senator Sam Blakeslee and US Representative Lois Capps both expressed concern for a renewed safety review.<sup>[39][40]</sup> Speaking before the Senate Committee on Environment and Public Works, Representative Capps stated that she believed the "Nuclear Regulatory Commission should stay the license renewal process until the completion of independent, peer reviewed, advanced seismic studies of all faults in the area." The Alliance for Nuclear Responsibility began circulating a petition to similar effect,<sup>[41]</sup> going further and calling for an outright halt to relicensing. An array of San Luis Obispo-based anti-nuclear groups including Mothers for Peace also called for closure of the plant.<sup>[42]</sup>

## Post-Fukushima developments

Due to international reactions to the Fukushima Daiichi nuclear disaster, concerns have continued over the ongoing operations of Diablo Canyon which, like the reactors at Fukushima, is in an area prone to earthquakes and tsunamis. The elevation of the Fukushima site is approximately 20 feet (6.1 m) above sea level, while Diablo Canyon sits on a bluff 85 feet (26 m) above sea level. According to Victor Dricks, senior public affairs officer for NRC Region IV, the Commission conducted a nationwide review of nuclear power plants for their capacity to respond to earthquakes, power outages and other catastrophic events, and Diablo was found to have "a high level of preparedness and strong capability in terms of equipment and procedures to respond to severe events."<sup>[43]</sup>

On June 2, 2011, the NRC announced that it would delay the environmental part of the re-licensing application but that it had completed the safety portion.<sup>[44]</sup> A few days later, the Atomic Safety Licensing Board (ASLB) indicated that it would defer adjustment of the adjudicatory schedule of the four contentions brought by San Luis Obispo Mothers for Peace (SLOMFP), a community-based anti-nuclear organization, accordingly. The ASLB made no findings regarding the merits of the contentions; both PG&E and SLOMFP claimed these developments as victories.<sup>[45][46]</sup>

S. David Freeman, a former general manager of the Sacramento Municipal Utility District for four years, criticized the continued operation of Diablo Canyon, calling nuclear power the "most expensive and dangerous source of energy on Earth." According to Freeman, Diablo Canyon and the since-closed San Onofre nuclear plant are both "disasters waiting to happen: aging, unreliable reactors sitting near fault zones on the fragile Pacific Coast, with millions or hundreds of thousands of Californians living nearby."<sup>[47]</sup>

## Closure extension

In January 2016, several authors of An Ecomodernist Manifesto (including Robert Stone, David Keith, Stewart Brand, Michael Shellenberger, Mark Lynas) signed an open letter to California Governor Jerry Brown, Tony Earley, CEO of Pacific Gas & Electric, and California state officials, urging that the plant not be closed.<sup>[48][49]</sup> They argued that Diablo is an asset for California in achieving global warming goals since it does not emit greenhouse gases like a natural gas power plant, which are a major contributor to global warming.<sup>[50]</sup>

S. David Freeman and Damon Moglen from the environmental advocacy group Friends of the Earth, (which was founded in 1969 to oppose Diablo Canyon's construction), commissioned a study to estimate whether it could be cost-effective to replace Diablo with zero-carbon resources.<sup>[51]</sup> Their study estimated that California will need less grid electricity in the next two decades, and that

expected costs to extend Diablo's licenses would be around \$17 billion vs. \$12–15 billion for replacing it with renewables and energy efficiency.<sup>[52][51]</sup> Freeman and Moglen then arranged for a meeting with PG&E's vice president of policy and federal affairs to present her with their report.<sup>[51]</sup> The group invited Ralph Cavanagh from the Natural Resources Defense Council, as well as other environmental groups.<sup>[51]</sup> They included the plant's unions in their discussion, who agreed to closing the plant after being offered \$350 million for retraining programs and retention bonuses.<sup>[51]</sup> Lieutenant Governor Gavin Newsom, as a member of the State Lands Commission, was interested in moving the discussion along in part to allow for a slower, greener transition.<sup>[53]</sup>

On June 21, 2016, PG&E announced a Joint Proposal with Friends of the Earth, the Natural Resources Defense Council, Environment California, the International Brotherhood of Electrical Workers Local 1245, Coalition of California Utility Employees, and Alliance for Nuclear Responsibility to increase investment in energy efficiency, renewables and storage, while phasing out nuclear power.<sup>[54]</sup>

One reason given by PG&E for the closure is that under California's electricity regulations, renewables are given priority over nuclear and fossil-fuel generation, which would likely have resulted in Diablo only running half-time, and because nuclear plants have large fixed costs, this would essentially double its per-kWh generation costs.<sup>[3]</sup>

PG&E's CEO stated: "I am sorry to see it go, because from a national energy policy standpoint, we need greenhouse gas-free electricity," Earley said. "But we are regulated by the state of California, and California's policies are driving this."<sup>[3]</sup>

Specifically, the operating licenses for Diablo Canyon Units 1 and 2 would not be renewed when they expire on November 2, 2024 and August 26, 2025, respectively. PG&E's application to close Diablo Canyon, including the Joint Proposal, was approved by the California Public Utilities Commission in January 2018. In February, PG&E withdrew its application to the Nuclear Regulatory Commission for a licensing extension.<sup>[55]</sup>

In October 2020, experts at the California Independent System Operator (CAISO) warned that when the plant retires the state will reach a "critical inflection point", which will create a significant challenge to ensure reliability of the grid without resorting to more fossil fuel usage, and could jeopardize California's greenhouse gas reduction targets.<sup>[8][9][10]</sup>

According to David G. Victor, professor of innovation and public policy at UC San Diego: "The politics against nuclear power in California are more powerful and organized than the politics in favor of a climate policy."<sup>[56]</sup>

A 2021 report from researchers at MIT and Stanford states that keeping Diablo Canyon running until 2035 would reduce the state's carbon emissions from electricity generation by 11% every year, save the state a cumulative \$2.6 billion, and improve the reliability of the grid.<sup>[12][13]</sup> They state that three factors have changed since the 2018 decision to close the plant: the state passed a new law (sb100) which requires 100% emissions-free electricity generation by 2045, the whole western US region is in a continuing mega-drought (limiting hydroelectric generation), and demand for electricity has outpaced supply, especially during heatwaves.<sup>[12]</sup> They also stated that keeping Diablo operating until 2045 would save the state a cumulative \$21 billion.<sup>[14]</sup>

