| DOCKETED | |
|---|---|
| **Docket Number:** | 21-ESR-01 |
| **Project Title:** | Energy System Reliability |
| **TN #:** | 245591 |
| **Document Title:** | Tim Laidman Comments - Comments strongly opposing extension of Diablo Canyon Nuclear plant |
| **Description:** | N/A |
| **Filer:** | System |
| **Organization:** | Tim Laidman |
| **Submitter Role:** | Public |
| **Submission Date:** | 8/19/2022 5:44:27 PM |
| **Docketed Date:** | 8/22/2022 |

*Comment Received From: Tim Laidman*
*Submitted On: 8/19/2022*
*Docket Number: 21-ESR-01*

## Comments strongly opposing extension of Diablo Canyon Nuclear plant

Comment submitted (8/19/22) regarding the extension of the operation of the Diablo Canyon Nuclear Power Plant

This proposed extension of the operation license of the Diablo Canyon Nuclear Power plantâ€™s lifespan is without merit, risks catastrophe and is absolutely the wrong direction for California.

In the last two weeks of the legislatureâ€™s time to pass bills, this legislative trailer proposes a forgivable $1.4 billion loan to PG&E so that it can operate an unsafe plant for an additional ten years.

This would have a long-lasting detrimental effect on California and its people and the environment and may preclude safer, more effective solutions.
The reasons are as follows:
â€¢ The nuclear power plant is old, unreliable, and embrittled after years of deferred maintenance. The many parties involved negotiated a closing date for the nuclear plant based on many factors, including the unlikeliness of NRC approval of an operating plant that was at the end of its life and would not meet current requirements (cooling system) and is now known to be on numerous fault lines and connected systems that PG&E did not design for originally.
â€¢ The plant is at risk seismically, as it is located near multiple, active earthquake faults.
â€¢ The plantâ€™s old â€œonce-throughâ€ cooling system is now illegal as it fails to meet modern requirements.This antiquated system uses billions of gallons of seawater each day, further damaging the local marine ecosystem by heating the local waters.
â€¢ There are no plans for future storage of the additional extra-highly radioactive waste. This compounds the existing risk by adding much more spent fuel stored outside of the containment where it is subject to severe risk from earthquakes and tsunamis.
â€¢ The exemption from CEQA review required of a new plant is unconscionable for a plant at the end of its life that poses much greater danger than a new plant and already has accumulated a huge amount of radioactive fuel in the spent fuel pools.
The use of $1.4 billion on this gift to a disgraced, felonious utility would steal money from true clean energy projects that would have a lasting positive impact toward our climate goals. Spending that money on needed renewable energy projects, solar, wind, storage, micro-grids and improving efficiency is the true solution.

What are the risks of continuing Diablo Canyon? In the event of loss of containment, meltdown or other major accident resulting from an earthquake, tsunami, operator error or any major failure of a critical system, the following could occur:

Contamination by radioactive clouds of extremely long-lived isotopes of land and drinking water over a huge area by predominate winds. This could kill or cause cancer in thousands of people, poison much of the agricultural land of the Central Valley resulting in loss of crops, animals and people, and making the land unusable and unlivable for very long periods.
The drinking water of Los Angeles and San Francisco and points between them could be contaminated, causing a mass exodus from California.
The 5th largest economy in the world, Californiaâ€™s could be destroyed.
Much of the creation of alternative energy products, high tech research and production takes place in California. That is at risk as is the largest already installed renewable energy in the country. The effect of this would be devastating to the worlds response to climate destruction.

There is a huge amount of research and published information that supports these risks and finds them completely unacceptable. I will list some of this material published by Harvey Serback of Berkeley California
below:

As you know, California's Central Growing Valley is America's most productive agricultural region providing more than half of the fruits, nuts and vegetables grown in the United States. Sadly, Diablo Canyon's two nuclear reactors sit on our state's central coastline and because coastal winds have a tendency to blow inland, there's the frightening prospect that a megathrust earthquake, "The Big One", could trigger a nuclear meltdown sending radioactive clouds into the Central Valley which would irradiate and poison much of the Central Valley's produce.

