

Date of Hearing: April 2, 2025

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Cottie Petrie-Norris, Chair

AB 531 (Rogers) – As Introduced February 11, 2025

SUBJECT: Geothermal powerplants and geothermal field development projects: certification and environmental review

SUMMARY: Specifically, **this bill:** Expands the types of facilities eligible for certification as environmental leadership development projects by the California Energy Commission (CEC) to include geothermal power plants and geothermal field development projects, as defined.

EXISTING LAW:

- 1) Establishes and vests the CEC's various responsibilities with respect to developing and implementing the state's energy policies. (Public Resources Code §§ 25200- 25231)
- 2) Establishes an "opt-in" framework for specified clean energy projects to seek consolidated permitting at the CEC by June 30, 2029, if they adhere to specified labor standards, including the use of skilled and trained workforce, and provide community benefits, as specified. Existing law specifies that this consolidated permitting process shall not supersede the authorities of the Lands Commission to require leases and receive lease revenues, if applicable, or the authority of the California Coastal Commission, the San Francisco Bay Conservation and Development Commission, the State Water Resources Control Board, or the applicable regional water quality control boards. Existing law specifies that the following types of facilities are eligible for this consolidated permitting:
 - a) A solar or terrestrial wind facility with a generating capacity of 50 MW or more and associated facilities.
 - b) An energy storage system capable of storing 200 MW or more of energy, as specified.
 - c) A stationary thermal electrical generating power plant, with a generating capacity of 50 MW or more that does not use or rely on fossil or nuclear fuels.
 - d) Certain renewable energy component manufacturing facilities and transmission lines to certain renewable energy facilities. (Public Resources Code § 25545)
- 3) Requires, pursuant to California Environmental Quality Act (CEQA), lead agencies with the principal responsibility for carrying out or approving a proposed project to prepare a negative declaration, mitigated negative declaration, or environmental impact report (EIR) for this action, unless the project is exempt from CEQA (CEQA includes various statutory exemptions, as well as categorical exemptions in the CEQA guidelines). (Public Resources Code (PRC) 21000 et seq.)
- 4) Establishes a framework for providing certain infrastructure projects with expedited judicial review of appeals and litigation related to the CEQA, subject to specified conditions. Existing law limits eligibility for these streamlining provisions to certain energy, transportation, water, and semiconductor projects. Existing law explicitly

excludes projects that use hydrogen as a fuel from the list of eligible projects. (Public Resources Code § 21189.80)

FISCAL EFFECT: Unknown. This bill is keyed fiscal and will be referred to the Committee on Appropriations for its review.

CUSTOMER COST IMPACTS: This measure expands the types of facilities eligible for certification as environmental leadership development projects by the CEC to include geothermal power plants and geothermal field development projects, as defined. While the bill does not directly affect consumers, it expands opportunities for further geothermal development that could ultimately influence ratepayer costs.

BACKGROUND:

Planning for a Clean Energy Transition – California has a complicated but robust electric planning and procurement regime spread across the CPUC, CEC, and CAISO. This regime guides the current procurement the LSEs conduct and informs mid- and long-term procurement strategies. The regime is complementary, where one resource may count toward meeting many facets of an LSE’s procurement requirements and planning goals. Some of the pieces of the regime include the IRP, the related SB 100 Report, and the IEPR.

The IRP (CPUC, every 2 years) – SB 350 (De León, Chapter 547, Statutes of 2015) mandates the CPUC to adopt a process for each regulated LSE – electrical corporations, community choice aggregators, and electric service providers – file an IRP. The goal is to reduce the cost of achieving GHG emission reductions by looking broadly at system needs, rather than at individual LSEs or resource types. The IRP process begins with the CPUC developing a Reference System Plan (RSP), which estimates what LSEs should procure to meet clean energy and climate goals cost-effectively.