Steven Chu, energy secretary in the Obama administration, endorsed the study and said: "We are not in a position in the near-term future to go to 100% renewable energy, and there will be times when the wind doesn't blow, the sun doesn't shine and we will need some power that we can turn on and dispatch at will, and that leaves two choices: fossil fuel or nuclear" and he noted that countries that have shut down their nuclear plants have ended up using more fossil fuels.<sup>[13][14][15]</sup> He also called the decision to shutdown the plant "distressing" and said "Nuclear power is something we should reconsider, and we should ask PG&E to reconsider."<sup>[14][15]</sup>

Some of the continued generation from the plant could be used for relieving the drought-caused water shortages by powering a desalination plant (costing half as much as the Carlsbad desalination plant for the same capacity), or to generate hydrogen as a carbon-free fuel for manufacturing and transportation uses, at half the cost of producing it with wind or solar power, with a smaller land footprint.<sup>[12][13][15]</sup>

In October 2021 the California Energy Commission and CAISO stated that the state may have summer blackouts in future years as a result of Diablo's closure coinciding with the shutdown of four natural gas plants of 3.7GW total capacity, and inability to rely on imported electricity during West-wide heat waves.<sup>[11]</sup> (The reduction of importable electricity is due to both the decades-long drought reducing hydroelectric capacity, and the closing of coal plants.)<sup>[11]</sup>

In a November 2021 opinion article, the editorial board of *The Washington Post* said: "If the state is serious about achieving carbon neutrality over the next few decades — and it should be — it cannot start by shutting down a source of emissions-free energy that accounts for nearly 10 percent of its in-state electricity production. A new report from experts at the Massachusetts Institute of Technology and Stanford University has made that point clearly: Closing down Diablo Canyon would be the definition of climate incoherence." and "The report finds that without Diablo Canyon, the state's electricity shortage would have been three times as severe during last year's [2020] massive blackouts." and "Closing Diablo Canyon would make the state's energy transition costlier, longer and more chaotic."<sup>[57]</sup>

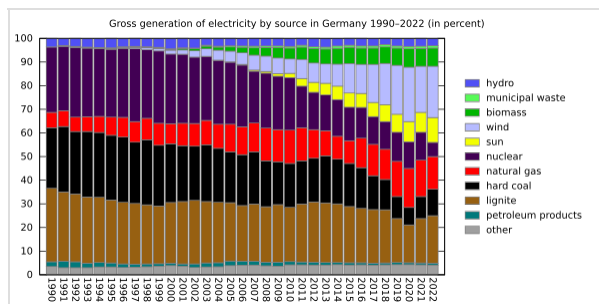
In February 2022 a group of 79 scientists published an open letter highlighting that the plant provides 18 TWh of low-carbon electricity annually and its closure is at odds with decarbonization goals.<sup>[58]</sup>

In response to these concerns, in August 2022 California Governor [Gavin Newsom](#) proposed providing PG&E with a \$1.4 billion loan to support the continued operation of Diablo Canyon for another 5 to 10 years.<sup>[59]</sup> The California Legislature approved the loan on September 1 with the passage of Senate Bill 846. The bill also charged the California Public Utilities Commission with monitoring cost increases that might make the plant uneconomical to operate and to close the plant if its operations “prove to be economically disadvantageous, or even financially catastrophic, for California electricity consumers”.<sup>[60]</sup> PG&E is also expected to seek funding from a \$6 billion federal program intended to support the continued operation of nuclear plants facing closure.<sup>[61][62][63][64]</sup> PG&E asked the NRC in October 2022 to resume consideration of a license renewal application initially submitted in 2009.<sup>[65]</sup> Regulatory approvals will also be needed from the U.S. Department of Energy, [California State Lands Commission](#), [California Energy Commission](#), [California Coastal Commission](#), and [California Public Utilities Commission](#).<sup>[66][67]</sup>

The Department of Energy approved \$1.1 billion in funding in November from the Civil Nuclear Credit program which was included in the [Infrastructure Investment and Jobs Act](#).<sup>[68]</sup>

### Lesson from Germany

In 2011, [Angela Merkel](#) announced that [Germany](#) would shut down all its [nuclear plants](#) (which at the time generated 25% of the country's electricity) by 2022 and replace that lost generation with renewables. The nuclear reductions that have taken place have resulted in 27% of the country's electricity coming from coal, and increased usage of natural gas, with 40% of that coming from [Russia](#).<sup>[69]</sup> [David Frum](#) states that Americans, particularly Californians, should take a lesson from this as it relates to Diablo Canyon's scheduled closure.<sup>[69]</sup>



Gross generation of electricity by source in Germany 1990-2020 showing that the growth of renewables already replaces the soon-to-be-phased-out nuclear (dark purple), and remaining nuclear partially replacing fossils (gas, hardcoal, lignite)

## Safety

### Earthquake protection

Diablo Canyon was originally designed to withstand a 6.75 magnitude [earthquake](#) from four faults, including the nearby [San Andreas](#) and [Hosgri faults](#),<sup>[70]</sup> but was later upgraded to withstand a 7.5 magnitude quake.<sup>[71]</sup> It has redundant seismic monitoring and a safety system designed to shut it down promptly in the event of significant ground motion.

### Independent Safety Committee

The Diablo Canyon Independent Safety Committee (DCISC) was established as a part of a settlement agreement entered into in June 1988 between the [Division of Ratepayer Advocates of the California Public Utilities Commission](#) (CPUC), the Attorney General for the State of California, and Pacific Gas and Electric Company (PG&E). It consists of three members, one each appointed by the Governor, the Attorney General and the Chairperson of the California Energy Commission. They serve staggered three-year terms. The committee has no authority to direct PG&E personnel.

### Emergency planning

The [Nuclear Regulatory Commission](#) defines two emergency planning zones around nuclear power plants: a plume exposure pathway zone with a radius of 10 miles (16 km), concerned primarily with exposure to, and inhalation of, airborne radioactive contamination, and an ingestion pathway zone of about 50 miles (80 km), concerned primarily with ingestion of food and liquid contaminated by radioactivity.<sup>[72]</sup>

The 2010 U.S. population within 10 miles (16 km) of Diablo Canyon was 26,123, an increase of 50.2% in a decade, according to an analysis of U.S. Census data for [msnbc.com](#). The 2010 U.S. population within 50 miles (80 km) was 465,521, an increase of 22.4% since 2000. Cities within 50 miles include San Luis Obispo (12 miles to city center) and Paso Robles (31 miles to city center).<sup>[73]</sup>

Emergency sirens were installed when the plant initially went operational. Federal law requires an early warning system that radiates out 10 miles from any nuclear facility. The county siren coverage goes farther, extending from Cayucos in the north to upper Nipomo to the south. All businesses are required to have a siren information sticker in their business generally located within the restrooms. Schools, government offices, and any other public building will have a PAZ card (Protective Action Zone). These cards show the 12 zones of evacuation with zone one being the plant itself. The cards also show the direction of evacuation on the highways.



