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California's Geothermal Lands: A Legal Framework for Resource Development

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INTRODUCTION

Individuals or companies interested in the development of geothermal resources must as a first step acquire rights to conduct exploration and drilling activities on potential or known geothermal resource lands. This is accomplished either through purchase of the fee title to such lands or through negotiation of a lease agreement with the current property owner. Because of the risks involved in geothermal development and the large amounts of capital required for purchase transactions, developers have tended not to rely upon outright ownership of the properties in which they are interested. Rather, a developer usually enters into a contractual relationship with the property owner granting the developer exclusive rights to explore the property and develop any geothermal resources which he might discover there; in return, the owner receives an annual rental or royalty.

On private lands, the agreement between the landowner and the geothermal lessee is negotiated individually and thus the terms and conditions of such agreements have by no means become standardized (Stanford Environmental Law Society, 1975). On public lands, on the other hand, the arrangement between the geothermal developer and landowner (the government) is controlled by statute and administrative regulations. Since much of the nation's geothermal wealth is found beneath public lands of the western states, developers have taken a keen interest in the promulgation of and changes in these rules.

The State of California's geothermal prospecting, leasing, and operating regulations have been widely praised by industry representatives for providing an appropriate framework for the expeditious development of geothermal resources, thereby helping to solve the national and international energy shortage (Butler and Otte, 1974). In large part because of the favorable legal climate created by early state legislation, the world's largest geothermal energy complex now exists at The Geysers in northern California. The basic structure and many individual provisions of the California law have been copied by other western states, and California's lead in the field of geothermal legislation was a major impetus for the federal Geothermal Steam Act of 1970 (U.S. Code, Vol. 30, Sec. 1001-1025). Consequently, the state's legislation has had nationwide influence and an international impact.

HISTORY

The State of California's concern with the development of geothermal resources began in 1965 with the enactment of Senate Bill 410, which embodied provisions for the drilling, operation, and abandonment of geothermal wells in the state [California Public Resources Code (CPRC), Sec. 3700-3776]. This was followed two years later by the enactment of a comprehensive geothermal resources leasing system (CPRC 6805-6942). Several amendments have since been added to these statutes, and the latest administrative regulations implementing the statutory operating requirements were issued in 1974 [California Administrative Code (CAC), Sec. 1900-1933]. Basically, three state agencies are involved in the various phases of geothermal resources development: the State Lands Commission controls the allocation of prospecting permits and leases; the Division of Oil and Gas regulates well drilling, operating, maintenance, and abandonment; and the Geothermal Resources Board classifies geothermal resource areas, monitors drilling programs, and regulates some aspects of production. This paper will survey some of the major provisions of the California laws and explain their importance to the geothermal developer.

SCOPE OF CALIFORNIA STATUTE

Coverages and Definitions

Resources covered. The California Public Resources Code (CPRC 6903) broadly defines "geothermal resources" to include

. . . the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases, and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas or other hydrocarbon substances.

Thus all forms of geothermal energy which have been discovered to date are covered by provisions of the statute.

The act expressly provides for the acquisition and recovery of other mineral deposits on geothermal lands under the

principle of multiple use of public lands and resources (CPRC 6906). However, the geothermal permit or lease holder and the holders of permits and leases for other minerals must not "unreasonably interfere with or endanger" each other's operations (CPRC 6906).

The potential problems which could be raised by a legal definition of geothermal resources as water (Idaho Law Review, 1964) are neatly avoided by the California law: any person who has drilled one or more wells on state, federal, or private lands "which are producing . . . or are capable of producing geothermal resources" may be issued a "certificate of primary purpose" by the Geothermal Resources Board. This certificate establishes "a rebuttable presumption that such person has absolute title to the geothermal resources reduced to his possession from such well or wells" (CPRC 3742.2). The presumption may be overcome only by a showing that the fluids produced from the wells are useful *without further treatment* for domestic or irrigation purposes; the act specifically provides that production of water as a *byproduct* of geothermal production will not rebut the presumption. Hence the geothermal developer in California is well protected from potential appropriators of the water he produces.

Parties covered. The act does not provide any special requirements for holders of geothermal resources prospecting permits or leases; they need only have the qualifications of holders of all other state mineral leases (CPRC 6905). Thus permits and leases may be issued to qualified persons, associations, or corporations (CPRC 6801).

Any lessee of state-owned lands may join with other lessees in a cooperative or unit plan for the development or operation of several geothermal leases (CPRC 6923). Under such a unit plan, individual drilling and production plans may be changed, production may be apportioned among the parties to the agreement, and new operating requirements may be promulgated (CPRC 6923). Further, operators may commingle resources from two or more wells as long as the amount of resources produced from wells on state leases is measured accurately (CPRC 6920). All cooperative agreements bind the successors and assigns of the original parties, and such agreements approved by the Geothermal Resources Board are exempt from state antitrust laws (CPRC 3756).