Furthermore, Diablo's radioactive plumes could contaminate the drinking water that flows from
the Sierra Mountains through the Central Valley and into cities like San Francisco and Los Angeles which would lead to a mass migration out of California.

Pacific Gas & Electric Company's nuclear plant, located near Avila Beach in San Luis Obispo
County, is surrounded by a confluence of 13 known fault lines on the seismically active "Pacific
Ring of Fire" earthquake and tsunami zone.

Originally designed to withstand a magnitude 6.75 earthquake and later reconstructed to endure a magnitude 7.5 quake, Diablo's tolerances underestimate the true seismic potential of today's
mega-thrust shakers.

Additionally, there are two fault lines, the "Diablo Cove Fault" and the "San Luis Range/"lOF"
Thrust", that run directly under the Diablo Canyon nuclear plant. The Diablo Cove Fault

extends
through the foundation, under the power plants' Unit One turbine generator and reactor containment vessel.

The east-west trending Diablo Cove Fault runs offshore and intersects with the nearby Shoreline Fault which in turn is connected to the Hosgari Fault Line, a component of the San Andreas Fault System. The power stored within this network of seismically linked faults could creating an earthquake sufficient to exceed Diablo Canyonâ€™s safeguards.

On June 28th, 2016, the moment of truth as to Diablo's vulnerability came to light. PG&E
announced that it would not seek to renew the plantâ€™s two operating licenses with the Nuclear
Regulatory Commission which would have permitted the nuclear facility to operate until 2045.
Instead, the company agreed to close the plant on August 26, 2025 if Diablo was allowed to
"avoid" a proposed environmental impact assessment known as CEQA. The deal was accepted.

CEQA or the California Environmental Quality Act is a statute that requires both state and local
agencies to identify "significant environmental impacts" and to avoid or mitigate those impacts if
feasible. PG&E knew that Diablo would fail to get a clean bill of health if the CEQA review was
allowed to proceed, especially after the catastrophic meltdowns at Japan's Fukushima Daiichi
nuclear power plant on March 11th, 2011.

Unfortunately, PG&E's Unit One Reactor has a documented history of being dangerously
embrittled since 2003. Knowing how "seismically vulnerable" the nuclear plant is, there were
many calls to inspect and test Diablo's radioactive containment vessel for embrittlement and
cracks as well as investigate the rest of the facility for the mishandling of nuclear waste,
"deferred maintenance", earthquake vulnerability and managerial competence.

The good news is that once manufactured and installed, solar panels emit no greenhouse
gasses, use no water except for an occasional cleaning, have no moving parts, make no noise, are virtually maintenance free and are easily recycled. Furthermore photovoltaic panels won't suffer
the potential of a catastrophic Fukushima-like nuclear meltdown over their estimated 20-

25 year warranted lifetime.

PG&E's Diablo Canyon nuclear plant presents too many risks for the people and the economy of California. It isn't an asset, it's a horrendous liability! It's time to embrace our move towards a "truly" renewable energy future both for us and our children as well as future generations.

Harvey Sherback
Berkeley, California

- - - - - - - - - - - - - -

Californians have long anticipated and prepared for â€œthe big one,â€ a mega-thrust earthquake that could strike the west coast at any time. Because our lovely coastline is located within the Pacific â€œring of fireâ€ earthquake zone, we live with the possibility that a major earth-shaking event could disrupt our lives at any time. We also remain exposed to a greater disaster than nature is likely to provide. What would happen if â€œthe big oneâ€™ caused the release of large amounts of radioactive materials from PG&Eâ€™s Diablo Canyon nuclear power plant?

To the east of Diablo Canyon, in the direction of the prevailing wind, lies the San Joaquin Valley, Californiaâ€™s breadbasket. Over 25% of the food that passes across Americaâ€™s dinner tables comes from the central, growing valley. If, somehow, whether caused by nature or accident, Diablo Canyon were to lose containment, we would be rendered helpless as large radioactive clouds rose into the sky. Sea-breezes would carry these toxic plumes eastward into the Valley. No one is going to want to buy produce thatâ€™s been contaminated with radioactive cesium, strontium, and iodine. With drought and heat waves destroying much of Americaâ€™s 2012 corn crop, can we afford to lose Californiaâ€™s agricultural jewel to a nuclear accident?