In February 2024, the CPUC adopted a decision within its IRP process to align the state's electric sector with an ambitious greenhouse gas (GHG) reduction target of 25 million metric tons (MMT) by 2035.¹ This target represents the most aggressive target within the range identified by CARB and reflects the state’s commitment to decarbonize the power sector. To meet this target, the CPUC has determined that 56 GW of new clean energy resources will be needed by 2035 of which up to 4 GW is for geothermal, 7 GW for in-state wind, and 20 GW of solar, among other resources.²

SB 100 Report (Joint Agencies, every 4 years) – While the IRP focuses on what energy mix is best suited to meet our GHG and reliability goals 10-15 years into the future, the Joint Agency SB 100 Report looks at a planning horizon 24 years out, to determine how best to implement the 100%-clean-electricity-by-2045 policy enacted under SB 100 (De León, Chapter 312, Statutes of 2018). The first SB 100 report was finalized in March 2021, and included analyses of many pathways to achieve the state’s 2045 clean energy goal, including study scenarios examining “zero-carbon firm resources.”³ The report is required to include an evaluation of costs and benefits to customer rate impacts, as well as, barriers to achieving the SB 100 policy.

¹ California Public Utilities Commission; “CPUC Drives California Toward a Clean Energy Future”; Accessed March 29, 2025

² Proposed Decision 24-02-047 issued 2/15/2024 in IRP Proceeding, Rulemaking 20-05-003

³ Pg.12, SB 100 Joint Agency Report;” March 2021

Additionally, the report will be updated every four years, with the next edition anticipated soon and focused on system reliability⁴ among other considerations.

IEPR (CEC, every 2 years) – a forecast of all aspects of energy industry supply, production, transportation, delivery, distribution, demand, and pricing. The CEC is then required to use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The CEC is also required to publish a strategic plan for California's transmission grid and weave it into the broader IEPR framework.⁵ The CEC adopts an IEPR every two years with updates every other year.

Geothermal Energy – Geothermal is a form of renewable energy defined as heat energy from the earth. Geothermal resources are reservoirs of hot water that are naturally occurring or are manufactured to operate at varying temperatures and depths below the earth's surface. Wells, ranging from a few feet to several miles deep, can be drilled into underground reservoirs to tap steam and hot water that can be brought to the surface for use in electricity generation, direct heating, and industrial processes.⁶ The United States is the world's largest producer of geothermal electricity and California has the highest geothermal capacity of all states.⁷ "The Geysers" geothermal steam field, located within Lake, Mendocino, and Sonoma Counties, contains 349 out of California's 563 high-temperature geothermal wells within the state. Imperial County (including the Salton Sea) houses 194 of these wells, and the remaining 20 are located in Lassen, Modoc, and Mono Counties.⁸ California has installed 2,627 MW of geothermal nameplate capacity—accounting for 72% of the total geothermal plant capacity in the United States.⁹

Geothermal Procurement Orders. Geothermal energy can supply power even when intermittent resources – such as solar and wind – are offline (such as at night or on cloudy days), and therefore support California in its transition to a 100% clean electricity by 2045 and maintain system reliability. Recognizing the need, California has authorized procurement orders for geothermal energy through various channels:

- I) Integrated Resource Plan IRP: As denoted earlier in the background, the IRP is California's procurement strategy used by California's electric providers and the CPUC to ensure the state's electricity system remains reliable, cost-effective, and aligned with clean energy goals¹⁰. In February 2024, the CPUC adopted the 2023 Preferred System Plan which estimated that at least 2 GW of geothermal energy is needed to meet the GHG reduction target of 25 million metric tons (MMT) by 2035.¹¹

⁴ Pg. 1, *SB 100 Joint Agency Report*. March 2021

⁵ California Public Resources Code Section 25324

⁶ Pg. 16; SB 423 Report "Emerging Renewable and Firm Zero-Carbon Resources"; December 2024

⁷ Pg. ii; "California Energy Commission, California Department of Conservation, California Geologic Energy Management Division (CalGEM), "Assessing California's Population of Low-Temperature Geothermal Wells for Plugging and Abandonment" September 2023

⁸ Pg. E-2; "SB 423 Emerging Renewable and Firm Zero-Carbon Resources"; December 2024

⁹ Robins, Jody C., Amanda Kolker, Francisco Flores-Espino, Will Pettitt, Brian Schmidt, Koenraad Beckers, Hannah Pauling et al. 2021. U.S. Geothermal Power Production and District Heating Market Report. <https://www.nrel.gov/docs/fy21osti/78291.pdf>