Lands covered. The statutory requirements as to drilling and operations apply to all lands in the state—federal and private lands as well as state lands. Although the act does not clearly state that it applies to all such lands, there is no express limitation to the act, and in at least one section—the provision for a certificate of primary purpose for all geothermal wells in the state—federal and private lands are expressly included (CPRC 3742.2).

The statutory leasing provisions obviously apply only to state lands. These are defined to include school lands, proprietary lands, tidelands, beds of navigable waterways, submerged, swamp, and overflowed lands, and all lands in which geothermal resources have been reserved to the state (CPRC 6904). Over one-half million acres of potential geothermal areas are included in these state lands. In the most promising areas, 4523 acres have been leased, 26 564 acres are covered by prospecting permits, and applications for permits have been filed for an additional 61 178 acres (Everitts, 1974). In the valuable Geysers area alone, state

land holdings total 66 851 acres, of which 3988 acres are under lease, 5493 acres are under prospecting permits, and 18 316 acres are under application (Everitts 1974).

Permits and leases may be issued for a reasonably compact area of at least 640 acres and not more than 2560 acres, except that a maximum of 5760 acres is allowed for areas beneath lakes and rivers, below the mean high tide level, and on submerged lands. A parcel of less than 640 acres may be prospected or leased if it is "isolated from and not contiguous with other parcels of land available for permit or lease." While there is no limitation on the number of permits or leases which may be granted to one person, no person, association, or corporation may hold an interest in permits or leases exceeding 25 600 acres (CPRC 6908). Thus one geothermal developer can acquire an interest in a maximum of roughly 5% of the state's potential geothermal areas, but the corollary of this limitation is that as few as 20 individuals or organizations can control the entire state's public lands geothermal potential.

Permittees and lessees may use as much of the surface as is reasonably necessary, as determined by the State Lands Commission, for their activities. Other state departments or agencies which have jurisdiction over the surface of state lands may impose reasonable terms and conditions on permits and leases, or they may refuse altogether to allow geothermal prospecting or development on these lands (CPRC 6924).

PROSPECTING PERMITS

For lands which have not been classified as known geothermal resource lands, prospecting permits are issued on a first-come first-served basis: the first qualified applicant "shall" be issued a permit by the State Lands Commission. The permit will be denied, however, if the lands in question are classified as known geothermal resource lands between the time the permit is applied for and the date of its issuance (CPRC 6909).

A permit entitles its holder to the exclusive right for three years to prospect for geothermal resources on lands covered by the permit. The permit's three-year primary term may be extended, at the discretion of the Commission, for up to two more years, and the maximum duration of any prospecting permit is five years (CPRC 6910). The rent required of the prospecting permittee is one dollar per acre per year (CPRC 6909, 6913c).

LEASES

The concept of a known geothermal resources area (KGRA) is central to both state and federal leasing laws. The federal act broadly defines a KGRA to be an "area in which the geology, nearby discoveries, competitive interests or other indicia would, in the opinion of the Secretary [of the Interior], engender a belief in men who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose" (U.S. Code, 1001e). By contrast, the state definition of a KGRA is limited to an area "which shall contain at least one well capable of producing geothermal resources in commercial quantities" (CPRC 6912b). Prospecting permits may not be issued for lands classified as a KGRA

by the state Geothermal Resources Board. Rather, such state KGRA's are subject to disposition exclusively by lease.

Leasing Procedures

Preferential lease to prospecting permittees. If lands subject to a prospecting permit are classified as known geothermal resource lands within either the primary or the extended term of the permit, the permittee is entitled to convert his interest into a lease on these lands (CPRC 6911). This is a very important privilege, for without it, the permittee would have to enter into competitive bidding with other parties interested in these obviously valuable land holdings, and the result might be a complete loss of whatever investment he might have made in prospecting the lands.

Lease by competitive bidding. If lands within a state KGRA are not covered by a prospecting permit, competitive bidding is required and a lease is to be awarded to the "highest responsible qualified bidder." The State Lands Commission is authorized to promulgate rules and regulations for lease sales, and the competitive bidding may be "on the basis of a cash bonus, net profit, or other single biddable factor (CPRC 6912a).

