April 13, 2026

Subject: Breakthrough Institute's Supplemental Response on AB 2647 — Support

The Breakthrough Institute (BTI) appreciates this opportunity to comment on California Assembly Bill 2647 and to express our support for the proposed bill. BTI is an independent, 501(c)(3) environmental global research center that's pro-growth, pro-technology, and pro-development, based in Berkeley, CA. We are bipartisan and advance durable solutions that are grounded in empirical and cutting-edge research. BTI acts in the public interest and does not receive funding from industry.

The following discussion addresses the technical and analytical claims in the opposition letter submitted by the Committee to Bridge the Gap, Sierra Club California, and Union of Concerned Scientists,[1] and is intended to assist the Committee in evaluating those claims on the merits. BTI submitted a letter in support of AB 2647 prior to the opposition letter's filing.[2] The opposition letter raises concerns that deserve a direct response; it also mischaracterizes AB 2647's scope, the structure of the federal regulatory framework, technology characteristics of advanced reactors, and the current state of the evidence in ways that are material to the Committee's assessment.

Scope of the Bill

The opposition letter characterizes AB 2647 as a repeal of California's moratorium and enabling the construction of conventional reactors. That characterization is not accurate. The bill updates an outdated statutory condition so that California can consider advanced reactors that have cleared the federal licensing process under a modernized regulatory framework. It does not mandate procurement. It does not waive federal safety review. It does not eliminate environmental review. It does not remove public participation requirements. The bill creates a pathway for evaluation; it does not compel any particular outcome. The distinction matters because much of the opposition letter's argument depends on a broader interpretation of the bill than the statutory text supports.

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[1] Union of Concerned Scientists, Sierra Club California, and Committee to Bridge the Gap, *Opposition Letter on AB 2647*, submitted to the California Legislature, 2026.

[2] Breakthrough Institute, Letter in support of AB 2647. Submitted to the California Legislature, 2026.

Regulatory Modernization

The letter conflates regulatory modernization at the Nuclear Regulatory Commission (NRC) with deregulation. The NRC's updates to its regulatory framework, particularly those associated with advanced reactor licensing, restructure safety requirements rather than removing them. A risk-informed, technology-inclusive approach is not a weaker framework; it is a more coherent and precise one, designed to evaluate each technology against its actual risk profile rather than against requirements tailored to large light-water reactors that may not fit the design under review.

These changes reflect more than a decade of bipartisan congressional direction across multiple administrations. The Nuclear Energy Innovation and Modernization Act of 2019 (NEIMA) mandated that the NRC develop risk-informed, technology-inclusive licensing approaches, recently finalized as 10 CFR Part 53. The letter claims "rollbacks of licensing and regulations" while linking to the ADVANCE Act of 2024. The ADVANCE Act, signed by President Biden, extended the risk-informed approach across a broader set of rulemakings. Both bills received near-unanimous support. California's own delegation voted in strong favor of each.[3] Labeling regulatory changes that implement explicit Congressional mandates as "deregulation" does not fully reflect either their origin or their place in current federal policy, including the position California's own representatives took when they voted for those mandates.

The claim that the NRC will "rubber stamp" designs that have been previously authorized by the Department of Energy or other agencies has been dispelled by the plain text of the rulemaking.[4] The proposed rule is very clear that while it will accept information from prior authorizations, the applicant must show how the information satisfies NRC regulations. In practice, this is codifying into regulation a process that already occurs today as applicants file data for the NRC to review.

Advanced Reactor Technologies

The opposition letter makes categorical claims about advanced reactor technologies that are stated at a level of generality the evidence does not sustain. It treats small modular reactors and

[3] NEIMA (2019): CA Representatives Yea 46, Nay 2, No Vote 5; Senate passed by voice vote. ADVANCE Act (2024): CA Representatives Yea 49, Nay 0, No Vote 3; Senate Yea 2, Nay 0. Source: Congressional Record; clerk.house.gov.

[4] Federal Register, *NRC Reviews of Reactor Designs Previously Authorized by U.S. Department of Energy or Department of War*, 91 FR 16584. https://www.federalregister.gov/d/2026-06414

non-light-water reactor designs as a single category sharing the same safety profile, cost trajectory, and commercial prospects. Advanced reactors encompass a diverse range of designs, safety cases, and licensing pathways. Some designs will not reach commercialization, and some will not be cost-competitive. That pattern holds across emerging energy technologies generally, and it does not resolve the relevant policy question.

