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September 21, 2007



Mr. Ken Coats
Permit Engineer
Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Walnut Creek Energy Park
Documentation Demonstrating Compliance with
Priority Reserve Rule 1309.1 (c)(5)(B)

Dear Mr. Coats:

As requested by Mr. Mohsen Nazemi's letter of September 14, 2007. Walnut Creek Energy Park is providing documentation demonstrating compliance with the requirement of Rule 1309.1 (c)(5)(B) dealing with renewable / alternative energy criteria.

Renewable / alternative energy is not a viable option for the power to be generated at the proposed site. For the purpose of this rule, renewable / alternative energy is hydropower, wind and wave power, solar and geothermal, and fossil fuel-based energy (provided emissions are no more than from a fuel cell) in lieu of natural gas fired EFG. Our demonstration is based on the California Energy Commission findings and testimony which provide CEC staff's conclusion that renewable technologies do not present feasible alternatives to the proposed project.

The first documentation is contained in CEC's Final Staff Assessment on Walnut Creek Energy Park, April 2007. Chapter 6 – Alternatives, discussed consideration of a reasonable range of alternatives. These included alternative generation technology (hydropower, wind, solar, and biomass). Wave power was not evaluated as the site is distant from the ocean. The CEC concluded that these technologies do not fulfill a basic objective of the proposed project to provide peak load serving capability in order to ensure a reliable supply of electricity in the region. The CEC consequently stated that renewable technologies do not present feasible alternatives to the proposed project. Chapter 6 – Alternatives of the FSA is attached.

The second documentation is contained in CEC's Staff Responses to the Committee Presiding Member's Proposed Decision for the Walnut Creek Energy Park of September 10, 2007. Additional CEC staff testimony addressed the alternative of geothermal technologies. The CEC staff stated that geothermal technologies do not present feasible alternative to the proposed project. CEC's Staff Response is attached.

18101 Von Karman Avenue
Suite 1700
Irvine, CA 92612 1046
Tel: 949 752 5588
Fax: 949 752 5624

Please contact me at (949 798-7895) on any questions.

Sincerely,

Victor Yamada
Director, Environmental, Health & Safety

Attachments: CEC's Final Staff Assessment of Walnut Creek Energy Park, Chapter 6 – Alternatives, April 2007

CEC Staff Responses to Committee PMPD, September 10, 2007

Copy: Mohsen Nazemi, SCAQMD
Mike Mills, SCAQMD
John Yee, SCAQMD
Jack Caswell, CEC
Larry Kostrzewa, EME
Tom McCabe, EME

State Of California

**Memorandum**

DOCKET
05-AFC-2
DATE SEP 10 2007
RECD. SEP 10 2007

The Resources Agency of California

Date: September 10, 2007
Telephone: (916) 653-0062

To: Jackalyne Pfannenstiel, Presiding Member
John L Geesman, Associate Member

From: California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Jack W. Caswell, Project Manager

Subject: **COMMISSION STAFF RESPONSES TO THE COMMITTEE PMPD HEARING ORDER AND COMMENTS ON THE PRESIDING MEMBER'S PROPOSED DECISION FOR THE WALNUT CREEK ENERGY PARK (05-AFC-2)**

In response to the Committee in the Notice of Hearing on Proposed Decision and Evidentiary Hearing for the Walnut Creek Energy Park, staff is providing a two-part PMPD comment document. Commission staff is providing additional testimony as directed in that notice and providing comments on the Presiding Members Proposed Decision. Testimony responses have been provided in the technical areas: Alternatives, Air Quality, and Visual Resources. Comments on the Presiding Members Proposed Decision are provided for the following technical sections: Air Quality, Cultural Resources, Geology and Paleontology, Noise and Vibration, and Socioeconomics.

Attachments
cc: Proof of Service List

PROOF OF SERVICE / REVISED 6/4/07 FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 9-10-07

## ADDITIONAL TESTIMONY

**Technical Area: Alternatives**
**Author:** Fritts Golden
**Date:** September 10, 2007

**Final Staff Assessment**
**Section Heading:** NON-SITE ALTERNATIVES - GEOTHERMAL

### BACKGROUND

Geothermal technologies use steam or high-temperature water obtained from naturally occurring geothermal reservoirs to drive steam turbine/generators. Geothermal is a commercially available technology; however, it is limited to areas where geologic conditions resulting in high subsurface water temperatures occur. There are no viable geothermal resources located in the vicinity of the proposed project in the City of Industry, Los Angeles County.