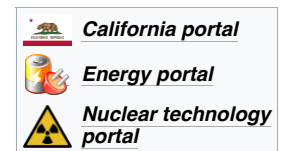
## Electricity Production

 Generation (MWh) of Diablo Canyon Power Plant<sup>[74]</sup>

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual (Total)
<b>2001</b>	1,525,244	1,485,080	1,641,948	1,521,122	849,893	1,551,157	1,641,614	1,640,733	1,562,472	1,583,472	1,457,320	1,617,658	<b>18,077,713</b>
<b>2002</b>	1,571,813	1,400,306	1,640,898	1,506,506	837,835	1,436,401	1,602,027	1,545,177	1,558,103	1,296,739	687,427	1,220,974	<b>16,304,206</b>
<b>2003</b>	1,631,359	793,221	841,539	1,187,258	1,644,785	1,530,373	1,639,201	1,643,064	1,585,538	1,638,662	1,583,856	1,566,183	<b>17,285,039</b>
<b>2004</b>	1,603,460	1,440,359	1,277,888	783,061	796,125	1,212,488	1,547,670	1,624,119	1,552,821	1,436,340	792,634	1,163,472	<b>15,230,437</b>
<b>2005</b>	1,613,306	1,405,477	1,634,241	1,579,485	1,631,023	1,563,650	1,635,820	1,632,265	1,446,022	1,358,644	776,329	1,479,040	<b>17,755,302</b>
<b>2006</b>	1,648,808	1,497,112	1,658,752	1,229,920	932,000	1,637,676	1,695,432	1,686,784	1,635,172	1,685,593	1,575,764	1,507,982	<b>18,390,995</b>
<b>2007</b>	1,693,248	1,525,089	1,690,619	1,554,389	852,197	1,627,930	1,688,585	1,454,699	1,631,781	1,683,859	1,614,813	1,571,281	<b>18,588,490</b>
<b>2008</b>	1,656,514	829,903	840,213	1,261,141	1,638,605	1,632,295	1,682,212	1,259,242	1,449,057	1,552,863	1,616,118	1,672,364	<b>17,090,527</b>
<b>2009</b>	1,488,879	751,745	950,830	1,634,919	1,614,195	1,621,198	1,608,408	1,336,564	1,365,692	888,647	1,315,998	1,687,783	<b>16,264,858</b>
<b>2010</b>	1,559,639	1,467,335	1,696,220	1,642,753	1,699,737	1,645,987	1,696,146	1,696,174	1,636,026	847,393	1,180,980	1,661,535	<b>18,429,925</b>
<b>2011</b>	1,692,964	1,528,441	1,542,395	1,609,954	844,430	1,456,556	1,690,001	1,682,731	1,525,243	1,671,988	1,634,559	1,686,812	<b>18,566,074</b>
<b>2012</b>	1,688,081	1,515,618	1,695,061	1,204,192	841,181	1,115,654	1,693,320	1,692,593	1,621,859	1,545,477	1,557,988	1,541,444	<b>17,712,468</b>
<b>2013</b>	1,690,733	810,923	1,014,766	1,641,779	1,692,223	1,498,929	1,485,846	1,688,180	1,634,281	1,581,357	1,595,494	1,677,928	<b>18,012,439</b>
<b>2014</b>	1,597,319	799,061	960,097	1,644,750	1,679,904	1,627,661	1,663,326	1,508,498	1,611,914	940,932	1,422,921	1,529,595	<b>16,985,978</b>
<b>2015</b>	1,563,700	1,526,210	1,694,001	1,645,487	1,696,424	1,639,554	1,681,722	1,666,228	1,533,642	904,616	1,370,238	1,583,563	<b>18,505,385</b>
<b>2016</b>	1,690,198	1,582,510	1,694,947	1,635,303	846,524	1,526,133	1,695,468	1,685,863	1,630,606	1,604,631	1,622,046	1,693,349	<b>18,907,578</b>
<b>2017</b>	1,645,132	1,526,365	1,569,141	1,412,868	840,135	959,831	1,648,012	1,682,881	1,623,061	1,683,557	1,628,939	1,681,157	<b>17,901,079</b>
<b>2018</b>	1,666,162	982,658	1,046,927	1,546,437	1,682,785	1,637,307	1,686,430	1,620,869	1,614,534	1,667,833	1,573,910	1,487,667	<b>18,213,519</b>
<b>2019</b>	1,681,619	987,002	1,132,805	1,551,843	1,692,739	1,632,855	1,687,150	1,677,931	1,369,770	839,895	800,964	1,110,811	<b>16,165,384</b>
<b>2020</b>	1,689,545	1,486,059	1,671,026	1,630,645	1,597,652	1,628,068	1,278,695	1,597,801	1,599,991	438,597	784,013	856,606	<b>16,258,698</b>
<b>2021</b>	1,287,253	799,811	841,163	922,229	1,674,327	1,633,953	1,683,581	1,681,490	1,626,712	1,197,610	1,445,614	1,683,623	<b>16,477,366</b>
<b>2022</b>	1,656,360	1,481,389	1,466,126	864,541	1,692,998	1,633,288	1,684,102	1,679,400	1,611,663	1,223,462	929,459	1,670,466	<b>17,593,254</b>
<b>2023</b>	1,603,068	1,519,676	1,540,951	1,636,919	1,681,901	1,624,861	1,678,408	1,657,704	1,550,608	775,964	1,069,182		<b>14,788,634</b>

## See also

- *Critical Masses: Opposition to Nuclear Power in California, 1958–1978* ISBN 0299158543
- Dark Circle (film)
- Economics of nuclear power plants
- John Gofman
- List of articles associated with nuclear issues in California
- Nuclear policy in the United States
- Largest nuclear power plants in the United States



## References

- ↑ "EIA – California Nuclear Profile 2010" (https://www.eia.gov/nuclear/state/archive/2010/california/). *www.eia.gov*. Energy Information Administration, U.S. Department of Energy (DOE). April 26, 2012. Archived (https://web.archive.org/web/20170519163823/https://www.eia.gov/nuclear/state/archive/2010/california/) from the original on May 19, 2017.
- ↑ Johnston, Louis; Williamson, Samuel H. (2023). "What Was the U.S. GDP Then?" (http://www.measuringworth.com/datasets/usgdp/). *MeasuringWorth*. Retrieved November 30, 2023. United States Gross Domestic Product deflator figures follow the *MeasuringWorth* series.

