

**CALENDAR ITEM
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**CONSIDER APPROVAL OF A NEGOTIATED STATE
GEOTHERMAL RESOURCES LEASE TO PROVIDE
FOR THE DRILLING OF GEOTHERMAL WELLS,
THE GEYSERS GEOTHERMAL FIELD,
SONOMA COUNTY**

APPLICANT:

Geysers Power Company, LLC
Attn: Mr. Kevin Talkington
10350 Socrates Mine Road
Middleton, CA 95461

AREA, LAND TYPE, AND LOCATION:

Approximately 400.00 acres of State 100 percent (100%) reserved mineral interest school lands at The Geysers geothermal field, Sonoma County.

BACKGROUND:

The State owns the mineral resources on nearly 10,000 acres of lands in and around The Geysers, the world's largest geothermal development. The field currently generates about 800 megawatts of electrical power, enough to supply one million households. The State has six active leases covering 6,845 acres, of which roughly 5,000 acres are considered developed. The leases were issued by the California State Lands Commission (Commission) between 1971 and 2004, and are presently held by Geysers Power Company, LLC (Geysers Power), a wholly-owned subsidiary of Calpine Corporation.

The State leases include more than 110 wells that produce nearly four million pounds per hour of steam from a subterranean geothermal reservoir. This steam is transported by pipelines, together with nearly 12 million pounds per hour of steam from adjacent Federal and private leases, to a series of generating facilities owned by Geysers Power. Those facilities generate more than 700 megawatts of electrical power. Two other operators in the field generate another

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100 megawatts. The geothermal reservoir is replenished by injection of water, which also mitigates the non-condensable gases and corrosive chemicals in the steam. The injected water comes from the condensed steam exiting the generating facilities, water extracted from surface streams during periods of high flow, and reclaimed wastewater transported by pipelines from Lake County and the City of Santa Rosa. There are 20 injection wells on the State's six leases averaging 2.8 million pounds per hour or 6,000 gallons per minute of injection.

The State leases currently yield more than \$5 million per year in revenue from royalties and rent. Section 6217.5 of the Public Resources Code provides that the net revenue from State school lands shall be deposited in the State Treasury to the credit of the State Teachers' Retirement Fund. The leasing and subsequent exploration and development of the lands proposed for lease will increase the revenue derived from State school lands and help achieve California's goal of increasing electrical generation from renewable sources.

PRIOR LEASING EFFORTS:

The lands proposed for lease consist of two 200-acre parcels separated by roughly one-quarter mile. The parcels are being combined into a single lease because of their proximity and their common surface owner. Each parcel was previously leased by the Commission through a competitive lease sale in the early 1980s. An exploratory well was drilled and geothermal resources were encountered on each lease. The wells were subsequently plugged and abandoned, and neither lease was further explored or developed. The leases were eventually surrendered. This was primarily due to unfavorable economics for geothermal development at the time.

In 1993, the Commission held a new competitive lease sale on an adjacent parcel of State lands and received no bids. The additional sales that had been planned, including the subject lands proposed for lease, were cancelled due to lack of interest from the geothermal industry.

Interest in new geothermal development has improved dramatically in recent years. This is due to higher electrical prices and institutional incentives to increase the amount of electrical generation from renewable resources such as geothermal, wind, and solar.

LEASE APPLICATION:

Geysers Power, in 2006, submitted an application for a negotiated lease covering the subject lands. The application was originally for a no surface

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occupancy type lease, but Geysers Power later modified its application to eliminate that restriction when it secured access rights from Squaw Creek Investment Company (SCIC), owner of the surface estate. Commission staff deemed Geysers Power's application complete in September 2008.

Commission staff then formally notified SCIC of its rights as surface owner under Section 6912(a) of the Public Resources Code. That code section provides that where lands have been sold by the State subject to a mineral reservation in favor of the State, the owner of those lands must be notified of any application for a lease, and within four months from the date of service of notice may file its own application for a lease. The code section further provides that if the surface owner files an application and is qualified to hold a lease, and if the Commission determines that the leasing of the lands is in the best interests of the State, the owner's application shall be granted, subject to all the provisions of Article 5.5 of the Public Resources Code. Because SCIC is a landowner rather than a geothermal company, and because it already signed an agreement with Geysers Power, SCIC chose not to exercise its right to submit an application.