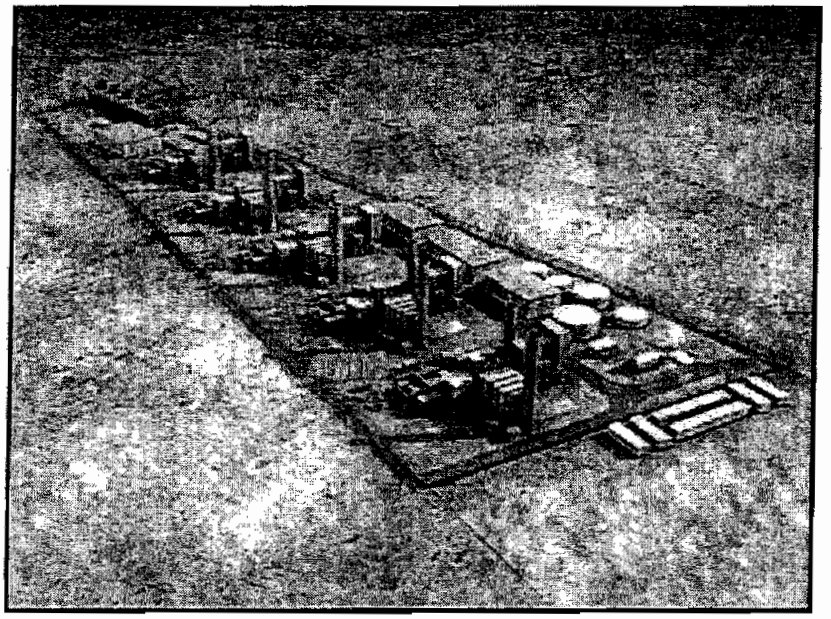
### CONCLUSION REGARDING GEOTHERMAL TECHNOLOGIES

Geothermal generation is limited to areas with the necessary geologic conditions to create steam or high-temperature water that can be tapped to generate electricity. The nearest geothermal areas with commercial quantities of steam are in Imperial County. By its nature, geothermal generation typically provides a base load source of power and is insufficient for use in situations requiring a rapid response to periods of peak demand. Therefore, geothermal technologies do not fulfill a basic objective of the proposed project to provide peak load serving capability in order to ensure a reliable supply of electricity in the region. A geothermal alternative also does not meet a number of the screening criteria for the proposed project. It does not minimize or eliminate the length of project linears nor provide peaking power generation near the centers of electrical demand. Consequently, staff does not believe that geothermal technologies present feasible alternatives to the proposed project. Staff does not recommend a geothermal alternative over the proposed preferred project technology.

Final Staff Assessment

# WALNUT CREEK ENERGY PARK

## Application For Certification (05-AFC-2)
## Los Angeles County



CALIFORNIA ENERGY COMMISSION

DOCKET
05-AFC-2
DATE
RECD. APR 11 2007

STAFF REPORT

APRIL 2007
(05-AFC-2)
CEC-700-2006-014-FSA

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DG

## NON-SITE ALTERNATIVES

This section describes alternatives that did not satisfy the screening criteria for inclusion in a more detailed analysis, and include the following:

- Conservation and demand-side management;
- Solar generation;
- Wind generation;
- Biomass generation; and
- Hydropower.

These alternatives, and the reasons for there not being considered in detail in this analysis, are addressed below.

### Conservation and Demand-Side Management

Conservation and demand-side management (DSM) include a variety of approaches, including energy efficiency and conservation, building and appliance standards, load management and fuel substitution. Public Resources Code Section 25305(c) states that conservation, load management, or other demand reducing measures reasonably expected to occur shall be explicitly examined in the Energy Commission's energy forecasts and shall not be considered as alternatives to a proposed facility during the siting process. The forecast that addresses this issue is the Energy Commission's Integrated Energy Policy Report. Thus, such alternatives are not included in this analysis.

### Solar Generation

There are two types of solar generation: solar thermal power and photovoltaic (PV) power generation.

Solar thermal power generation involves the conversion of solar radiation to thermal energy, which is then used to run a conventional steam power system. Solar thermal is a viable alternative to conventional generation systems and, depending on the technology, is suited to either distributed generation on the kW scale or to centralized power generation on scales up to several hundred MW. Solar thermal systems use three designs to generate electricity: parabolic trough concentrating collectors, power tower/heliostat configurations, and parabolic dish collectors. Parabolic trough and power tower systems typically run conventional power units, such as steam turbines, while parabolic dish systems power a small engine at the focal point of the collector.

PV power generation involves the direct conversion of light to electricity. PV is best suited to distributed generation uses rather than centralized power generation. PV is the most capital intensive of any alternative generation technology (Aspen 2001). PV power systems consist of solar electric modules (built from PV cells) assembled into arrays of varying sizes to produce electric power proportional to the area of the array and the intensity of the sunlight. PV arrays can be mounted on either the ground or on buildings. They can be installed on dual-purpose structures such as covered parking lots.