3. Baker, David (June 21, 2016). "End of an atomic era: PG&E to close Diablo Canyon nuclear plant" (<https://www.sfgate.com/business/article/End-of-an-atomic-era-PG-E-to-close-Diablo-Canyon-8314258.php>). *San Francisco Chronicle*. "A rising flood of renewable power is pouring onto the state's electricity grid, and, under California regulations, that power has priority over electricity generated from nuclear reactors or fossil fuel plants. ... "Our analysis continues to show that instead of continuing to run all the time, there will be parts of the year where Diablo will not be needed," said Earley, who flew to San Luis Obispo to break the news to Diablo's 1,500 employees in a series of staff meetings Tuesday. "At a plant like Diablo, with large fixed costs, if you effectively only run the plant half the time, you've doubled the cost.""
4. "Electricity Data Browser – Diablo Canyon" ([https://www.eia.gov/electricity/data/browser/#/plant/6099?freq=A&start=2019&end=2023&ctype=linechart&ltype=pin&columnchart=ELEC.PLANT.GEN.6099-ALL-ALL.A&linechart=ELEC.PLANT.GEN.6099-ALL-ALL.A&matype=0&pin=](https://www.eia.gov/electricity/data/browser/#/plant/6099?freq=A&start=2019&end=2023&ctype=linechart&ltype=pin&columnchart=ELEC.PLANT.GEN.6099-ALL-ALL.A&linechart=ELEC.PLANT.GEN.6099-ALL-ALL.A&matype=0&pin=))). *www.eia.gov*. Retrieved March 21, 2024.
5. Economic Benefits of Diablo Canyon Power Plant ([http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/PGE\\_Economic\\_Impact\\_Report\\_Final.pdf](http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/PGE_Economic_Impact_Report_Final.pdf)) Archived ([https://web.archive.org/web/20230528052551/http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/PGE\\_Economic\\_Impact\\_Report\\_Final.pdf](https://web.archive.org/web/20230528052551/http://www.pge.com/includes/docs/pdfs/shared/edusafety/systemworks/dcpp/PGE_Economic_Impact_Report_Final.pdf)) May 28, 2023, at the [Wayback Machine](#), PG&E, June 2013
6. Baker, David (November 14, 2015). "Nuclear power's last stand in California: Will Diablo Canyon die?" (<https://www.sfchronicle.com/business/article/Nuclear-power-s-last-stand-in-California-Will-6630933.php?t=d4053ba6dc>). *San Francisco Chronicle*. "And yet, the plant produces so much electricity that it remains cost-effective, according to PG&E. The utility doesn't reveal exact prices but says Diablo can generate electricity for roughly 5 to 6 cents per kilowatt-hour. In contrast, PG&E last year paid an average of 10.1 cents per kilowatt-hour to buy electricity from other suppliers, according to the company's annual report to shareholders."
7. Pruitt, Tony (October 3, 2016). "Diablo Canyon Power Plant – NRC Inspection Report" (<https://www.nrc.gov/docs/ML1627/ML16277A340.pdf>) (PDF). *nrc.gov*. Retrieved November 16, 2018.
8. "COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION" ([http://www.caiso.com/Documents/Oct23-2020\\_Comments-on-Integrated-Resource-Planning-R20-05-003.pdf](http://www.caiso.com/Documents/Oct23-2020_Comments-on-Integrated-Resource-Planning-R20-05-003.pdf)) (PDF). *California Independent System Operator*. October 23, 2020. Archived ([https://web.archive.org/web/20201101143353/http://www.caiso.com/Documents/Oct23-2020\\_Comments-on-Integrated-Resource-Planning-R20-05-003.pdf](https://web.archive.org/web/20201101143353/http://www.caiso.com/Documents/Oct23-2020_Comments-on-Integrated-Resource-Planning-R20-05-003.pdf)) (PDF) from the original on November 1, 2020.
9. Balaraman, Kavya (March 23, 2021). "California's last nuclear plant is poised to shut down. What happens next? – A large amount of carbon-free energy will come offline once the Diablo Canyon power plant retires, raising questions around how the state will replace it" (<https://www.utilitydive.com/news/californias-last-nuclear-plant-is-poised-to-shut-down-what-happens-next/596970/>). *UtilityDive*. "Last October, the California Independent System Operator (CAISO) warned in a filing that the system will hit a "critical inflection point" after the nuclear plant retires, with resource needs that are much higher than initially anticipated to ensure reliability. ... Diablo Canyon's retirement could also jeopardize California's GHG emission goals. California enacted legislation in 2018 that requires state regulators to prevent the plant's closure from leading to an increase in emissions. But without enough planning, natural gas power plants could step in to fill the gap, leading to a potential 15.5 million metric tons of additional GHG emissions between now and the end of the decade, according to a report from UCS – roughly equivalent to the impact of 306,000 gasoline passenger vehicles during the same period."
10. Roth, Sammy (May 18, 2021). "California's next climate challenge: Replacing its last nuclear power plant" (<https://www.latimes.com/business/story/2021-05-18/california-climate-change-nuclear-power-plant>). *Los Angeles Times*. "But with just three years until the plant begins to power down, California has no plan to directly replace it. That's despite a state law, overwhelmingly approved by the Legislature and signed by Brown, ordering regulators to "avoid any increase in emissions of greenhouse gases" as a result of Diablo's closure. It's common for nuclear shutdowns to be followed by a jump in pollution as fossil fueled power plants fire up more often. ... That's the problem in California, where officials acknowledge the state is likely to burn more gas after Diablo goes offline. In a recent report studying the possible closure of the Aliso Canyon gas storage facility outside Los Angeles, the Public Utilities Commission cited Diablo's retirement as one of several reasons gas demand is expected to increase in the coming years."
11. Katherine Blunt (October 16, 2021). "California Scrambles to Find Electricity to Offset Plant Closures" (<https://www.wsj.com/articles/california-scrambles-to-find-electricity-to-offset-plant-closures-11634376600>). *The Wall Street Journal*. ISSN 0099-9660 (<https://www.worldcat.org/issn/0099-9660>). Wikidata Q114357328. Retrieved October 2, 2022. "While the companies are moving quickly to contract for power, the California Energy Commission and the state's grid operator have recently expressed concern that the purchases may not be enough to prevent electricity shortages in coming summers. ... The drought has constrained the output of some of the region's most significant generating facilities, including the Hoover Dam. On top of that, other states have moved to close coal-fired power plants in recent years, reducing the amount of electricity California can import when high temperatures boost electricity demand. "What changed dramatically...is we have had significantly bigger and more West-wide heat waves than ever before," Mr. Randolph said. "Those aren't built into our planning standards." ... The state is also preparing for the closure of four gas-fired power plants on the Southern California coast that together supply more than 3,700 megawatts. The plants had been slated to close last year, but regulators moved to keep one online through 2021 and the other three through 2023 out of concern that California could face electricity shortages on hot days in the evening, when solar power production declines."