Additionally, the drinking water for millions of men, women, and children flows from the Sierra Mountains through the Central Valley and into cities that stretch from the Bay Area to Southern California. Nobody is going to knowingly drink water thatâ€™s been laced with radioactive isotopes.

This double disaster would disrupt our infrastructure. After the multiple-meltdowns at the Fukushima Daiichi nuclear plant, the release of toxic radioactive elements into the environment required far more relief-work than the natural disaster that caused the event. A nuclear meltdown at Diablo Canyon would overshadow all other emergency relief efforts in the state, slowing the repair of our damaged infrastructure while putting first-responders and the public in harmâ€™s way. A major release of radioactive materials could disrupt all north-south traffic.

Why must we continue to live with this unnecessary danger?

PG&E has continuously underestimated the challenge of building a nuclear plant within

Californiaâ€™s portion of the ring of fire. There are over 247 identified fault systems in California â€“ but the truth is that there are just too many to count. In addition to major faults, there are the thousands of undiscovered collaterals. Collaterals are faults that branch off of major fault lines. Two recent devastating earthquakes in California, the 1987 Whittier earthquake and the 1994 Northridge earthquake, occurred along fault lines that were previously unknown.

Around and under Diablo Canyon nuclear plant, there is a confluence of 13 known fault systems. The east-west trending Diablo Cove Fault runs directly under Unit 1â€™s reactor. It projects offshore and intersects with the seismically active Shoreline Fault. The Shoreline Fault, less than a mile from the plant, was discovered in 2008. The Shoreline fault may be connected to the Hosgri Fault or other faults to its east. The Hosgri Fault, located just 2.5 miles offshore, is a right-lateral strand of the San Andreas Fault system. The tremendous earth-shaking power of the Hosgri Fault could be triggered by a rupture beginning on the Shoreline Fault Line.

The power stored in this combined network of fault systems can create an earthquake sufficient to exceed Diablo Canyonâ€™s safeguards. The plant was originally designed to withstand a magnitude 6.75 earthquake but was later upgraded to survive a magnitude 7.5 quake.

On Saturday, October 27, 2012, a magnitude 7.7 earthquake struck off the west coast of British Columbia. It was Canadaâ€™s largest earthquake in over six decades. On Friday, January 4, 2013, a magnitude 7.5 quake hit Juneau Alaska. Both quakes were located in within the Pacific ring of fire.

The Diablo Canyon nuclear power plant sits in front of the Monterey Shale. The shale spans Monterey, San Benito, and Fresno Counties. Ongoing efforts to hydraulically fracture, or frack, the Monterey Shale for petroleum and methane will increase the potential of a nuclear disaster. The highly pressurized toxic liquids used in fracking can start earthquakes by lubricating pre-existing faults that are located deep underground. This allows masses of rock to slide past each other. Both the U.S. Army and the U.S. Geological Survey have concluded that the practice of injecting pressurized water into deep rock formations causes earthquakes. Fracking the Monterey Shale could trigger a nuclear meltdown!

As the earthâ€™s polar caps and glaciers melt at an ever-accelerating rate (2011 was the hottest year on record), the reduced weight on both the top and bottom of our planet is causing the earthâ€™s tectonic plates to shift. This increased movement is responsible for larger and more frequent earthquakes.

Diablo Canyonâ€™s containment and cooling systems may be more vulnerable to damage than its designers originally imagined. The plantâ€™s two high-pressure vessels are made of thick steel and operate at about 1000 pounds per square inch (psi). Unfortunately, due to neutron radiation, these metal vessels tend to become brittle and lose their ability to deform under stress. They can become as fragile as glass from the

temperature differential of the cooling water that erupts in the event of an emergency. The idea that nuclear power plants are durable enough to withstand earthquakes and other external shocks is a total myth.