Solar resources would require large land areas in order to generate 500 MW of electricity. Specifically, assuming location in an area receiving maximum solar exposure such as the desert areas of California, central receiver solar thermal projects require at least five acres per MW, so 500 MW would require approximately 2,500 acres. One square kilometer of PV generation (400 acres) can produce 100 MW of power, so 500 MW would require approximately 2,000 acres. Either of these technologies would use significantly more land area than the area required for the proposed WCEP.

Although air emissions are significantly reduced or eliminated for solar facilities, these facilities can have significant visual effects. Solar generation results in the absence or reduction in air pollutant emissions, and visible plumes. Water consumption for solar generation is substantially less than for a geothermal or natural gas fired plant because there is no thermal cooling requirement. However, development over a large area could affect numerous biological resources and would require careful analysis of potential impacts from either solar or PV generation at such a scale.

Like all technologies generating power for sale into the state's power grid, solar thermal facilities and PV generation require near access to transmission lines. Large solar thermal plants must be located in desert areas with high direct normal insolation, and in these remote areas, transmission availability is limited. Additionally, solar energy technologies cannot provide full-time availability due to the natural intermittent availability of sunlight. Therefore, solar thermal power and photovoltaic power generation would not successfully meet the project objectives.

## Wind Generation

Wind carries kinetic energy that can be used to spin the blades of a wind turbine rotor and an electrical generator, which then feeds alternating current into the utility grid. Most state-of-the-art wind turbines operating today convert 35 to 40 percent of the wind's kinetic energy into electricity. Modern wind turbines represent viable alternatives to large bulk power fossil power plants as well as small-scale distributed systems. The range of capacity for an individual wind turbine today ranges from 400 watts up to 3.6 MW. California's 1,700 MW of wind power represents 1.5 percent of the state's electrical capacity (Aspen 2001).

Although air emissions are significantly reduced or eliminated for wind facilities, these facilities can have significant visual effects. Wind turbines have also caused bird mortality (especially for raptors) resulting from collision with rotating blades although this effect is more noted in the Altamont Pass area than in other parts of the state.

Wind resources require large land areas in order to generate 500 MW of electricity. Depending on the size of the wind turbines, wind generation "farms" generally can require between 5 and 17 acres to generate one megawatt (CEC 2004a). A 500 MW plant would therefore require between 2,500 and 8,500 acres. The lack of available transmission access is an important barrier to wind power development (Beck et al. 2001). California has a diversity of existing and potential wind resource regions that are near load centers such as San Francisco, Los Angeles, San Diego and Sacramento (CEC 2004b). However, wind energy technologies cannot provide full-time availability

due to the natural intermittent availability of wind resources. Therefore, wind generation technology would not meet the project's goal, which is to provide peak-serving capacity.

## Biomass Generation

Biomass generation uses a waste vegetation fuel source such as wood chips (the preferred source) or agricultural waste. The fuel is burned to generate steam. Biomass facilities generate substantially greater quantities of air pollutant emissions than natural gas burning facilities. In addition, biomass plants are typically sized to generate less than 20 MW, which is substantially less than the capacity of the 500 MW WCEP project. At the peak of the biomass industry, 66 biomass plants were in operation in California, but as of 2001, only about 30 direct-combustion biomass facilities were in operation (CEC 2004c). These power plants would have potentially significant environmental impacts of their own.

## Hydropower

While hydropower does not require burning fossil fuels and may be available in California, this power source can cause significant environmental impacts, due primarily to the inundation of many acres of potentially valuable habitat and the interference with fish movements during their life cycles. In addition, planning and permitting time is on the order of 10 years. As a result, it is extremely unlikely that new large hydropower facilities could be developed and permitted in California within the next several years (Aspen 2001).

## Conclusion Regarding Alternative Technologies

Alternative generation technologies typically has specific resource needs, environmental impacts, permitting difficulties, and intermittent availability. Therefore, these technologies do not fulfill a basic objective of the proposed project to provide peak load serving capability in order to ensure a reliable supply of electricity in the region. Consequently, staff does not believe that these renewable technologies present feasible alternatives to the proposed project.

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA**

| **APPLICATION FOR CERTIFICATION FOR THE WALNUT CREEK ENERGY PARK (WCEP)** | **DOCKET NO. 05-AFC-2**<br><br>**(Revised 6/6/07)** |
|---|---|

**INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:**

**CALIFORNIA ENERGY COMMISSION**
**Attn: Docket No. 05-AFC-2**
**1516 Ninth Street, MS-4**
**Sacramento, CA 95814-5512**
docket@energy.state.ca.us

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**INTERESTED AGENCIES**

No agencies to date.

**INTERVENORS**

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**DECLARATION OF SERVICE**

I, Maria Sergoyan, declare that on October 1, 2007, I deposited copies of the attached Walnut Creek Energy Park Documentation Demonstration Compliance with Priority Reserve Rule 1309.1 (c)(5)(B) in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

***OR***

Transmission via electronic mail was consistent with the requirements of the California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Maria Sergoyan

**Maria Sergoyan**