
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Blakespear, Chair

2025 - 2026 Regular

Bill No: AB 2234
Author: Papan
Version: 6/17/2026
Urgency: No
Consultant: Brynn Cook

Hearing Date: 6/24/2026
Fiscal: Yes

SUBJECT: California Environmental Quality Act: geothermal exploratory projects

DIGEST: Revises the California Environmental Quality Act (CEQA) definition of “geothermal exploratory project” to accommodate “enhanced” geothermal exploration techniques, and include temporary roads, and electric distribution lines.

ANALYSIS:

Existing law:

- 1) The California Environmental Quality Act (CEQA) requires a lead agency to spearhead an environmental impact report (EIR) for a project that may have a significant effect on the environment. CEQA also requires a lead agency to prepare a negative declaration (ND) for a project that will have no significant effects on the environment, or a mitigated negative declaration (MND) for projects that have no significant effects after mitigation. (Public Resources Code (PRC) §§ 21000 et seq.)
- 2) Establishes the California Department of Geologic Energy Management (CalGEM) within the Department of Conservation as the state’s geothermal well regulator. The State Oil and Gas Supervisor (supervisor) leads CalGEM.
- 3) Defines “geothermal exploratory project” as a project composed of not more than six wells and associated drilling and testing equipment, whose chief and original purpose is to evaluate the presence and characteristics of geothermal resources prior to commencement of a geothermal field development. Wells included within a geothermal exploratory project must be located at least one-half mile from geothermal development wells which are capable of producing geothermal resources in commercial quantities. (PRC 21065.5)
- 4) Defines “geothermal field development project” as a development project composed of geothermal wells, resource transportation lines, production equipment, roads, and other facilities which are necessary to supply geothermal

energy to any particular heat utilization equipment for its productive life, all within an area delineated by the applicant. (Government Code 65928.5).

- 5) Specifies that CalGEM is the default lead agency for geothermal exploratory projects, but that the division can delegate its lead agency responsibility to a county that has adopted a geothermal element in its general plan. In addition, at the request of an applicant, the county in which a geothermal exploratory project is located shall assume responsibilities of the lead agency, regardless of whether or not the county has a geothermal element. In this case, the county and division confer regarding necessary information that should be included in the environmental review for the project to facilitate the division's exercise of its authority as a responsible agency (PRC §3715.5)
- 6) Requires a lead agency to consult with responsible and trustee agencies prior to determining whether or not a negative declaration or environmental impact report (EIR) is required for a proposed project (PRC § 21080.3)

This bill:

- 1) Revises the definition of "geothermal exploratory project" to:
 - a) Include "equipment and activities necessary to establish interconnectivity between wells and reservoirs, temporary roads, electric distribution lines, and infrastructure to provide power for drilling and testing equipment"; and
 - b) Specifies that wells can be located within one half mile from a commercial scale geothermal development well, as measured from the bottom of the wells interaction point, so long as the owner or operator of the commercial-scale geothermal development provides written consent for its location within that one-half mile.

Background

- 1) *The a, b, c's of CEQA.* CEQA is designed to (a) make government agencies and the public aware of the environmental impacts of a proposed project, (b) ensure the public can take part in the review process, and (c) identify and implement measures to mitigate or eliminate any negative impact the project may have on the environment. CEQA is enforced by civil lawsuits that can challenge any project's environmental review.

Under CEQA, projects (unless they have a specific exemption) must undergo environmental analysis. This process starts with an initial study which determines what level of further environmental review is needed for a given

project. If a project has no significant effects on the environment, or if those effects can be fully mitigated, the project can move forward with a negative declaration (ND) or mitigated negative declaration (MND). If the initial study finds that the project has potentially significant effects on the environment, then the lead agency submits a notice of preparation (NOP) that they are going to conduct an EIR. An EIR provides a thorough environmental review of a proposed project. Under the law, projects have one year to complete an EIR, except in extenuating circumstances.

- 2) *Advanced geothermal systems.* According to the U.S. Department of Energy (U.S. DOE), many more areas may be able to utilize geothermal resources through the use of advanced geothermal systems. These new systems may be able to utilize any area where there are relatively hot rocks – not just in the well-known high-temperature geothermal resource areas such as those in Imperial County. These new systems include:
- a) Closed loop systems where water is circulated in a below-ground loop to gain heat energy;
 - b) Hydrothermal systems where water is injected into subsurface strata with existing cracks in it to gain heat energy as it flows through before it is produced by a different well; and
 - c) Enhanced geothermal systems which are similar to hydrothermal systems except the cracks are made in the subsurface strata by hydraulic fracturing or other similar techniques.