Diablo Canyon is vulnerable to tsunamis. The plant sits perched on a bluff thatâ€™s 85 feet above sea level and, according to Pacific Gas & Electric, its tsunami wall is robust, with the plant expected to survive a wave up to 25 feet in height. Japanese authorities made similar claims before the wall that protected the Fukushima plant fell. Like the earthquake hazard, the tsunami threat is underestimated. In 1812, the Santa Barbara Channel earthquake produced five tsunami waves in front of the Santa Barbara Presidio. The USGS estimated the largest wave was about 50 feet high.

In 1878, a tsunami at Morro Bay destroyed both Avila and Point Sal piers, and in 1913, a tsunami wrecked the Monterey area. Nearby, at Seaside, immense domes of water appeared to observers to be higher than the highest sand hills along the shore. (The current quad sheet shows elevations as high as 120 feet.)

Over its lifetime, Diablo Canyonâ€™s powerful â€œonce-through seawater-intake cooling systemâ€ has killed billions of aquatic eggs, larvae, and juvenile fish. They are drawn through the intake screens and cooked to death or crushed by the systemâ€™s circulation pumps. Marine mammals, birds, adult fish, and crabs who canâ€™t escape the suction are pinned to the screens and either suffocate or drown. (So much death and destruction just to boil water!)

From time to time, Diablo Canyon has been forced to go off-line because the screens were clogged with jellyfish and other sea creatures. In October 2008, nearly 1,000 jellyfish floated into the plantâ€™s cooling intake cove, closing one reactor and reducing the other to half power. Again, in April 2012, an overwhelming number of jellyfish-like creatures called salps clogged the intake screens, forcing operators to shut the plantâ€™s Unit 2 reactor. Similar jellyfish invasions have shut down nuclear power plants in several countries.

Nuclear plants like Diablo Canyon continue to be major contributors to global warming. Itâ€™s not just the tremendous amount of CO2 thatâ€™s released into our atmosphere from the mining, refining, transportation, and guarding of nuclear facilities and their radioactive waste. The greater problem is that these plants are heating up of our worldâ€™s rivers, lakes and oceans. Diablo Canyonâ€™s once-through system alone uses about 87,700 gallons of seawater a minute or about 2.5 billion gallons a day. The seawater is then returned to the Pacific Ocean at temperatures 20 to 25 degrees hotter then the surrounding environment.

With thousands of â€œonce throughâ€ coal-fired, oil-fired, natural gas, and nuclear power plants around the world contributing to rising ocean temperatures, itâ€™s time for California to aggressively turn toward a future powered by clean energy technologies.

It is not necessary for us to face the frightening prospect of a double-disaster. It is no longer rational for us to live with the risks posed by the Diablo Canyon nuclear power plant. We need to begin planning the removal of this hazard from our coastline.

- - - - - - - - - - - - - -

Below are links to further sources of information that I wish to include in my comments:

The Diablo Canyon nuclear plant: assessing the seismic risks of extended operation
By Edwin Lyman | August 15, 2022
https://thebulletin.org/2022/08/the-diablo-canyon-nuclear-plant-assessing-the-seismic-risks-of-extended-operation/#post-heading

Keeping Diablo Canyon Running Past 2025 Is Not the Answer to Californiaâ€™s Energy Future

By Kevin Kamps

https://www.powermag.com/keeping-diablo-canyon-running-past-2025-is-not-the-answer-to-californias-energy-future/

Arnie Gundersen, Fairewinds Associates, Testimony to the CPUC 2017-1-27
https://www.fairewinds.org/nuclear-energy-education/arnie-gundersen-fairewinds-associates-testimony-to-the-cpuc-31-1-17

PG&E: Diablo Canyon Defers Millions Of Dollars Of Maintenance - Nuclear: California
February 18, 2019
An Analysis By Fairewinds Associates, Inc for Mothers For Peace
https://www.fairewinds.org/demystify/diablo-canyon-deferred-maintenance

Respectfully submitted for the record,

Tim Laidman