The letter asserts that non-light water reactors are both "untested" and not "new or innovative." This self-contradictory observation is partially correct but incomplete. While it is true that several advanced reactor concepts build on longstanding reactor physics and earlier demonstration efforts, the relevant point for present policy considerations is not novelty of first principles, but the degree to which modern designs incorporate advances in materials science, computational modeling, fuel design, and systems integration. These developments do materially affect safety performance, waste characteristics, and operational flexibility.

Moreover, prior demonstrations of new reactors occurred under markedly different technological, regulatory, and economic conditions. Contemporary designs are being developed within a substantially modernized context, including improved analytical tools, more robust quality assurance frameworks, and a regulatory environment that is increasingly oriented toward risk-informed, performance-based standards. As such, historical discontinuation of earlier concepts does not, on its own, establish that new designs are unviable or non-innovative in their present form.

The opposition letter argued that advanced technologies pose serious safety concerns. Many advanced designs are being developed to rely more heavily on passive safety features, inherent physical properties, and simplified systems that can reduce dependence on active controls or operator intervention under accident conditions. The opposition letter does not provide technical details about why advanced technologies are "less safe" in general, or that the possibility of safety concerns in some designs justifies categorical exclusion of all of them as a matter of state policy. The NRC has many policies, including its overarching policy on advanced reactors and new Part 53 licensing framework, that the standard is to be as safe or safer than past licensed designs.[5]

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[5] Nuclear Regulatory Commission, *Policy Statement on the Regulation of Advanced Reactors*, 73 FR 60612. https://www.federalregister.gov/d/E8-24268 "the Commission expects, as a minimum, at least the same degree of protection of the environment and public health and safety and the common defense and security that is required for current generation light-water reactors (LWRs) "

Opportunity Cost

The opposition letter does not address the concept of opportunity cost. California is not choosing between risk from nuclear energy and no risk. It is choosing between maintaining a blanket statutory exclusion and allowing a broader portfolio of clean, firm generation options to be evaluated on their merits. The state faces a legal mandate to reduce emissions, projected demand growth, tightening reliability margins, and an increasing need for dispatchable zero-carbon generation that complements variable renewable energy (VRE) sources[6] — a set of conditions the legislature itself implicitly acknowledged when it acted to extend the operating life of Diablo Canyon Power Plant.[7] Excluding an entire class of technologies a priori forecloses options that the system may need. Some of the nuclear technologies that the letter seeks to exclude are designed to provide exactly what California needs to expand its use of variable renewable generation: firm and zero-carbon resources that vary their output in response to shifts in demand and VRE generation. This generation has the flexibility of gas, without the carbon emissions. That is a real cost, and a complete analysis of the policy question requires engaging with it.

The costs are also economic and system-level. As BTI's support letter[8] explains, continued state restrictions on new nuclear projects may hinder capital investment, workforce development, local tax revenues, and opportunities to repurpose existing fossil or brownfield sites. They may also limit California's capacity to meet rising electricity demand with firm, zero-carbon generation.

Technical Engagement

The Committee may find it useful to consider not only whether organizations participate in NRC proceedings, but also the orientation of that participation. Breakthrough Institute's engagement in advanced reactor rulemakings and licensing proceedings is focused on regulatory clarity and workability; whether specific rules are technically sound, implementable, and actually protective in practice.[9] In the Part 53 rulemaking, for example, Breakthrough submitted detailed comments

[6] Variable Renewable Energy (VRE) is the most widely accepted term in research literature.

[7] California SB 846 (2022) authorized a loan to extend Diablo Canyon Power Plant's operating license through 2030, citing grid reliability and clean energy needs.

[8] Breakthrough Institute, Letter in Support of AB 2647, submitted to the California Legislature, 2026.

