
THIRD READING

Bill No: AB 2647
Author: Calderon (D), et al.
Amended: 6/30/26 in Senate
Vote: 21

SENATE ENERGY, U. & C. COMMITTEE: 15-0, 6/24/26

AYES: Allen, Ochoa Bogh, Archuleta, Becker, Caballero, Dahle, Gonzalez, Grove, Hurtado, McNerney, Reyes, Richardson, Rubio, Stern, Strickland

NO VOTE RECORDED: Arreguin, Wahab

SENATE APPROPRIATIONS COMMITTEE: 7-0, 8/13/26

AYES: Cervantes, Seyarto, Cabaldon, Dahle, Grayson, Richardson, Wahab

ASSEMBLY FLOOR: 73-0, 5/26/26 - See last page for vote

SUBJECT: Energy: nuclear powerplants: assessment

SOURCE: Author

DIGEST: This bill requires the California Energy Commission (CEC), on or before July 1, 2028, to prepare a comprehensive assessment of the potential role for advanced nuclear technologies in supporting critical infrastructure in California, and of the potential for new, in-state nuclear powerplants to cost-effectively meet the expressed policy of 100% zero-carbon and renewable energy resources by 2045.

ANALYSIS:

Existing law:

- 1) Establishes and vests the State Energy Resources Conservation and Development Commission (also known as the CEC) with the exclusive jurisdiction to certify thermal powerplants with a generating capacity of 50 megawatts (MW) or more. (Public Resources Code §25000 et seq.)

- 2) Establishes the 100 Percent Clean Energy Act of 2018, declares that it is the policy of the state to achieve 100% zero-carbon electricity by 2045. (Public Utilities Code §454.52)
- 3) Declares the policy of the state to encourage the use of nuclear energy, wherever feasible, recognizing that such use has the potential of providing direct economic benefit to the public, while helping to conserve limited fossil fuel resources and promoting clean air. (Public Resources Code §800)
- 4) Prohibits any nuclear fission thermal powerplant from being permitted in the state until the federal government approves technologies to reprocess the spent nuclear fuel rods, and the CEC reports to the Legislature affirmative findings of that federal action. (Public Resources Code §25524.1)
- 5) Prohibits the CEC from certifying a nuclear fission thermal powerplant, except for specified powerplants, and provides that a nuclear fission thermal powerplant, except those specified powerplants, is not a permitted land use in California unless certain conditions are met regarding the existence of technology for the construction and operation of nuclear fuel rod processing plants and of demonstrated technology or means for the disposal of high-level nuclear waste. (Public Resources Code §25524.2)

This bill:

- 1) States it is the intent of the Legislature to ensure the use of a skilled and trained workforce which is required to perform work on other dangerous industrial facilities and also applies to the initial construction and maintenance of any new advanced nuclear reactors that may be permitted and constructed in the future.
- 2) Requires the CEC, on or before July 1, 2028, to prepare as part of the Integrated Energy Policy Report (IEPR) or a separate report, a comprehensive assessment of the potential role for advanced nuclear technologies in supporting critical infrastructure in California, and of the potential for new, in-state nuclear powerplants to cost-effectively meet statewide needs for new electricity resources, and to meet the expressed policy of 100% zero-carbon and renewable energy resources by 2045.
- 3) Requires the CEC to consider specified analysis and evaluations, including:

- a) System costs, reliability benefits, emission impacts, deployment timelines, waste management and disposal pathways, environmental and public health impacts, and potential siting considerations.
 - b) Potential of nuclear energy using high-renewable grid scenarios that require firm, dispatchable, zero-carbon resources to complement renewable resources, grid reliability, and reduce overall system costs.
 - c) Ratepayer, taxpayer, and private costs associated with spent nuclear fuel management, including onsite, interim, and long-term storage pathways in comparison with other electricity generation technologies.
 - d) Potential for employment of a skilled and trained workforce.
 - e) Comparative outcomes relative to existing and projected energy pathways in California.
 - f) An assessment of the security-related costs and considerations to store, handle, and transport nuclear fuel for each nuclear energy technology.
- 4) Authorizes the CEC, the California Public Utilities Commission (CPUC), the California Independent System Operator (CAISO), and other public agencies to evaluate the potential of nuclear energy to meet long-term resource needs, notwithstanding the prohibitions on siting new nuclear powerplants.

