

## DOCKETED

<b>Docket Number:</b>	15-IEPR-05
<b>Project Title:</b>	Energy Efficiency
<b>TN #:</b>	206720
<b>Document Title:</b>	Friends Of The Earth Comments on Nuclear Issues
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Friends of the Earth/Damon Moglen
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	11/20/2015 3:54:16 PM
<b>Docketed Date:</b>	11/20/2015

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*Submitted On: 11/20/2015*

*Docket Number: 15-IEPR-05*

## **Friends Of The Earth Comments**

*Additional submitted attachment is included below.*



California Energy Commission  
Dockets Office  
Docket No. 15-IEPR

**Re Docket 15-IEPR-12, nuclear. Comments of Friends of the Earth on nuclear issues.**

Pursuant to the November 9, 2015 meeting of Friends of the Earth (FOE) representatives and staff of the California Energy Commission (CEC) wherein FOE was informed that its comments were due by November 20, the FOE submits the following comments on the Draft 2015 Integrated Energy Policy Report on California nuclear electricity generation facilities issues.

FOE appreciates the CEC staffs continuing coverage in the draft 2015 IEPR of the many issues facing CA as the consequence of the existence of and continued operation of nuclear power plants in CA.

**General Comments**

FOE has concerns regarding both the consequences of any consideration to re-license the Diablo Canyon Nuclear Power Plant (DCNPP) for any period beyond the expiration of the present expiration dates of the licenses for its two reactors and the significant consequences of present operations, including ongoing damage to marine life offshore the facility. While FOE's concerns regarding operation of the DCNPP could be categorized as separate long term and short term issues, these concerns are about issues that interact in such a manner that they must be taken as affecting near term operations in concert with thoughts of longer term operation.

The long history of ever evolving seismic findings of concern has raised and continues to raise serious questions about the safety and viability of DCNPP facilities currently and into the future. These concerns relate not only to the originally approved facility, but also to subsequently approved facilities found necessary to store all spent nuclear power plant fuel at the power plant site, not originally intended. This consequence is the result of the failure to have a permanent offsite repository as originally promised in the "contract" between the people, the US Government and power plant operators. While it was assumed that spent fuel would be stored temporarily at the power plant site until the fuel was safe to be moved to permanent storage, that is an unfulfilled promise and is likely to remain so for at least decades to come. Finally, seismic concerns are presently being studied and debated with respect to new onsite facilities that will have to be built to meet the requirements stemming from the US Clean Water Act that once through cooling (OTC) requirements. The practice of coastal power plants utilizing sea water needs to be stopped because of the documented devastating impacts on marine life. The issue of OTC is presently being evaluated and adjudicated by the California State Water Resources Control Board (SWRCB). The ultimate decision on an acceptable cooling technology that eliminates the current marine life devastation will affect the technical and economic viability of the DCNPP in the short term as well as any thoughts of a longer life for the facility.

The draft IEPR presents for the record the very significant finding that the integrity of the CA electricity grid is **not** jeopardized by the absence of the DCNPP from the CA electricity generation supply. The resounding success of the CA renewable electricity generation program has shown a better, safer path forward for CA's electric generation supply. Any concerns about an electric supply deficiency are mitigated by the ability to provide renewable supplies that lack the safety and environmental risks posed by the DCNPP.

**Comments on Summary Section**

p.5 SCE announcement re. closure of San Onofre was made on June 7, 2013 not June 27, 2013.

p.6 While the summary provides a discussion of the potential costs associated with PG&E/Diablo compliance with the state's landmark OTC policy, it does not record the potential multi-billion dollar costs associated with addressing the following issues:

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- The long-time fire risks at Diablo Canyon (for decades the reactors have been in non-compliance with federal fire safety standards) (these issues are mentioned at p.234 but, even there, the point is not made that PG&E's stated intent to address the multi-decade problem has significant cost and reliability implications given that the reactors will have considerable downages to address the major fire safety upgrades required)
- The production, handling and long-term storage of up to thirty more years (10 under current license and another 20 years under a license renewal period) of irradiated nuclear fuel. The production, pool storage, eventual dry cask storage, and the all but required re-packaging of all this spent fuel in new containers is likely to cost hundreds of millions of dollars if not more.
- The potentially catastrophic embrittlement problem at the Diablo Canyon nuclear reactors which - according to the NRC letter dated April 18, 2013 - puts Diablo Canyon Unit 1 on the list of the five most embrittled reactors in the USA. The letter also noted that the facility will exceed its regulatory limit for embrittlement in 2033. This problem raises significant safety and reliability issues as well as the expensive possibility of needing to explore and undertake recovery annealing.
- The need for seismic upgrades at the two reactors which are clearly operating in violation of their seismic licensing basis.

Given the importance of these potential cost factors, as well as that of OTC compliance, it makes sense for all of them to be mentioned in the summary.