BASIS FOR NEGOTIATED LEASE:

Section 6919 of the Public Resources Code provides that the Commission may issue negotiated geothermal leases in lieu of competitive public bid leases, if any of the following conditions exists: (a) wells drilled upon private or public lands, including State-owned lands, are draining or may drain geothermal resources from State-owned lands; (b) the lands are determined to be unsuitable for competitive bidding because of such factors as their small size or irregular configuration, or their inaccessibility from surface drill sites reasonably available or obtainable; (c) the State owns a fractional interest in the lands; or (d) the lease or agreement is determined by the Commission to be in the best interests of the State. Commission staff believes at least two of these conditions apply to the subject lands – drainage and unsuitability due to size and accessibility limitations.

Accumulated evidence from more than 45 years of operations at The Geysers suggests that much of the reservoir is interconnected and that steam can migrate when a sufficient pressure differential forms. If the subject lands contain geothermal resources as suspected, drainage of those resources is occurring now, or may occur in the future, as a result of wells drilled upon private and Federal lands. Several such wells are situated to the south and southeast of the State lands.

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Further, the subject lands are considered unsuitable for competitive bidding due to size, configuration, and accessibility limitations. The resource potential of the subject lands alone is thought to be insufficient to support a new generating facility. The State lands will have to be combined with adjacent lands. Geysers Power has geothermal lease rights on all adjacent property and surface access rights on the State's reserved mineral interest lands. Commission staff believes that another company could not acquire a land position that would afford access to the State's geothermal resources. The alternative to developing the subject lands using a new generating facility would be to transport the geothermal resources to an existing facility. Geysers Power is the only entity with existing facilities that could utilize newly-developed geothermal resources from the subject lands. Therefore, Commission staff believes it is in the best interests of the State to enter into a negotiated lease with Geysers Power.

BASIS FOR STEAM VALUE:

At present, all geothermal steam from State leases at The Geysers is valued for royalty purposes at forty-two percent (42%) of the gross proceeds from the sale of electrical power generated from the steam. This percentage was negotiated in 1999 when Geysers Power acquired its leaseholds at The Geysers, mostly from Union Oil Company, and acquired its generating facilities, mostly from Pacific Gas & Electric Company (PG&E). The so-called percent of gross proceeds valuation method became necessary because the arms-length contract for the sale of the steam that had been in place since 1960 disappeared when Geysers Power consolidated steam field and power plant operations.

In 2004, the Commission approved a new lease with Geysers Power in the same part of the field as the proposed lease. The terms of that lease acknowledged the need for flexibility in valuing the geothermal resources when a new generating facility was required to develop those resources, as the costs to construct and operate a new generating facility are significantly greater than for an existing one. The lease specified that steam would be valued at forty-two percent (42%) of the value of the electricity if used at one of the facilities acquired from PG&E, but only thirty percent (30%) if the steam were used at a new facility or at Geysers Power's Aidlin power plant where poorer steam quality necessitates additional costs. The same valuation percentages are proposed for the subject lease.

LEASE TERMS:

1. Primary term of ten years and for so long thereafter as geothermal resources are being produced or are capable of being produced.

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2. An advance royalty of \$50,000 per year which can be recovered from production royalties during the primary term.
3. Three years to commence drilling operations.
4. Annual rent of \$10 per acre, payable in advance.
5. Annual minimum royalty of \$20 per acre, payable in arrears, after a commercial resource is discovered.
6. Royalty of ten percent (10%) of the value of geothermal resources produced.
7. Geothermal resources value of (i) thirty percent (30%) of gross proceeds from electrical sales if a new generating facility is involved, or (ii) forty-two percent (42%) of gross proceeds if an existing generating facility is involved.
8. Reimbursement of the State's costs for inspection of lease operations.
9. Performance bond or other security in the amount of \$100,000 backed by a parent guaranty from Calpine Corporation.
10. General liability insurance covering the leased lands and the lessee's operations and business, with liability limits of \$2,000,000 per occurrence and an aggregate limit of \$5,000,000, and worker's compensation insurance, employer's liability insurance, and business auto liability insurance, each with limits of \$1,000,000.

DEVELOPMENT PLAN:

Geysers Power plans to develop geothermal resources on the subject 400-acre lease and more than 3,730 acres of surrounding lands. Nearly 1,735 acres of the surrounding lands are State lands already under lease. Another 320 acres are Federal leased lands. The remaining 1,675 acres are private lands. Geysers Power submitted its development plan to Commission staff as part of its application for a lease and to the Sonoma County Permit and Resource Management Department in support of its request for conditional use permits.