¹⁰ Integrated Resource Plan, <https://www.cpuc.ca.gov/irp/>

¹¹ Pg. 68; CPUC ; Decision 24-02-047; February 15, 2024

- II) In June 2021, the CPUC issued a major procurement order – Decision 21-06-035, also known as the Mid-Term Reliability (MTR) requiring utilities to procure 11,597 MW between 2023 and 2026.¹² Of this quantity, about 1,000 MW of geothermal energy was ordered¹³ with an additional 4,000 MW of net qualifying capacity (NQC) ordered in early 2023¹⁴ following an updated load forecasting by the CEC.
- III) In 2023, the legislature adopted AB 1373 which authorized the CPUC through a central procurement mechanism to work with the Department of Water Resources (DWR) to procure offshore wind, geothermal, and long lead time resources aiming to facilitate the development of clean energy resources and meet the state’s 100% clean energy goals.¹⁵ The decision identified four types of long lead time resources for DWR to seek procurement solicitations; the total solicitation cap was 10.6 GW, with about 1 GW for geothermal energy.¹⁶

These procurement orders reflect California’s progress and growing intention to expand geothermal energy generation. However, geothermal energy struggles to scale in-state primarily due to its high capital costs and extended permitting timelines. Many geothermal developers opt to construct projects outside of California and contract with California’s LSEs to meet the above procurement obligations. Fervo Energy, a company focused on harnessing heat energy through enhanced geothermal systems, is currently developing a 400 MW geothermal plant in Cape Station, Utah, and has already secured two power purchase agreements (PPAs) totaling 320 MW with Southern California Edison (SCE). As discussed above, the procurement orders require LSEs to procure a specified amount of geothermal energy as part of their long-term resource planning obligations. These existing procurement orders suggest that the limitation to in-state geothermal development is not for want of procurement direction.

Application for Certification (AFC). The Warren-Alquist Act, enacted in 1974, established the California Energy Commission (CEC) as the state’s primary energy policy and planning agency.¹⁷ One of its key provisions is to grant the CEC the authority to license and certify thermal power plants with a generating capacity between 50 and 100 megawatts.¹⁸ This approval process, known as the Application for Certification (AFC), ensures that proposed power plants meet environmental, public health, and safety standards while aligning with California’s broader energy and environmental policies. The AFC process involves rigorous evaluation, including environmental impact assessments, public participation, and coordination with local, state, and federal agencies to ensure responsible energy development. The thermal plants covered by the act include:

¹² Page 25, CPUC; Decision 21-06-035; June 24, 2021

¹³ <https://fervoenergy.com/fervo-energy-announces-320-mw-power-purchase-agreements-with-southern-california-edison/>, June 25, 2024

¹⁴ <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-augments-historic-clean-energy-procurement-goals-to-ensure-electric-reliability-2023>, February 23, 2023

¹⁵ <https://legiscan.com/CA/text/AB1373/id/2815509>, Bill text CA AB1373, 2023-2024, LegiScan

¹⁶ Bernier P. et al, CPUC Authorizes Procurement of 10.6 GW of Clean Energy Resources Under AB 1373, <https://www.mayerbrown.com/en/insights/publications/2024/08/cpuc-authorizes-procurement-of-106-gw-of-clean-energy-resources-under-ab-1373>

¹⁷ <https://www.energy.ca.gov/about>

¹⁸ <https://www.energy.ca.gov/programs-and-topics/topics/power-plants/power-plant-licensing>

- Natural gas-fired power plants (including combined-cycle and peaking plants)
- Geothermal plants
- Solar thermal power plants (e.g., concentrated solar power or CSP plants)
- Biomass or biogas facilities (waste-to-energy plants)

Opt-in Certification Program. AB 205 (Assembly Committee on Budget, Chapter 61, Statutes of 2022) expanded the CEC authority to oversee the streamlined permitting of certain clean and renewable energy facilities through an opt-in certification program until June 30, 2029.¹⁹ This program allows the following eligible projects to undergo a consolidated state-level review.²⁰