Background

Nuclear energy. Nuclear energy has been deployed in the country since the 1950s. As of mid-2012, California has one operating nuclear energy powerplant, the Diablo Canyon Nuclear Powerplant outside San Luis Obispo owned by Pacific Gas & Electric (PG&E), which consists of two units – Unit 1 is a 1,073 MW Pressurized Water Reactor (PWR) which began commercial operation in May 1985, while Unit 2 is a 1,087 MW PWR, which began commercial operation in March 1986. Pursuant to statute, both units are scheduled to end operations by 2029 and 2030. The state also has two decommissioned nuclear powerplants – PG&E’s Humboldt Bay plant and Sacramento Municipal Utility District’s Rancho Seco plant. The fourth, the San Onofre Nuclear Generating Station (SONGS), jointly owned by Southern California Edison and San Diego Gas and Electric and Southern California Public Utilities, went offline in January 2012 for repairs and permanently retired abruptly in 2013. Diablo Canyon represents roughly 9% of California’s total in-state generation depending on the state’s annual generation.

Nuclear history in California. In 1976, the Legislature passed AB 2820 (Goggin, Chapter 194, Statutes of 1976) and AB 2822 (Nestande, Chapter 196, Statutes of 1976) as amendments to the previously enacted 1974 Warren-Alquist Act which

authorized the CEC to site nuclear powerplants in the state. The amendments to the Act by the two bills established a moratorium on permitting new nuclear powerplants, specifically they require moratorium until the CEC finds there has been developed a means for permanent disposal of high-level nuclear wastes and provides that before a nuclear powerplant is built, the CEC, must determine that there will be adequate capacity for interim storage of the plant's spent fuel.¹ The California moratorium was challenged by PG&E and ultimately reviewed by the U.S. Supreme Court. In *PG&E v. State Energy Resources Conservation and Development Commission*, 461 U.S. 190 (1983), the Supreme Court upheld California's moratorium law. A key basis of the Court's decision was a division of authority to make safety determinations (federal) and economic determinations (state). The Court found that the absence of a permanent waste disposal site could lead to unknown negative economic consequences. Since that time, the CEC has not found that a high-level waste disposal technology has been demonstrated or approved. Likewise, the Nuclear Regulatory Commission, which regulates commercial nuclear powerplants and other uses of nuclear materials, has never made a finding that a demonstrated technology exists for either nuclear fuel rod preprocessing plants or the disposal of high-level nuclear waste.

Comments

Need for this bill. The author states:

...California's own energy agencies confirmed in their 2021 Joint Agency Report that nuclear meets SB 100's definition of clean energy — yet because of the 1976 moratorium, they refrained from including it in their modeling scenarios, depriving the state of a clear understanding of its role in achieving SB 100. AB 2647 marks an important and historic step. In addition to mandating the CEC study, it authorizes the Energy Commission, the Public Utilities Commission, the Independent System Operator, and other public agencies to evaluate advanced nuclear energy's potential to meet statewide needs for new electricity resources. ...AB 2647 gives us the information to make a new choice, based on the technologies and needs of our century.”

SB 100 (De León, Chapter 312, Statutes of 2018) goals. Under SB 100 the state adopted a policy goal to achieve 100% zero-carbon and renewable energy resources by 2045. The state continues to plan towards the SB 100 goal as well as the SB 1020 (Laird, Chapter 361, Statutes of 2022) interim goals, including through the Integrated Resource Planning efforts at the CPUC, transmission planning efforts at the CAISO, and demand forecasting at the CEC, and

¹ Public Resources Code § 25524.1, 25524.2

Renewables Portfolio Standard (RPS) compliance and planning by the CPUC and CEC working with retail-sellers and load-serving entities. The CEC, CPUC, and California Air Resources Board (CARB) published the *SB 100 Joint Agency Report* in 2021 (required to be updated every four years). The analysis in the Joint Agency Report is intended as a first step in an iterative and ongoing effort to assess barriers and opportunities to implementing the 100% clean electricity policy. The SB 100 Core scenario shows an approximate tripling of generation resources relative to today's installed capacity, which is driven by the conversion to clean electricity resources and growing electricity demand. Though the report cautions additional analysis is needed. The agencies are currently working towards finalizing the 2025 Joint Agency Report.