12. "Will the climate crisis force America to reconsider nuclear power? - Reaching net-zero targets will be much harder without it" (<https://www.economist.com/united-states/will-the-climate-crisis-force-america-to-reconsider-nuclear-power/21806194>). *The Economist*. November 10, 2021. "Yet despite California's aggressive climate goals and a national push to reach net-zero emissions by 2050, Diablo Canyon is set to close down by 2025. A new report from researchers at Stanford University and the Massachusetts Institute of Technology (MIT) reveals just how detrimental that would be. ... These three trends led researchers to ponder how keeping the plant running might change California's energy outlook. They found that to keep it going to 2035, ten years past its current operating licence issued by the NRC, would cut emissions, bolster the grid's reliability and save the state \$2.6bn. The analysis shows that Diablo's continued operation would reduce the carbon emissions from power generation by 11% each year from 2017 levels."
13. Nikolewski, Rob (November 14, 2021). "Keeping California's last nuclear power plant open could help state meet its climate goals, study says" (<https://www.latimes.com/california/story/2021-11-14/should-californias-last-nuclear-power-plant-stay-open>). *Los Angeles Times*. "The report analyzed various scenarios and concluded that keeping Diablo Canyon running would "significantly reduce California's use of natural gas for electricity" and save \$2.6 billion in costs to the state's power system from 2025 to 2035. The 2,240 megawatts of electricity generated by the plant can also help grid operators avoid blackouts, such as the statewide outages experienced in August 2020."
14. Baker, David (November 9, 2021). "Keeping California's Last Nuclear Plant Can Save Money, Climate: MIT-Stanford Study" (<https://www.bloomberg.com/news/articles/2021-11-08/keep-california-s-last-nuke-to-save-cash-fight-warming-study>). *Bloomberg News*. "Researchers from Stanford University and the Massachusetts Institute of Technology said in the study released Monday that keeping Diablo Canyon open through 2035 would cut greenhouse-gas emissions from California's power sector 10% each year, by reducing the amount of electricity needed from natural-gas plants. It would also save \$2.6 billion for utility ratepayers. Keep Diablo Canyon open until 2045, and the savings would grow to \$21 billion, they said."
15. Mulkern, Anne (November 10, 2021). "Calif.'s last nuclear plant needed for 100% clean grid — experts" (<https://www.eenews.net/articles/calif-s-last-nuclear-plant-needed-for-100-clean-grid-experts/>). *E&E News*. "It would also reduce reliance on natural gas, save \$2.6 billion in power system costs and bolster system reliability, it said. Keeping the plant open through 2045 and beyond would save up to \$21 billion in power system costs, and spare 90,000 acres of land from use for energy production, it said. ... As well, a hydrogen plant connected to Diablo Canyon could help the state meet growing demand for zero-carbon fuels, the report said, noting that it could cost half as much as hydrogen produced using solar and wind power, and with a smaller land footprint."
16. Baker, David (April 13, 2018). "Diablo Canyon's dismantling - An in-depth look at the painstaking process of decommissioning California's last nuclear power plant" (<https://www.sfchronicle.com/business/article/Diablo-Canyon-s-dismantling-Inside-the-12826795.php>). *San Francisco Chronicle*. "PG&E customers have been paying into a decommissioning fund, bit by bit, since the plant opened in 1985. The fund now has \$2.7 billion, according to the utility, and is continuing to grow. ... A typical PG&E residential customer currently pays about 11 cents per month for decommissioning both Diablo Canyon and Humboldt Bay. ... The company also is assembling a community advisory panel that will provide input both on decommissioning Diablo Canyon and what to do with the 12,820 acres of undeveloped coastal hills that PG&E owns around the plant."
17. "California Nuclear Profile – Diablo Canyon Nuclear Power Plant" ([http://www.eia.gov/cneaf/nuclear/state\\_profiles/california/ca.html#\\_ftn1](http://www.eia.gov/cneaf/nuclear/state_profiles/california/ca.html#_ftn1)). Energy Information Administration, U.S. Department of Energy (DOE). September 2010. Retrieved January 21, 2011.
18. PG&E Submitted False Cost Data in Diablo Canyon Case, New EP Investigation Finds (<http://environmentalprogress.org/big-news/2016/9/19/protest-pge-proposal>)
19. Evaluation of Fine - mesh Intake Screen System for the Diablo Canyon Power Plant. pdf table A1-2 pg 13 ([https://web.archive.org/web/20170209050151/http://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/rcnfpp/docs/fine\\_mesh\\_screen\\_eval.pdf](https://web.archive.org/web/20170209050151/http://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/rcnfpp/docs/fine_mesh_screen_eval.pdf))
20. Proposed Subcommittee Comments on Bechtel's Assessment of Alternatives to Once-Through-Cooling for Diablo Canyon Power Plant pdf ([https://web.archive.org/web/20170829162105/http://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/rcnfpp/docs/subbechcom\\_091214.pdf](https://web.archive.org/web/20170829162105/http://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/rcnfpp/docs/subbechcom_091214.pdf))
21. Public hearing minutes, Santa Barbara Board of Supervisors, Special NRC session of June 16, 2011
22. More than 1,000 temporary workers – a boost to the local economy – were brought in to work with PG&E employees to replace a portion of the reactor fuel and to perform maintenance and testing on plant system components that are inaccessible during regular plant operations.
23. Koenen, Leon (March 25, 2011). "The Diablo Canyon Nuclear Power Plant, a 48-Year Odyssey | Environment | SoCal Focus" ([http://www.kcet.org/updaily/socal\\_focus/environment/31573-diablo-canyon-nuclear-power-plant.html](http://www.kcet.org/updaily/socal_focus/environment/31573-diablo-canyon-nuclear-power-plant.html)). KCET. Retrieved June 10, 2011.
24. "Is Diablo Canyon prepared for possible earthquake? | KSBY.com | San Luis Obispo, Santa Maria, Santa Barbara, Paso Robles" (<https://web.archive.org/web/20110927155016/http://www.ksby.com/news/is-diablo-canyon-prepared-for-possible-earthquake-/>). KSBY.com. March 14, 2011. Archived from the original (<http://www.ksby.com/news/is-diablo-canyon-prepared-for-possible-earthquake-/>) on September 27, 2011. Retrieved June 10, 2011.
25. "California's Two Nuclear Plants Near Fault Lines, But Chris Wills with the California Geological Survey says the types of faults are different than the ones in Japan. – KTXL" (<https://web.archive.org/web/20111123074606/http://www.fox40.com/news/headlines/ktxl-californias-two-nuclear-plants-near-fault-lines-20110314,0,3265997.story>). Fox40.com. March 14, 2011. Archived from the original (<http://www.fox40.com/news/headlines/ktxl-californias-two-nuclear-plants-near-fault-lines-20110314,0,3265997.story>) on November 23, 2011. Retrieved June 10, 2011.
26. "Is California Underestimating Quake Threat To Nuclear Plants? | Capital Public Radio" (<https://web.archive.org/web/20120314054012/http://www.capradio.org/articles/2011/03/25/is-california-underestimating-quake-threat-to-nuclear-plants>). CapRadio. March 25, 2011. Archived from the original (<http://www.capradio.org/articles/2011/03/25/is-california-underestimating-quake-threat-to-nuclear-plants>) on March 14, 2012. Retrieved June 10, 2011.