The plan consists of two development projects identified as the Wildhorse Project and the Buckeye Project. The former covers lands north of Squaw Creek. The latter covers lands south of Squaw Creek. Each project area contains a portion of the subject lease. Substantial portions of the proposed projects, including some access roads, drill sites and pipeline corridors, are already in place and covered by existing use permits issued by the County. Geysers Power has proposed additional such features to expand the projects,

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including on the subject lease. The County was Lead Agency under the California Environmental Quality Act (CEQA) for a review of the potential impacts of the expanded projects, and in June 2009, it issued two new use permits to Geysers Power to cover the expansion.

Geysers Power now has use permits that cover a total of 26 drill sites, most of which are already constructed. Only one new drill site is proposed for construction on the surface of the subject lease. The 26 drill sites could accommodate up to 100 wells, but the actual number of wells required to develop the area will be significantly less. A reasonable estimate would be 25 producing wells and perhaps 10 injection wells for the overall development. Experience in other parts of the field suggests the reservoir cannot support a higher density of wells, nor would it be economically feasible to drill that many. Commission staff estimates that the number wells that might be drilled on the subject lease will range from two to six, most directionally drilled from adjacent lands.

Geysers Power intends to transport newly developed geothermal resources to its existing generating facilities. Should the construction of a new plant or plants be proposed in the future, it would require subsequent environmental review and authorization by Sonoma County, and Geysers Power would need further approval from the Commission through an amendment to the subject lease.

STATUTORY AND OTHER REFERENCES:

- A. Public Resources Code sections: Division 6, Parts 1 and 2; Division 13.
- B. California Code of Regulations, sections: Title 2, Division 3; Title 14.

OTHER PERTINENT INFORMATION:

- 1. Mitigated Negative Declarations SCH# 2009042009 and 2009042013 were prepared by Sonoma County and adopted on June 12, 2009 and June 15, 2009 respectively, for this project. The California State Lands Commission's staff has reviewed such documents.
- 2. A Mitigation Monitoring Program was adopted by Sonoma County for each Mitigated Negative Declaration.
- 3. This activity involves lands which have NOT been identified as possessing significant environmental values pursuant to Public Resources Code sections 6370, et. seq. However, the Commission has declared that all lands are "significant" by nature of their public ownership (as opposed to

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“environmentally significant”). Since such declaration of significance is not based on the requirements and criteria of Public Resources Code sections 6370, et. seq., use classifications for such lands have not been designated. Therefore, the finding of the project’s consistency with the use classifications as required by Title 2, California Code of Regulations, Section 2954 is not applicable.

EXHIBITS:

- A. Land Description
- B. Location Map

PERMIT STREAMLINING ACT DEADLINE:

October 8, 2009.

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDINGS:

1. FIND THAT MITIGATED NEGATIVE DECLARATIONS SCH# 2009042009 AND 2009042013 AND MITIGATED MONITORING PROGRAMS WERE PREPARED BY SONOMA COUNTY AND ADOPTED ON JUNE 12, 2009 AND JUNE 15, 2009 FOR THIS PROJECT AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.
2. ADOPT THE MITIGATION MONITORING PROGRAMS, AS CONTAINED ON FILE IN THE SACRAMENTO OFFICE OF THE CALIFORNIA STATE LANDS COMMISSION.

OTHER FINDINGS:

1. FIND THAT CONDITIONS EXIST FOR THE ISSUANCE OF A NEGOTIATED GEOTHERMAL RESOURCES LEASE PURSUANT TO PUBLIC RESOURCES CODE SECTION 6919(a) IN THAT GEOTHERMAL RESOURCES ARE BEING DRAINED OR MAY BE DRAINED FROM THE LANDS DESCRIBED IN EXHIBIT A, AND PURSUANT TO SECTION 6919(b) IN THAT LIMITATIONS DUE TO SIZE, CONFIGURATION, AND ACCESSIBILITY MAKE THE LANDS UNSUITABLE FOR LEASING BY COMPETITIVE PUBLIC BID.

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2. FIND THAT A NEGOTIATED GEOTHERMAL RESOURCES LEASE PURSUANT TO PUBLIC RESOURCES CODE SECTION 6919(d) IS IN THE BEST INTERESTS OF THE STATE

AUTHORIZATION:

1. AUTHORIZE ISSUANCE TO GEYSERS POWER COMPANY, LLC, A STATE GEOTHERMAL RESOURCES LEASE, IN A FORM SUBSTANTIALLY THE SAME AS THAT ON FILE IN THE LONG BEACH OFFICE OF THE COMMISSION, COVERING THE LANDS DESCRIBED IN EXHIBIT A, ATTACHED HERETO.
2. AUTHORIZE THE EXECUTIVE OFFICER OR HIS DESIGNEE TO EXECUTE ANY DOCUMENTS NECESSARY TO IMPLEMENT THE COMMISSION'S ACTION.