#### Seismic Risk Issues

The summary (p.6) and discussion at p.230 correctly cites the seismic risk at Diablo Canyon as a “factor influencing Diablo Canyon’s license renewal application” but it does not correctly summarize the current state of affairs in regard to PG&E’s seismic analysis. While the PG&E seismic report of September 2014, sought to reassure the state that the plant was capable of withstanding a major earthquake on the newly identified or re-characterized faults now known to surround the plant, the data in the report indicated exactly the opposite—**the reports provides proof that there are at least four large active faults nearby, all capable of more ground motion than the plant was originally designed for.** Among the shocking revelations in the report are the following:

- The Shoreline Fault, which wasn’t even known to exist before its identification in 2008, is twice as long as previously thought.
- Several of the faults now are estimated to produce larger magnitude quakes than estimated just a few years ago.
- Despite longstanding claims that the Hosgri Fault is only 110 kilometers long and not connected to the San Simeon Fault, it is in fact connected, and a joint rupture is therefore possible; and the true length is at least 171 kilometers.
- The Shoreline Fault also connects to the Hosgri, making possible a huge earthquake on both, coming within 600 meters of the plant.
- Despite the repeated claims by PG&E and NRC that the Hosgri Fault is the largest threat to Diablo, the new report estimates ground motions from the Shoreline and San Luis Bay Faults, and the San Simeon-Hosgri and Shoreline-Hosgri connected faults, all in excess of what would now be estimated for the Hosgri Fault alone.
- And all of these are estimated to produce ground motion in excess of the Safe Shutdown Earthquake requirements in the license that apply to all faults except the Hosgri single fault.\* (See Statement of Daniel Hirsch Before the Committee on Environment and Public Works Oversight Hearing NRC’s Implementation of the Fukushima Near-Term Task Force Recommendations and Other Actions to Maintain and Enhance Nuclear Safety Washington, D.C. December 3, 2014)

(For thorough analysis and comments on the true nature of this report, the CEC should consider and cite testimony made by former State Senator Sam Blakeslee, PhD and UCSC expert lecturer Daniel Hirsch in testimony before the US Senate EPW Committee on December 3, 2014.)

The summary at p.5 also does not mention that PG&E's 2014 report for the state formed the basis of their March 2015 post-Fukushima seismic report to the NRC (SEISMIC HAZARD RE-EVALUATION FOR RECOMMENDATION 2.1 OF THE NEAR TERM TASK FORCE REVIEW OF INSIGHTS FROM THE FUKUSHIMA DAIICHI ACCIDENT) which revealed that PG&E itself has confirmed that the surrounding faults are capable of ground-motion in excess of the plant's seismic licensing basis (see NRC chart as presented in the IEPR draft at p. 233 as well as PG&E's own chart as presented to the NRC in Diablo Canyon Seismic Hazard Reevaluation Presentation to Nuclear Regulatory Commission Public Meeting Bethesda, Maryland April 28, 2015, p. 55) and that the NRC's response to the PG&E report has been to officially notify PG&E that "Diablo Canyon has screened-in for further risk evaluations and is a review priority" ( NRC slide presentation, Near-term Task Force Recommendation 2.1 Seismic Hazard Evaluation, Pacific Gas & Electric Company Public Meeting, April 28, 2015). And by official letter, of May 13, 2015, SUBJECT: SCREENING AND PRIORITIZATION RESULTS FOR THE WESTERN UNITED STATES SITES REGARDING INFORMATION PURSUANT TO TITLE 10 OF THE CODE OF FEDERAL REGULATIONS 50.54(f) REGARDING SEISMIC HAZARD RE-EVALUATIONS FOR RECOMMENDATION 2.1 OF THE NEAR TERM TASK FORCE REVIEW OF INSIGHTS FROM THE FUKUSHIMA DAIICHI ACCIDENT) the NRC placed Diablo Canyon in the highest category of risk requiring further risk evaluation having said that that would only be required "For those plants where the re-evaluated seismic hazard exceeds the seismic design-basis..." (p.3)

The summary (p.5) and detailed seismic discussion (p.233) should include this information and make very clear that the reason for the "screening-in" is because the re-evaluated seismic hazard exceeds the seismic design-basis for the plant. While the NRC is ready to slow walk this process, allowing nearly fifty year old reactors to operate outside of their licensing basis, the CEC should make clear in its report to the public that that is indeed what is happening. While the IEPR summary seems to indicate that the seismic issue was resolved by the Sept 2014 PG&E seismic report to the state, the analysis on p.233 makes it clear that the data raises serious questions, so much so that even the NRC has required that PG&E conduct a further seismic risk evaluation as a matter of highest priority.