27. "Capps Testifies Before Senate About Diablo Canyon Safety | U.S. House of Representatives" (<https://web.archive.org/web/20121017153156/http://capps.house.gov/press-release/capps-testifies-senate-about-diablo-canyon-safety>). U.S. House. April 12, 2011. Archived from the original (<http://capps.house.gov/press-release/capps-testifies-senate-about-diablo-canyon-safety>) on October 17, 2012. Retrieved August 22, 2014.
28. "Lompoc Earthquake (1927)" ([https://web.archive.org/web/20110606011227/http://www.data.scec.org/chrono\\_index/lompoc.html](https://web.archive.org/web/20110606011227/http://www.data.scec.org/chrono_index/lompoc.html)). Southern California Earthquake Data Center. 2010. Archived from the original ([http://www.data.scec.org/chrono\\_index/lompoc.html](http://www.data.scec.org/chrono_index/lompoc.html)) on June 6, 2011. Retrieved November 2, 2010.
29. Cummings, Judith (October 2, 1981). "Coast A-Plant Construction Error Tied to Missing Guide to Blueprint" (<https://www.nytimes.com/1981/10/02/us/coast-a-plant-construction-error-tied-to-missing-guide-to-blueprint.html>). *The New York Times*. p. 14. Retrieved August 31, 2016.
30. "U.S. Won't Review Diablo Plant Decision: Nuclear Board Upholds '78 Approval of Quake Design Standards". *Los Angeles Times*. March 20, 1982. p. A35.
31. "Diablo Canyon Independent Safety Committee's Evaluation of Pressurized Thermal Shock and Seismic Interactions for a 20-Year License Extension at the Diablo Canyon Nuclear Power Plant" (<http://www.dcisc.org/pts-public-release.php>). Diablo Canyon Independent Safety Committee. 2011. Retrieved March 18, 2011.
32. "In The World of Nuclear Power Crisis" (<https://web.archive.org/web/20110512165416/http://www.mindfully.org/Nucs/TMI-LifeMay79.htm>). *Life Magazine*. May 1979. pp. 23–30. Archived from the original (<http://www.mindfully.org/Nucs/TMI-LifeMay79.htm>) on May 12, 2011. Retrieved July 14, 2010.
33. Dedman, Bill (March 17, 2011). "What are the odds? US nuke plants ranked by quake risk" (<http://www.nbcnews.com/id/42103936>). *NBC News*. Retrieved April 19, 2011.
34. "Archived copy" (<https://web.archive.org/web/20170525170632/http://msnbcmedia.msn.com/i/msnbc/Sections/NEWS/quake%20nrc%20risk%20estimates.pdf>) (PDF). Archived from the original (<https://msnbcmedia.msn.com/i/msnbc/Sections/NEWS/quake%20nrc%20risk%20estimates.pdf>) (PDF) on May 25, 2017. Retrieved April 19, 2011.
35. "Diablo Canyon – License Renewal Application" (<https://www.nrc.gov/reactors/operating/licensing/renewal/applications/diablo-canyon.html>). *Operating Reactor Licensing*. Nuclear Regulatory Commission (NRC). March 12, 2011. Retrieved April 19, 2011.
36. Upton, John (March 17, 2011). "Seismic Uncertainty at Diablo Canyon" (<https://web.archive.org/web/20121105203456/http://www.baycitizen.org/pge/story/diablo-canyon/>). *The Bay Citizen*. Archived from the original (<http://www.baycitizen.org/pge/story/diablo-canyon/>) on November 5, 2012. Retrieved April 19, 2011.
37. Casselman, Ben; Stephen Power (April 12, 2011). "Diablo Plant Delays License Bid for Quake Study" (<https://www.wsj.com/articles/SB10001424052748704529204576257302591577840>). *The Wall Street Journal*. Retrieved April 19, 2011.
38. Wills, John (2006). *Conservation Fallout: Nuclear Protest at Diablo Canyon*. Reno: University of Nevada Press. ISBN 0-87417-680-8.
39. "Blakeslee and Rachel Maddow discuss Diablo" (<http://calcoastnews.com/2011/03/blakeslee-and-racheal-maddow-discuss-diablo/>). *Cal Coast News*. March 25, 2011. Retrieved June 10, 2011.
40. "Capps Testifies Before Senate About Diablo Canyon Safety | Congresswoman Lois Capps, Representing the 23rd District of California" (<https://web.archive.org/web/20110602040624/http://capps.house.gov/2011/04/capps-testifies-before-senate-about-diablo-canyon-safety.shtml>). Capps.house.gov. April 12, 2011. Archived from the original (<http://capps.house.gov/2011/04/capps-testifies-before-senate-about-diablo-canyon-safety.shtml>) on June 2, 2011. Retrieved June 10, 2011.
41. <http://a4nr.org/wp-content/uploads/2011/04/042211-A4NR-petition.pdf>
42. Hickey, Julia (April 16, 2011). "Anti-nuclear rally at Avila Beach" (<http://www.sanluisobispo.com/news/local/article39149715.html>). *The Tribune*. Retrieved December 12, 2016.
43. Dricks, Victor. "The Santa Barbara Independent The Eyes on Diablo" (<https://web.archive.org/web/20120908062004/http://www.independent.com/news/2011/may/31/eyes-diablo/?foo#comments>). Independent.com. Archived from the original (<http://www.independent.com/news/2011/may/31/eyes-diablo/?foo#comments>) on September 8, 2012. Retrieved June 10, 2011.
44. <http://pbadupws.nrc.gov/docs/ML1115/ML111530522.pdf>
45. Johns, Chris (June 5, 2011). "Viewpoint: PG&E chief says it is committed to safety of Diablo | The Tribune &" (<https://web.archive.org/web/20110919140240/http://www.sanluisobispo.com/2011/06/04/1629475/viewpoint-pge-chief-says-it-is.html>). Sanluisobispo.com. Archived from the original (<http://www.sanluisobispo.com/2011/06/04/1629475/viewpoint-pge-chief-says-it-is.html>) on September 19, 2011. Retrieved June 10, 2011.
46. "Mothers For Peace" (<http://mothersforpeace.org/>). Mothersforpeace.org. Retrieved June 10, 2011.
47. S. David Freeman (June 2, 2012). "Viewpoints: Time has come for California to embrace a nuclear-free future" (<https://web.archive.org/web/20120615194034/http://www.sacbee.com/2012/06/02/4532500/time-has-come-for-california-to.html#storylink=cpy>). *Sacramento Bee*. Archived from the original (<http://www.sacbee.com/2012/06/02/4532500/time-has-come-for-california-to.html#storylink=cpy>) on June 15, 2012. Retrieved September 2, 2012.
48. McDonnell, Tim (February 3, 2016). "Closing This Nuclear Plant Could Cause an Environmental Disaster" (<https://www.motherjones.com/environment/2016/02/diablo-canyon-nuclear-plant-climate-change>). *Mother Jones*. Foundation For National Progress. Retrieved February 11, 2016.
49. "Open letter: Do the right thing – stand-up for California's largest source of clean energy" (<https://web.archive.org/web/20160207001258/http://www.savediablocanon.org/open-letter/>). *Save Diablo Canyon*. Archived from the original (<http://www.savediablocanon.org/open-letter/>) on February 7, 2016. Retrieved February 11, 2016.
50. Baker, David R. (January 29, 2016). "Yes nukes! Conservationists rally to save state's nuclear plant" (<http://www.sfchronicle.com/business/article/Yes-nukes-Conservationists-rally-to-save-6794124.php>). *San Francisco Chronicle*. San Francisco, Calif. Retrieved June 27, 2016.