- Solar photovoltaic or terrestrial wind power plants with a generating capacity of 50 megawatts or more
- Energy storage systems capable of storing 200 megawatt hours or more of electrical energy
- Any stationary power plant using any source of thermal energy, excluding fossil or nuclear fuels, 50 MW or greater
- Specified facilities that cost at least \$250 million and are for the manufacturing, production, or assembly of an energy storage system
- Electric transmission lines carrying electric power from a facility described the above generating and storage facilities
- Hydrogen production facilities (not derived from fossil fuel feedstock) and associated onsite storage and processing facilities

Streamlined Review Process: Under this program, the CEC serves as the lead agency for the California Environmental Quality Act (CEQA) review, conducting a comprehensive environmental assessment equivalent to an Environmental Impact Report (EIR). This consolidated process aims to complete the environmental review and reach a certification decision within 270 days of accepting a complete application, with certain exceptions.²¹ Additionally, the program mandates the CEC to carry out ongoing public participation and tribal consultation through engagement with local communities and California Native American tribes.²² Within five days of deeming an application complete, the CEC invites tribal consultations. A public scoping meeting is held within 30 days, and a draft EIR is released by day 150, followed by a public meeting and a 60-day comment period. To obtain certification, applicants must demonstrate that the project will provide a net positive economic benefit to the local community. This includes entering into a community benefits agreement, ensuring payment of prevailing wages, and using a skilled and trained workforce for construction.²³ As such, if a developer submits an application, a certification from the CEC under AB 205 serves in lieu of most other state, local, or regional permits, streamlining the approval process. Consistent with the existing

¹⁹ Opt-In Certification Program, California Energy Commission, <https://www.energy.ca.gov/programs-and-topics/topics/power-plants/opt-certification-program>

²⁰ Ibid

²¹ Ibid

²² Opt-In Certification Program Fact Sheet, California Energy Commission, https://www.energy.ca.gov/sites/default/files/2024-06/Opt-In_Certification_Fact_Sheet_ada.pdf

²³ Ibid

requirements in the Warren-Alquist Act, local governments may participate in the process but they will no longer have primary land use authority over the application.

COMMENTS:

- 1) *Author's Statement.* According to the author, "Assembly District 2 is proudly home to a portion of "The Geysers," the largest geothermal field in the world. It contains a complex of 18 geothermal power plants, drawing steam from more than 350 wells, and is poised through the use of emerging new technologies to play an even larger role in California's clean energy mix. The expansion of geothermal energy production is an important component of our efforts to diversify and increase California's energy supply portfolio so we can reach our climate goals. This bill supports more efficient development of geothermal energy production, which will help enhance energy reliability and create more green energy jobs at the Geysers and beyond."
- 2) *This Bill.* As noted above, AB 205 expanded the CEC's authority to streamline the permitting process for certain energy projects, including thermal power plants with a capacity of 50 MW or more, by offering developers an optional, consolidated state-level permitting pathway. This expansion effectively preempts local permitting authority when a developer elects to pursue certification through the CEC's Opt-In process.

This measure, as proposed, further expands the types of facilities eligible for the Opt-In Certification process to include geothermal power plants and geothermal field development projects that are less than 50 MW. Supporters of the bill argue that this change is necessary because most geothermal projects in California are relatively small in scale, typically ranging from 20 to 40 MW, and are therefore excluded from the Opt-in process. Under existing law, thermal power plants under 50 MW are typically permitted by local agencies and are not subject to CEC certification. By extending eligibility to smaller geothermal facilities, AB 531 provides developers with an additional option to seek streamlined state-level permitting through the CEC.

- 3) *Conflicting Directives.* As previously discussed, AB 205 expanded the CEC authority to streamline the permitting process for a range of clean energy projects, including certain thermal power plants with a generating capacity of 50 MW or more until June 30, 2029. Through the Opt-In Certification Program, the CEC acts as the lead agency under CEQA, hence offering a faster, centralized approval process that replaces the need for local permits.

On the contrary, AB 1016 (Gonzalez) requires that, until January 1, 2030, the CEC exempt geothermal power plants with a generating capacity of up to 150 MW from the certification requirement, provided they meet specific criteria. The measure also mandates that for projects granted this exemption, the local governmental agency with jurisdiction over the proposed site would serve as the lead agency for environmental review under the California Environmental Quality Act (CEQA).

