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on Diablo Canyon reactor closure

Additional submitted attachment is included below.

DIABLO CANYON TWIN REACTOR CLOSURE PLAN
COMMENTS TO CALIFORNIA ENERGY COMMISSION

From David Bezanson, Ph.D., CA voter

17 August 2022

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Thank you for exploring the issue of whether to defer the planned closure of the twin reactors. Research reviewed below points to deferral policies, including the trailer bill before the CA Legislature, as being inferior to the alternative of using our resources to scale up clean energy. Please adhere to the current plan to decommission and mothball the reactors by 2025. Accelerate plans to reach clean energy generation targets.

IS NUCLEAR ENERGY CLEAN, CARBON-FREE, or RENEWABLE?

Objective evidence indicates that it is none of these. Clean sources of energy do not emit toxins in any phase of the lifecycle. Nuclear energy emits ionizing radiation in all 3 phases of its lifecycle. There is no exposure that is not harmful. It remains toxic for many millennia. A safe permanent storage site has not been established in the US. Consequently, fissile trash is left on the site of reactors, preventing the land from being used for better purposes.

The carbon intensity of nuclear energy is higher than the GHG intensity of clean energy. This is the case when “Scope 4” emissions, i.e., long-term trash storage, plus emissions of recurring mining, transport, and manufacturing cycles, plus emissions from the activities of over 500 employees per reactor, plus the radiative forcing of the steam emitted from reactors is taken into account.

Nuclear energy is not renewable because there is a finite amount of uranium on the planet that is a) in a location from which extraction is economically feasible, b) the amount of high-grade ore (that requires the least enrichment) that is available is very limited and rapidly dwindling. Some reactor designs and materials, unlike those of Diablo, do accomplish recycling/reuse of fissile material, but these have a long list of higher risks, costs, and disadvantages compared to the Diablo twins.

Whether the industry, CARB, DOE, or other bodies declare nuclear energy to be renewable does not make it renewable. There is little consensus on the definition of renewable energy.

WILL CLOSURE OF DIABLO RESULT IN INCREASED USE OF FOSSIL ENERGY?

This follows only if fossil is the only alternative to nuclear energy. Clean sources and technologies including geothermal, solar, and wind are plentiful in CA. A reliable and resilient grid requires a diversity of clean generation and storage, demand/response technologies and policies, microgrids, conservation, efficiency, and time of use incentives. Baseload power

sources are no longer needed. Nuclear reactors do not provide 24/7/365 electricity. Reactors require shut down during a) ambient temperatures exceeding 99 F, b) certain kinds of maintenance, c) periodic replacement of fuel rods, d) repair after seismic shocks, e) precautionary shut down when there is an approaching *tsunami*.

IS NUCLEAR ENERGY CHEAPER THAN CLEAN ENERGY?

The cost of electricity from reactors is 3 to 15 times higher per GW than electricity from solar and wind. This is conservative because the costs of millennia of storage of fissile trash have not been estimated in peer-reviewed journals and therefore not included in costs. There is no scientific consensus on whether this may be accomplished safely. The cost of nuclear electricity is rising while the cost of clean energy is falling. For every \$million we invest in clean energy we receive at least 3 to 15 times more electricity than from an equal investment in reactors. Investing in clean energy creates more jobs and income tax revenue than investing in reactors. There is clean job potential in nearly all counties in CA, Clean energy entails fewer environmental hazards than reactors and has lower lifecycle remediation and clean-up costs. There is consensus that the public health impact of reactors is significant, but ascertaining the costs of the impact is a work in progress. NRC is in process of evaluating the nonfatal cancer risk and costs.

IS FAILURE TO USE FEDERAL INCENTIVES FOR NUCLEAR UNWISE?

Federal funding is available to prolong the use of the Diablo twins. Much more federal funding is available for the development of clean energy. The Inflation Reduction Act just passed by Congress, adds hundred of billions of dollars for clean energy incentives.

REFERENCES

[NuclearCarbon.pdf](#)

<https://www.sciencedirect.com/science/article/pii/S1040619022000483>

[Why Not Nuclear Power?](#)

<https://emagazine.com/the-insanity-of-expanding-nuclear-energy/>

<https://www.utilitydive.com/news/nuclear-energy-should-not-be-part-of-the-global-solution-to-climate-change/620392/>

<https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/08/16/remarks-by-president-biden-at-signing-of-h-r-5376-the-inflation-reduction-act-of-2022/>

<https://www.theverge.com/2022/1/27/22904943/nuclear-power-climate-change-solution-gregory-jaczko>

<https://cleantechnica.com/2021/11/19/nuclear-power-wont-save-the-world-it-wont-even-help/amp/>

<https://eu.boell.org/en/2021/04/26/7-reasons-why-nuclear-energy-not-answer-solve-climate-change>