[9] Breakthrough Institute, public comments and participation in NRC rulemakings and proceedings, 2021—2026. NRC ADAMS and public meeting records.

on specific provisions governing technology-inclusive licensing, technology-appropriate emergency preparations, and the structure of the framework for licensing.[10]

The opposition letter does not engage at that level. It cites no specific provisions of Part 53, no particular licensing mechanism, and no specific rulemaking decision as the basis for its concerns about NRC modernization. Its critique operates entirely at the level of the framework's general direction. That is a meaningful distinction: a submission that identifies specific regulatory mechanisms as inadequate can be evaluated and rebutted on the technical merits; one that treats modernization as suspect in principle cannot, and does not provide the Committee with the analytical tools needed to assess whether any particular reactor design or licensing pathway would actually present the risks the letter asserts.

Waste Disposal

The opposition letter invokes the original statutory rationale for the moratorium: that it was to remain in place until the federal government approved a demonstrated means of permanent high-level waste disposal. That condition has not been met. The letter treats this as a sufficient basis for maintaining the prohibition. It is worth separating the two questions that the letter runs together.

The first is whether permanent disposal of spent nuclear fuel has been resolved at the national level. It has not, and that is a genuine and longstanding problem. The second is whether California should therefore prohibit project-level evaluation of reactors that meet current federal safety and licensing standards. AB 2647 does not alter existing waste management obligations in any respect. Any reactor built under the framework enabled by this bill remains fully subject to NRC requirements governing spent fuel storage, safeguards, and site remediation.

The more fundamental point is that the moratorium is not merely ineffective at solving the waste problem — it is orthogonal to it. The disposition challenge is defined by the approximately 90,000 metric tons of spent fuel already in interim storage nationwide, accumulated over decades of operation. California's prohibition on new reactors does not reduce that inventory, does not accelerate repository development, and does not change the federal policy calculus on permanent disposal in any respect. The policy instrument does not meaningfully bear on the resolution of the waste disposal problem it invokes. The letter relies on the sunk-cost fallacy by

[10] Breakthrough Institute, Comment on 10 CFR Part 53, February 28, 2025, https://thebreakthrough.org/issues/energy/writing-rules-that-work-for-advanced-reactors

citing what it views as a "significant legal victory," while missing the point that, in the 50 years since, it has not helped make any progress on a federal repository.

The legislature that established the moratorium retains authority to revisit its triggering conditions. AB 2647 represents that kind of considered statutory update — not an abandonment of the concerns that motivated the original policy, but a recognition that the policy instrument is no longer calibrated to address them.

Internal Consistency

The Union of Concerned Scientists has acknowledged in its own published materials that nuclear power provides low-carbon electricity and has supported continued development of safer and more secure nuclear technologies.[11] Sierra Club analyses have included nuclear as a potential option within certain decarbonization pathways.[12] Neither organization is required to support AB 2647, and their overall positions are their own to hold. The relevant tension is not one of preference but of analytical framing: both organizations have allowed nuclear to appear as an option in modeling and analytical contexts, while the opposition letter excludes it categorically at the policy level, regardless of design, licensing status, or system context. That inconsistency of analytical frame — permissible in models, categorically disqualifying in policy — is not resolved by the letter, and the Committee is entitled to ask what justifies it.

Conclusion

The opposition letter raises some concerns that are legitimate subjects for policy debate. Where it falls short is in translating those concerns into a technical case for the specific policy outcome it defends: categorical prohibition on project-level evaluation of any federally licensed advanced reactor, regardless of design, safety record, or system context. The letter does not provide that case. It substitutes generalized risk framing for project-specific analysis, declines to engage with opportunity cost, and mischaracterizes both the bill's scope and the regulatory framework surrounding it.

The question before the Committee is whether California will maintain a blanket statutory exclusion — written for a different technological era, linked to a federal repository policy the

[11] Union of Concerned Scientists, "Nuclear Power," n.d. https://www.ucs.org/energy/nuclear-power
[12] Sierra Club, Demanding Better: How Growing Demand for Electricity Can Drive a Cleaner Grid, 2024. https://www.sierraclub.org/sites/default/files/2024-09/demandingbetterwebsept2024.pdf

existing moratorium has no mechanism to advance, and carrying real costs for the state's clean energy portfolio — or whether it will allow federally licensed advanced reactors to be evaluated on the same basis as other clean energy options. AB 2647 enables the latter. It should be enacted.

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