Need for firm, dispatchable clean power. SB 423 (Stern, Chapter 243, Statutes of 2021) required the CEC, in consultation with the CPUC, CAISO, and CARB, to submit to the Legislature an assessment of emerging firm zero-carbon resources that support a clean, reliable, and resilient electrical grid. The report was published in December 2024 and identified the specific resources as those “that reliably produce zero-carbon or renewable energy on demand”: long duration energy storage, hydropower, geothermal, renewable natural gas, hydrogen, small modular reactors (SMRs), fusion, and carbon capture. In the SB 423 report, the resources listed above were identified, in part, for their commercial feasibility (or near-commercial feasibility) in addition to being able to potentially address system reliability needs.

Two of these resources – SMRs and fusion – are nuclear technologies which may be of focus for the assessment required by this bill. The SB 423 report notes that SMRs are largely at the demonstration phase, vary significantly in physical design, coolant type, and nuclear process. The study focused on light water cooled thermal-spectrum fission SMRs, noting they are one of the more technologically mature types of SMRs under development and are the most widely deployed conventional reactors. The two classes of light water reactors are PWRs and boiling water reactors (BWRs) which use light (ordinary) water as the fluid to transfer heat from the reactor core to the turbine for power generation. Both designs use low enriched (3-5%) uranium fuel and have expected lifetimes of 60 to 80 years. The classes differ in the number of loops used in the designs and, in turn, the operating pressure and temperature. They generally offer lower initial capital investments, increased siting flexibility, and greater scalability than traditional fission reactors. However, there are existing challenges with public perception of safety, and new deployment is barred in California due to California's moratorium on new fission reactors. Fusion technologies offer transformative potential without the production of nuclear waste, but systems are not close to commercial readiness

and research has remained within a laboratory environment so far. To achieve controlled fusion, confinement is necessary to capture the energy produced from the reaction. In 2022, the National Ignition Facility at the Lawrence Livermore National Laboratory was the first fusion device to demonstrate net energy with their single-shot facility. Further development is needed to overcome technical challenges associated with creating a sustained energy source.

Concerns about safety and security persist. There is considerable and growing interest in developing nuclear energy in the world, particularly as a low-carbon energy source that may provide firm, dispatchable power to complement the integration of variable renewable energy resources, such as solar and wind. This includes efforts at the federal level to fund demonstration projects and provide tax credits. However, continued concerns about safety, security, and costs also affect the viability of these technologies. Recent history, particularly the March 2011 Fukushima, Japan nuclear disaster which resulted in the release of radioactive contaminants. These concerns are heightened by the lack of permanent repository to store nuclear waste. The federal government is responsible for providing for the permanent disposal of high-level radioactive waste and spent nuclear fuel and was required to begin accepting spent nuclear fuel from nuclear powerplants by 1998. However, although Congress selected the Yucca Mountain site in Nevada for a permanent deep geologic repository for the disposal of spent nuclear fuel, the federal waste disposal program has been plagued with technical and legal challenges, managerial problems, licensing delays, persistent weaknesses in quality assurance for the program, and increasing costs. Opponents to this bill raise concerns that the lack of a spent fuel disposal system means the costs of operating nuclear plants cannot be fully accounted for given the ongoing costs to store, transport, and ensure the security of nuclear fuel for its full lifecycle. They quote the 1983 Supreme Court decision that states cost estimates “cannot be made until the Federal Government has settled upon the method of long-term waste disposal.”

Prior/Related Legislation

(See Policy Committee Analysis.)

FISCAL EFFECT: Appropriation: No Fiscal Com.: Yes Local: No

According to the Senate Appropriations Committee, CEC estimates limited-term costs of \$990,000 annually through 2028 (Energy Resources Program Account [ERPA] or General Fund) to implement the provisions of this bill.