As such, AB 205 seeks to centralize permitting under the CEC for faster approvals, ensuring a consistent state-led process. AB 1016, in contrast, decentralizes permitting for certain geothermal plants (up to 150 MW) by mandating local oversight, which contradicts the intent of AB 205 to consolidate clean energy project approvals at the state

level. These conflicting directives may lead to inconsistent environmental review processes and unclear jurisdictional responsibilities for developers and regulatory agencies.

4) *Related Legislation*

AB 526 (Papan) would require the California Energy Commission (CEC) in coordination with other relevant state, federal and local agencies to develop a strategic plan for the development of new in-state geothermal energy in California. Status: Assembly Utilities and Energy Committee

AB 527 (Papan) would allow geothermal exploratory projects that meet the same environmental standards, as determined by the lead agency overseeing the project, to be considered compliant with California Environmental Quality Act (CEQA). Status: Assembly Natural Resources Committee

5) *Prior Legislation*

AB 1359 (Papan), authorizes the Geologic Energy Management Division (CalGEM) in the Department of Conservation (DOC) to delegate lead agency authority under the California Environmental Quality Act (CEQA) for geothermal exploratory projects, as provided. Status: Chaptered by Secretary of State - Chapter 678, Statutes of 2024.

AB 1373 (Garcia), authorizes the Department of Water Resources (DWR) to serve as a central procurement entity to procure energy resources to include offshore wind, long-duration storage, and geothermal in order to help the state meet its renewable and zero-carbon energy resources and reliability goals. Status: Chaptered by Secretary of State - Chapter 367, Statutes of 2023.

AB 205 (Committee on Budget), among its many provisions, established the SRR at DWR to fund procurement of backstop resources to provide reliability to CAISO's grid. Status: Chapter 61, Statutes of 2022.

AB 1161 (E. Garcia, 2021) would have required DWR to procure newly developed eligible renewable energy resources or zero-carbon resources, and energy storage associated with those resources, in an amount that satisfies 100% of the electricity procured to serve all state agencies by December 31, 2030. Status: Died – Assembly Committee on Utilities and Energy.

SB 423 (Stern) requires the CEC to submit to the Legislature an assessment by December 31, 2023, of firm zero-carbon resources that support a clean, reliable, and resilient electrical grid and will help achieve the existing statutory goal of ensuring renewable energy and zero-carbon resources supply 100 percent of all retail sales of electricity to California customers by December 31, 2045. Status: Chapter 243, Statutes of 2021.

AB 56 (E. Garcia, 2019) would have required the CPUC to empower the CAEATFA to undertake backstop procurement of electricity that would otherwise be performed by an electrical corporation to meet state resource adequacy, integrated resource planning, and

renewable portfolio standard goals not satisfied by retail sellers or load-serving entities.
Status: Died – Senate Committee on Energy, Utilities, and Communications.

SB 350 (De León), among its many provisions, requires the CPUC to adopt a process for each LSE to file an IRP starting in 2017 and updating periodically. Additionally requires POUs to file an IRP by January 1, 2019. Status: Chapter 547, Statutes of 2015.

SB 100 (De León) established the 100 Percent Clean Energy Act of 2018 which increases the RPS requirement from 50% by 2030 to 60%, and creates the policy of planning to meet all of the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy. Status: Chapter 312, Statutes of 2018.

- 6) *Double Referral*. This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Natural Resources.

REGISTERED SUPPORT / OPPOSITION:

Support

American Clean Power Association
California State Association of Electrical Workers
California State Pipe Trades Council
Citizens' Climate Lobby Santa Rosa and North
City of Cloverdale
Climate Center; the
County of Sonoma
Eavor INC.
Fervo Energy
Geothermal Rising
Independent Energy Producers Association
International Brotherhood of Boilermakers, Western States Section
International Union of Operating Engineers, Cal-nevada Conference
Invenergy, LLC
Northern Sonoma County Air Pollution Control District
Ormat Technologies, INC.
Sonoma Clean Power
Usgbc California
Western States Council Sheet Metal, Air, Rail and Transportation
Xgs Energy

Opposition

Sierra Club

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