Despite these statutory provisions, there has never been a lease sale in California; all leases have been derived directly from prospecting permits (Dills, 1974). The obvious reason for this is that the California KGRA designation applies only to lands where a geothermal well "capable of producing geothermal resources in commercial quantities" has been drilled. A geothermal developer would be unwilling to drill such a well on state lands unless his investment were protected by a prospecting permit. What happens, therefore, is that when the developer discovers geothermal steam or water in his drilling, the area is declared a KGRA, the developer's prospecting permit is converted into a preferential lease, and the competitive bidding never occurs. Thus even if steam is gushing forth from a geyser on state land, the area may not be designated as a known geothermal resource area until a well is drilled. Hence it is likely that the state, by never holding a sale of KGRA leases, has not been adequately compensated for the true value of these leases (Dills, 1974).

Preferential leases to surface owners. Where the state has sold lands and reserved to itself the right to develop geothermal resources on these lands, the surface owner is given a statutory preference in obtaining a geothermal lease. Anyone who files an application for a permit or lease on these lands must serve notice of such application on the surface owner, who is then given six months to file his own application for a preferential permit or lease. If the surface owner is qualified to acquire a geothermal lease, his application will be granted to the exclusion of any other applicant. If the lands are classified as being within a KGRA and a competitive lease sale is somehow held, the surface owner is given the right within ten days to match the highest bid and receive the lease (CPRC 6922).

This preferential right is also a very valuable privilege, for the speculative surface owner can obtain the rights to geothermal development on his land and later assign them for the appropriate consideration to a developer with a commercial interest in these rights. All of the state land leases in the Geysers area, for example, were originally

awarded to surface owners, who subsequently assigned them to Union Oil Company, Magma Power Company, and Thermal Power Company (Everitts 1974).

Terms of State Leases

Lease duration. Geothermal leases on state lands have a primary term of 20 years "and so long thereafter as geothermal resources are being produced or utilized or are capable of being produced or utilized in commercial quantities." However, no lease may exceed a term of 99 years (CPRC 6918). Presumably the lease could be renegotiated upon its termination if commercial quantities of geothermal steam or water were still being produced.

Lease royalties. Geothermal lessees must pay certain royalties to the state for all geothermal resources "produced, saved and sold" on the lands leased from the state. First, a royalty of 10% is imposed on the gross revenue (exclusive of transmission and certain other charges) derived from the sale of steam, brines, and associated gases from which no minerals have been removed. Secondly, if mineral products or chemical compounds are extracted from geothermal fluids and then sold, the lessee shall pay a royalty of not less than 2% nor more than 10% of the gross revenues from such sales. Finally, an annual rental payment of \$1.00 per acre is also required. After the discovery of geothermal resources in commercial quantities, the minimum royalty payment is \$2.00 per acre per year when the total royalty otherwise due would be less than that amount (CPRC 6913). The total amount of royalties that the state now receives from its geothermal leases is \$37 000 per month (Gladish, 1974).

If the geothermal resources produced from the lease are used by the lessee and not sold, royalties are payable as if the resources had been sold to another party at the prevailing market price. However, if the lessee uses geothermal steam in the recovery of mineral byproducts, no royalties are due on the steam (CPRC 6918).

Royalties are to be renegotiated at the end of the 20-year primary lease term and every 10 years thereafter (CPRC 6913). This provision, coupled with recent proposals that the statutory maximum of a 10% royalty be raised (Gladish 1974), has caused some anxiety on the part of geothermal developers. They argue that raising the required royalty will discourage further geothermal exploration and development since there is enough uncertainty in the industry as it is (Butler, 1974). On the other hand, representatives of the public interest contend that the state is not being adequately compensated for its geothermal resources: while the state of California receives \$37 000 per month from its geothermal leases, the federal government has received over \$12 000 000—more than twice the present value of the state revenue—for as yet unproductive leases, and it will also receive sizeable royalties once production begins (Dills, 1974). Furthermore, if a royalty increase would in fact cause substantial economic problems for a geothermal developer, the State Lands Commission could grant relief, for it is authorized to reduce or suspend, "in the interests of conservation, and to encourage the greatest ultimate recovery of geothermal resources," any rental or royalty payments due on a geothermal permit or lease (CPRC 6916).

DILIGENT DEVELOPMENT REQUIREMENT

Since royalties are payable on the basis of resources "produced, saved and sold," and since the value of geothermal resource holdings is rapidly increasing because of technological developments in the field and mounting shortages of other energy sources, it would make sense economically for a geothermal developer to acquire a permit or lease in order to hold it, making no expenditures for exploration or development, until it becomes profitable to sell the property interest or until it becomes even more profitable to develop the resource. In order to discourage such speculation, the act in its terms requires diligent prospecting and production on all state permits and leases: if the lands are not part of a state KGRA, the State Lands Commission may, upon 30 days' written notice and demand for performance, terminate the permit or lease for failure "to exercise due diligence and care in the prosecution of the prospecting or development work in accordance with the terms and conditions of the permit or lease." If the lands are within a KGRA, 90 days' notice is required. The permittee or lessee, however, may retain any drilling or producing wells as to which no default has occurred, and he may also continue to occupy any surrounding land which is reasonably necessary for the continuation of such drilling or production (CPRC 6805).