Enhanced Geothermal Systems (EGS) use three general types of well stimulation: thermal, hydraulic, and chemical stimulation. Thermal stimulation relies on the introduction of chilled water, and thus cold stress, to a geothermal reservoir. Hydraulic stimulation relies on the introduction of water or a combination of water and sand or water and gel-proppant fluids to a geothermal reservoir. Chemical well stimulation techniques involve the use of aqueous solutions to allow acids, bases, and chelating agents to be introduced into geothermal reservoirs.

The U.S. DOE estimates these next generation geothermal systems can produce up to 90 gigawatts (GW) of renewable power by 2050, and up to 300 GW depending upon storage and other emerging technologies. The U.S. DOE estimates that the cost of this power should fall to \$60 - \$70 per megawatt-hours (MWh) by 2030. Because of its ability to provide clean, firm power, geothermal has some comparative advantages to solar and wind, however current estimates suggest that it is likely to remain a more expensive source of energy in the foreseeable future.

- 3) *What is exploratory geothermal?* Geothermal projects take place in two phases: the “exploration” phase involves drilling one or more exploration wells at a given site to map out the subsurface environment and assess exactly where a new geothermal power plant should be located. The subsequent “field development” phase involves drilling the necessary injector and producer wells and building the power plant, grid connections, and associated infrastructure.

Both exploratory and field development geothermal projects are subject to environmental review under CEQA. One difference between the two is that geothermal exploratory projects have CalGEM as the default lead agency in charge of CEQA review, rather than the city or county (as is the case for field development projects). However, geothermal exploratory projects have two roads to have the city or county be the lead agency: either CalGEM can delegate this responsibility to a city or county with an existing geothermal element in their general plan, or a project applicant can request the county to be the lead agency.

Comments

- 1) *Purpose of Bill.* According to the author, “AB 2234 can expand clean energy generation head-on by modernizing the statutory definition of “geothermal exploratory projects” to reflect emerging geothermal technologies.

“California has a massive underground network of untapped geothermal energy. While the industry has taken great strides toward unlocking this firm energy source and supplying it to end-users, state law has not kept pace with technological advancements. Innovations like closed-loop and enhanced geothermal systems (EGS) can potentially supply many gigawatts more energy than previous technologies. Traditional geothermal is limited in scope since developers rely on naturally occurring groundwater — but these location restraints do not make sense for new technology that can harness heat from deep within the earth.

“The new definition is modernized in two ways; first, by removing the half-mile restriction between exploratory and commercial wells for advanced systems, it acknowledges that newer tech has built-in safeguards to avoid disturbing neighboring wells. Second, the definition recognizes that all equipment and infrastructure necessary for modern development should be considered part of a project, not separate. By aligning statute with innovation, AB 2234 can expand access to firm, clean energy and signals that California is open for exploration.”

- 2) *Environmental implications for expanding exploratory geothermal?* AB 2234 expands the definition of “geothermal exploratory project,” to include techniques used for enhanced geothermal systems. It specifically includes temporary roads and power lines, while also relaxing the prohibition on exploratory wells within one-half mile of existing commercial wells.

For purposes of environmental review under CEQA, this change is minimal: geothermal exploratory projects must still undergo full CEQA review. The only change for purposes of CEQA is that the default lead agency would be CalGEM, not the local land use authority. However, CalGEM could still delegate its lead agency responsibility to the county, or the project applicant could request that the county be the lead agency.

Related/Prior Legislation

AB 1359 (Papan, Chapter 678, Statutes of 2024) authorizes the Geologic Energy Management Division (CalGEM) in the Department of Conservation (DOC) to delegate lead agency authority under CEQA for geothermal exploratory projects, as provided.

AB 527 (Papan, 2025) among other provisions, this bill would have established a CEQA exemption for geothermal exploratory project. This bill was vetoed by the governor.

DOUBLE REFERRAL:

If this measure is approved by the Senate Environmental Quality Committee, the do pass motion must include the action to re-refer the bill to the Senate Natural Resources and Water Committee.

SOURCE: Sonoma Clean Power

SUPPORT:

Sonoma Clean Power
The Nature Conservancy

OPPOSITION:

Calpine Corporation
Northern California Power Agency

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