51. Trabish, Herman (July 7, 2016). "Anatomy of a nuke closure: How PG&E decided to shutter Diablo Canyon" (<https://www.utilitydiv.com/news/anatomy-of-a-uke-closure-how-pge-decided-to-shutter-diablo-canyon/421979/>). *UtilityDive*.
52. Caldwell, James; Perea Marcus, William; White, V. John; Anthony, Liz. A Cost Effective and Reliable Zero Carbon Replacement Strategy for Diablo Canyon Power Plant (<https://web.archive.org/web/20161123130308/https://webiva-downton.s3.amazonaws.com/877/6d/5/8551/PlanBfinal.pdf>) (PDF) (Report). V. John White and Associates. Archived from the original (<https://webiva-downton.s3.amazonaws.com/877/6d/5/8551/PlanBfinal.pdf>) (PDF) on November 23, 2016.
53. Cardwell, Diane (June 21, 2016). "California's Last Nuclear Power Plant Could Close" (<https://www.nytimes.com/2016/06/22/business/californias-diablo-canyon-nuclear-power-plant.html>). *The New York Times*. ISSN 0362-4331 (<https://www.worldcat.org/issn/0362-4331>). Retrieved February 14, 2023.
54. "Joint Proposal" (<https://www.pge.com/includes/docs/pdfs/safety/dcpp/JointProposal.pdf>) (PDF). *Public Document*. PGE. June 20, 2016. Retrieved June 8, 2019.
55. "PG&E accepts Diablo Canyon decision" (<http://www.world-nuclear-news.org/C-PGE-accepts-Diablo-Canyon-decision-1302187.html>). World Nuclear News. February 13, 2018. Retrieved February 13, 2018.
56. Clifford, Catherine (October 2, 2021). "Why California is shutting down its last nuclear plant" (<https://www.cnbc.com/2021/10/02/why-is-california-closing-diablo-canyon-nuclear-plant.html>). *CNBC*. "The picture is confusing: California is closing its last operating nuclear power plant, which is a source of clean power, as it faces an energy emergency and a mandate to eliminate carbon emissions. Why? The explanations vary depending on which of the stakeholders you ask. But underlying the statewide diplomatic chess is a deeply held anti-nuclear agenda in the state. "The politics against nuclear power in California are more powerful and organized than the politics in favor of a climate policy," David Victor, professor of innovation and public policy at the School of Global Policy and Strategy at UC San Diego, told CNBC."
57. Editorial Board (November 16, 2021). "Opinion: Closing California's last nuclear power plant would be a mistake" (<https://www.washingtonpost.com/opinions/2021/11/16/closing-californias-last-nuclear-power-plant-would-be-mistake/>). *The Washington Post*.
58. "Keep Diablo Canyon open, 79 scientists, academics and entrepreneurs tell Newsom" (<https://www.sanluisobispo.com/news/local/article258017318.html>).
59. Blood, Michael (August 12, 2022). "California governor proposes extending nuclear plant's life" (<https://apnews.com/article/california-legislature-gavin-newsom-climate-and-environment-4968ee9da7fd1d10ad67bdf03950873>). *The Associated Press*. Retrieved August 16, 2022.
60. Hodgson, Mike (November 1, 2022). "PG&E files first documents with NRC seeking process for relicensing Diablo Canyon" ([https://santamariatimes.com/news/local/govt-and-politics/pg-e-files-first-documents-with-nrc-seeking-process-for-relicensing-diablo-canyon/article\\_cf141180-1240-5532-8223-5136edcdc65e.html](https://santamariatimes.com/news/local/govt-and-politics/pg-e-files-first-documents-with-nrc-seeking-process-for-relicensing-diablo-canyon/article_cf141180-1240-5532-8223-5136edcdc65e.html)). *Santa Maria Times*. Retrieved November 3, 2022.
61. Roth, Sammy (April 29, 2022). "California promised to close its last nuclear plant. Now Newsom is reconsidering" (<https://www.latimes.com/environment/story/2022-04-29/california-promised-to-close-its-last-nuclear-plant-now-newsom-is-reconsidering>). *The Los Angeles Times*. Retrieved August 16, 2022.
62. "California unveils proposal to keep Diablo Canyon nuclear plant open with \$1.4B loan to PG&E" (<https://www.utilitydive.com/news/california-diablo-canyon-nuclear-plant-open-newsom-bill/629727/>). *Utility Dive*. August 16, 2022.
63. Plumer, Brad (September 1, 2022). "California Approves a Wave of Aggressive New Climate Measures" (<https://www.nytimes.com/2022/09/01/climate/california-lawmakers-climate-legislation.html>). *The New York Times*. Retrieved September 1, 2022.
64. Purper, Benjamin (September 1, 2022). "California lawmakers move to keep the state's last nuclear plant open" (<https://www.npr.org/2022/09/01/1119778975/california-lawmakers-extend-the-life-of-the-states-last-nuclear-power-plant>). *NPR News*.
65. "Bid to keep Diablo Canyon reactors running faces time squeeze" (<https://www.ksby.com/news/local-news/bid-to-keep-california-reactors-running-faces-time-squeeze>). *KSBY*. Associated Press. February 13, 2023. Retrieved February 14, 2023.
66. Worsham, Katherine (October 31, 2022). "PG&E files for renewal of Diablo Canyon Power Plant licenses" (<https://www.ksby.com/news/local-news/pg-e-files-for-renewal-of-diablo-canyon-power-plant-licenses>). *KSBY*. Retrieved November 1, 2022.
67. Roth, Sammy (March 2, 2023). "PG&E can keep operating Diablo Canyon — at least for now, feds say" (<https://www.latimes.com/business/story/2023-03-02/pg-e-can-keep-operating-diablo-canyon-feds-say-at-least-for-now>). *Los Angeles Times*. Retrieved March 3, 2023.
68. Calma, Justine (November 22, 2022). "California's last operating nuclear plant just got a \$1.1 billion lifeline" (<https://www.theverge.com/2022/11/22/23473116/diablo-canyon-nuclear-power-plant-california-energy-department-biden-funding>). *The Verge*. Retrieved November 23, 2022.
69. Frum, David (December 8, 2021). "The West's Nuclear Mistake - No government that really regarded climate change as its top energy priority would close nuclear plants before the end of their useful lives" (<https://www.theatlantic.com/ideas/archive/2021/12/germany-california-nuclear-power-climate/620888/>). *The Atlantic*. "Germany has reduced its greenhouse-gas emissions. [From] 2011 [to] 2019, it emitted about 810 million metric tons, an 11.7 percent reduction. That's a better record than that of the United States, but it pales before nuclear-using Britain, which cut its emissions over the same period by more than 21 percent, a number that suggests what Germany might have accomplished had Merkel chosen a different course. This is a lesson Americans should consider too. The state of California, once a nuclear leader, has decommissioned three of its four nuclear plants, and is planning to close its last in the middle of this decade. Those plants have fallen victim to the same post-Fukushima anxiety that ended Germany's nuclear era. Their closures portend equally grave consequences for California's postcarbon future. The still-operating Diablo Canyon plant alone produces about 9 percent of California's electricity. If Diablo Canyon goes offline in 2024 or 2025, filling that gap will almost certainly require burning more gas. Gas already provides 37 percent of California's electricity; solar and wind together provide only about 24 percent. In the near term, less nuclear means more gas."
70. "Energy: A Nuclear Horror" (<https://web.archive.org/web/20090326060511/http://www.time.com/time/magazine/article/0,9171,917988,00.html>). *Time*. February 9, 1976. Archived from the original (<http://www.time.com/time/magazine/article/0,9171,917988,00.html>) on March 26, 2009. Retrieved July 14, 2010.