SUPPORT: (Verified 8/13/26)

Bay Area Council
California Large Energy Consumers Association
California State Association of Electrical Workers
California State Pipe Trades Council
Generation Atomic
Mothers for Nuclear
North American Young Generation in Nuclear
Nuclear is Clean Energy Club
Southern California Edison
Southern California Public Power Authority
State Building & Construction Trades Council of California
The Breakthrough Institute
Water Replenishment District of Southern California
Three Individuals

OPPOSITION: (Verified 8/13/26)

Alliance for Nuclear Responsibility
California Land Watch
Coalition for Nuclear Safety
Committee to Bridge the Gap
Green Party of Orange County
Green Party of Santa Clara County
Indivisible 49
Just Transition Alliance
Long Beach Alliance for Clean Energy
Nuclear Energy Information Service
Parents Against Santa Susana Field Lab
Physicians for Social Responsibility - Los Angeles
Physicians for Social Responsibility - San Francisco Bay
Public Watchdogs
Samuel Lawrence Foundation
San Luis Obispo Mothers for Peace
Sierra Club California
One Individual

ARGUMENTS IN SUPPORT: The Southern California Public Power Authority (SCPPA), which represents publicly owned utilities in Southern California, states:

It is widely recognized that achieving our clean energy goals will require the development and integration of next-generation carbon-free energy resources that can meet the grid reliability needs currently provided by natural gas plants. Advanced nuclear reactors is an emerging technology that has the potential to play a critical role in meeting California's climate goals by providing firm, dispatchable power when the grids experience fluctuations in renewable generation and energy demand. ...SCPPA supports an "all-of-the-above" approach to achieving California's decarbonization goals...existing state statutory restrictions limit the ability to develop and demonstrate these [advanced nuclear reactor] technologies in California. ...[AB 2647] takes the important first step by requiring a comprehensive state assessment of the potential role for advanced nuclear technologies in California.

ARGUMENTS IN OPPOSITION: Several of the organizations opposed to this bill, including the Committee to Bridge the Gap and the Sierra Club California state:

Nuclear energy comes with significant costs and risks. If California is to assess the potential consequences of inviting new nuclear reactors into the state, it is imperative that such an assessment be conducted carefully, with rigor and neutrality. AB 2647, as written, would direct the California Energy Commission (CEC) to conduct a study structured such that it could be expected to produce a biased, incomplete assessment.

They contend additional measures would strengthen the proposed assessment, including: a more realistic timeline, the impact on the state's ratepayers, the environmental justice implications of nuclear energy projects, the state's potential financial liability exposure from increased spent fuel storage and reactor accidents, cost projections for nuclear waste management extended across hundreds of thousands of years that spent fuel remains hazardous, and a comparative analysis of the specific implications presented by each of the technically distinct nuclear energy technologies foreseeably in development in the United States.

ASSEMBLY FLOOR: 73-0, 5/26/26

AYES: Aguiar-Curry, Ahrens, Alanis, Alvarez, Arambula, Ávila Farías, Bains, Bauer-Kahan, Bennett, Berman, Bonta, Bryan, Calderon, Caloza, Carrillo, Castillo, Chen, Davies, DeMaio, Dixon, Elhawary, Ellis, Flora, Fong, Gabriel, Gallagher, Gipson, Jeff Gonzalez, Mark González, Hadwick, Haney, Harabedian, Hart, Hoover, Irwin, Jackson, Johnson, Kalra, Krell, Lackey, Lee, Lowenthal, Macedo, McKinnor, Nguyen, Ortega, Pacheco, Papan, Patel,

Patterson, Pellerin, Petrie-Norris, Quirk-Silva, Ramos, Ransom, Michelle
Rodriguez, Rogers, Blanca Rubio, Sanchez, Schiavo, Schultz, Solache, Soria,
Stefani, Ta, Tangipa, Valencia, Wallis, Ward, Wicks, Wilson, Zbur, Rivas
NO VOTE RECORDED: Addis, Boerner, Connolly, Garcia, Muratsuchi, Celeste
Rodriguez, Sharp-Collins

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