The need for a diligent development requirement on public lands was indicated by a recent report to the California Legislature analyzing publicly recorded geothermal leases, exploration permits, and production permits involving private lands in the Imperial Valley over the period 1958-1973 (Sullivan, McDougal, and van Huntley, 1974). The report's conclusion that the major Imperial Valley developers are deliberately slowing down the development of this energy resource, waiting until other sources of energy become even more scarce and their geothermal holdings proportionately more valuable carries serious implications about the pace of development on public lands, as most companies mentioned in the report also have substantial interests in state geothermal lands (Sullivan, McDougal and van Huntley, 1974; San Francisco Chronicle, 1974; California State Senate, 1974). Despite this fact, the State Lands Commission "is presently unaware of any permittee who is merely sitting on his permit and failing to diligently explore for geothermal resources" (Paul H. Foley, Jr., pers. comm., 1974). However, the due-diligence standard which is written into the geothermal permit is broadly stated and practically unenforceable:

Such prospecting work may include geological, geophysical, geothermal and geochemical work and other exploratory operations, and need not be conducted upon the land if such work shall be determined by the State Lands Division to be applicable to the classification of the geothermal resources character of the land (Paul H. Foley, pers. comm., 1974).

Under this liberal standard, the Commission has never found it necessary to revoke a prospecting permit for failure to exercise due diligence in exploration (Paul H. Foley, pers. comm., 1974).

Neither has the Commission terminated a geothermal lease for failure to develop with due diligence (Paul H. Foley, pers. comm., 1974). With regard to leases, the problem is that even the diligent developer must often face a substan-

tial lag time between the time the lease is proven to be commercially valuable and the first day of electrical generation, for the lessee must wait for a power plant to be developed in the vicinity. Cancellation of a lease during this period for failure to develop would certainly be a harsh remedy, so the Commission is also given the power to prescribe a development program for state lessees. "In prescribing such program, the commission shall consider all applicable economic factors, including market conditions and the cost of drilling for, producing, processing and utilizing of geothermal resources" (CPRC 6912c). While this provision seems to resolve the problem of speculative lessees on state lands, the Commission has never availed itself of this power:

The State Lands Commission has not in the past prepared or promulgated work programs for either holders of geothermal prospecting permits or State geothermal lessees. The Division takes the position that §6912(c) of the Public Resources Code is permissive as it pertains to State originated development programs and that the State could, if it chose, initiate such programs within known geothermal resources areas. However, the time and manpower requirements for this type of State planning for prospecting permittees is at present prohibitive (Paul H. Foley, pers. comm., 1974).

While the Commission does oversee development programs prepared by permittees and lessees, it is clear that the statutory tools designed to compel diligent development of geothermal resources are either drawn too broadly or are just not being used.

The state Division of Oil and Gas, the agency charged with supervising day-to-day progress in developing geothermal resources statewide, would seem to be the logical agency to prescribe work programs for geothermal developers. Indeed, the California statute provides that the Division shall so supervise development as to encourage "the greatest ultimate economic recovery of geothermal resources" (CPRC 3714), and that the lessee shall "do what a prudent operator using reasonable diligence would do, having in mind the best interests of the lessor, lessee and the state, in producing and removing geothermal resources" (CPRC 3715). However, the statute does not thereby empower the Division to enforce diligent development requirements: "The term 'greatest ultimate economic recovery' is borrowed from Oil and Gas law and refers to procedures that prevent damage to the subsurface structure to permit a maximum use of the geothermal resource" (John J. Hollenback, Jr., pers. comm., 1974). Furthermore, the act is so drafted that it actually operates as a constraint on the state's power: the Division is only required to *permit* reasonable and prudent development, and the statute expressly states that "nothing contained in this section imposes a legal duty upon such lessee . . . to conduct such operations" (CPRC 3715). Hence, even if it appears that a geothermal resource could be prudently developed, the Division lacks any authority to compel it (John J. Hollenback, Jr., pers. comm., 1974).

CONCLUSION

The State of California has provided a comprehensive legal framework for the development of geothermal resources within the state. Some deficiencies in the state's

statute have become apparent since it was enacted, however, and it is submitted that the following refinements should now be adopted: (1) the KGRA definition should be expanded to conform to the federal standard; (2) bidding procedures and royalty requirements should be revised to ensure that the state is adequately compensated for its valuable public resources; and (3) diligent-development requirements for all state prospecting permits and leases should be broadly construed and strictly enforced. While the statute thus has a number of shortcomings which may receive attention in the near future, its basic structure is sound, and it has provided a healthy legal climate for geothermal development.

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