71. David Sneed (August 9, 2011). "Diablo Canyon workshop to focus on earthquakes" (<https://web.archive.org/web/20110317193217/http://www.sanluisobispo.com/2010/08/08/1244213/diablo-canyon-workshop-september.html>). *The San Luis Obispo Tribune*. Archived from the original (<http://www.sanluisobispo.com/2010/08/08/1244213/diablo-canyon-workshop-september.html>) on March 17, 2011. Retrieved March 19, 2011.
72. "Backgrounder on Emergency Preparedness at Nuclear Power Plants" (<https://www.nrc.gov/reading-rm/doc-collections/fact-sheet/s/emerg-plan-prep-nuc-power.html>). Nuclear Regulatory Commission. August 5, 2015. Retrieved December 12, 2016.
73. Bill Dedman, Nuclear neighbors: Population rises near US reactors, *NBC News*, April 14, 2011 <http://www.nbcnews.com/id/42555888> Accessed May 1, 2011.
74. "Electricity Data Browser" (<https://www.eia.gov/electricity/data/browser/#/plant/6099/?freq=M&pin=>). *www.eia.gov*. Retrieved February 20, 2023.

---

## Further reading

---

- "California Nuclear Profile – Diablo Canyon Nuclear Power Plant" ([http://www.eia.gov/cneaf/nuclear/state\\_profiles/california/ca.html#\\_ftn1](http://www.eia.gov/cneaf/nuclear/state_profiles/california/ca.html#_ftn1)). Energy Information Administration, U.S. Department of Energy (DOE). September 2010. Retrieved January 21, 2011.
- "Diablo Canyon 1 Pressurized Water Reactor" (<https://www.nrc.gov/info-finder/reactor/diab1.html>). *Operating Nuclear Power Reactors*. U.S. Nuclear Regulatory Commission (NRC). February 14, 2008. Retrieved November 25, 2008.
- "Diablo Canyon 2 Pressurized Water Reactor" (<https://www.nrc.gov/info-finder/reactor/diab2.html>). *Operating Nuclear Power Reactors*. NRC. February 14, 2008. Retrieved November 25, 2008.

---

## External links

---

- PG&E Diablo Canyon ([https://www.pge.com/en\\_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant.page](https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant.page))
  - Activist handbooks from 1979 and 1981 Diablo Canyon protests (<http://www.directaction.org/handbook/>)
- 

Retrieved from "[https://en.wikipedia.org/w/index.php?title=Diablo\\_Canyon\\_Power\\_Plant&oldid=1221090977](https://en.wikipedia.org/w/index.php?title=Diablo_Canyon_Power_Plant&oldid=1221090977)"