The bottom line here is that data provided by PG&E to the state and the NRC have confirmed that the plant is operating in violation of its license and more importantly is not designed to withstand the seismic risk that has now been identified. Rather than the federal regulator taking immediate precautionary action (as the NRC had done in the past with other reactors at seismic risk (see Lochbaum)) the utility has been given at least three more years to assess the situation. In the meantime, the people of California are expected to live with the unacceptable risks of a Fukushima-like nuclear disaster at Diablo Canyon.

### Planning without Diablo

The CEC, was the agency in California that resolutely called for a "Plan B" to replace San Onofre when both reactors were inoperative in 2012 because of the steam generator scandal at the plant. Likewise, the Commission should be demanding and helping to develop a "Plan B" for the replacement of Diablo Canyon. This is not clear from the current IEPR draft. For example, on page 206, the chart that projects fuel sources in

the state from 2015 – 2026 suggests the constant presence of power from Diablo Canyon despite the fact that operation of the reactors under their current licenses will cease in 2024 and 2025 respectively. Given that PG&E has repeatedly stated that they have not made a decision about the future of Diablo (see statement of PG&E CEO Tony Early as quoted in the SF Chronicle of November 15, 2015, the CEC at a minimum needs to be assuming that Diablo Canyon will close Unit 1 in 2024 and Unit 2 by 2025. With that assumption alone, the CEC should be actively involved in suggesting the suite of renewable energy, energy efficiency and energy storage options that would provide California with any replacement power needed to replace Diablo Canyon without increasing the state’s greenhouse gas emissions.

The IEPR cites that the PUC President Picker has actively engaged this issue with his letter to PG&E in May 2015. It is worth noting that former PUC President Michael Peevey sent President Johns of PG&E a similar letter on February 19, 2014 with a similar list of questions and that the utility has chosen not to respond to either of these letters. Answers to President Picker’s letter are essentially important to the evaluation by the PUC and CEC of the feasibility and reliability of continued operation of the Diablo Canyon reactors. PG&E unwillingness to answer these questions is most disconcerting.

#### Discussion of Operation of Diablo Canyon outside of its license

On p. 234, the IEPR summary neglects to mention that Friends of the Earth petitioned the U.S. Court of Appeals, on October 28, 2014, to overturn a secret decision by the Nuclear Regulatory Commission and PG&E to illegally alter the operating license for the Diablo Canyon nuclear power plant allowing the utility to hide the fact that the reactors are vulnerable to earthquakes stronger than it was meant to withstand. On February 23, 2015, the Court of Appeals announced that over the objection of Pacific Gas and Electric and the Nuclear Regulatory Commission, it would hear the case brought by Friends of the Earth. Subsequently, on April 13, 2015, the Court granted a NRC motion to defer briefing and hold the case in abeyance while the NRC acted on another petition filed by FOE with the NRC. In September, FOE filed a brief requesting that the case be heard by the Court and we are awaiting a response.

#### Comments on discussion of OTC issue

- On p.236, the draft erroneously implies that modular wedge wire screening is a “possible solution” under the OTC policy, but the review by the Special Review committee specifically found that the wedge wire screening would not comply with the required levels of reduction in impingement and entrainment.
- The draft thoroughly excludes the role of independent review provided by Friends of the Earth and its expert Dr. Bill Powers of Powers Engineering which revealed that cooling towers could be built on the Diablo site and that construction could occur commensurate with the costs originally described by the consultant report (TetraTech) to the Water Board. The inflated budget numbers produced by the Bechtel Corporation analysis (an analysis with a clear conflict of interest given that Bechtel and PG&E have significant mutual business interests) should not be presented here as fact and they were not accepted by the subcommittee report cited by in the draft IPER (p.236).
- The draft presents a confusing representation of comments provided by the Diablo Canyon Independent Safety Committee (DCISC). On p. 236 the draft appears to equate the Bechtel report with the DCISC and also appears to confuse consideration of the issues by the Special Review Committee and the Subcommittee with that of the DCISC. The DCISC had no formal role in the consideration conducted by the review committees and its input was heavily criticized by civil society groups.



Operating without Diablo

On p 238 the draft states that *there would likely be other impacts, including a potential increase in overall GHG emissions and a potential cost impact arising from replacement power purchase costs*. There is no justification to assume that such impacts would definitively occur. Such impacts are possible, but if the CEC and PUC make a priority of assuring that the necessary power from Diablo is replaced by clean, safe, cost-competitive, greenhouse gas free renewable energy and efficiency and energy storage technologies, these costs could be avoided. In fact, we believe that DCNPP's replacement **can and should** be done in a way which is cost competitive and results in no net increase or a reduction on GHGs. FOE is preparing scenarios which would do just that.

FOE appreciates this opportunity to submit these comments.

Sincerely,

signed

Damon Moglen  
Senior Strategic Advisor  
Climate and Energy Program  
Friends of the Earth

cc: CEC Commissioners  
CPUC Commissioners