

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

DOCKET 06-AFC-5
DATE _____
RECD. <small>OCT 05 2007</small>

IN THE MATTER OF:

**APPLICATION FOR CERTIFICATION FOR
THE PANOCHÉ ENERGY CENTER**

DOCKET No. 06-AFC-5

APPLICANT'S PREHEARING BRIEF**

**** Following the October 2, 2007 Prehearing Conference, Staff and Applicant have had communications that, hopefully, will lead to a Revised SOIL & WATER-8 Condition of Certification. Although Applicant is optimistic that the water source issue need not be litigated, to preserve Applicant's rights before the Commission an abundance of caution requires that Applicant brief the state policy issue in support of Applicant's preferred water source.**

I. INTRODUCTION

Applicant Panoche Energy Center, LLC ("PEC" or "Applicant") proposes to utilize non-fresh, degraded water from a confined aquifer for its simple cycle generation facility. Staff proposes that PEC use lower-quality water from the semi-confined aquifer in lieu of the proposed confined aquifer water. Use of the semi-confined aquifer is not required by state law or policy, is not in violation of applicable laws, ordinances, regulations, and standards ("LORS"), and such use would pose an unnecessary and unjust burden on PEC. Applicant's review of the Final Staff Assessment ("FSA") demonstrates that Staff reached its position by a combination of misapplication and misinterpretation of state water policy and by the use of unsound engineering practices. Additionally, use of Staff's proposed water source would render the project infeasible.

II. ISSUES/TOPICS TO BE COVERED AT EVIDENTIARY HEARING

Applicant addresses the issues Staff raised in the FSA as outlined below.

A. Water Source

Applicant's proposed water source is the confined aquifer that underlies the project site. This aquifer is separated by a layer of Corcoran Clay from the Staff's preferred aquifer, the semi-confined aquifer. Staff and Applicant agree that use of the confined aquifer would not degrade

the aquifer or cause subsidence or overdraft situations. (See Testimony of Jason Moore (Exhibit 45) and FSA at pp. 4.9-20, 4.9-23 and 4.9-25). There is sufficient water in the confined aquifer to support PEC's proposed use, and there is very limited demand for this water. (Jason Moore, Q&A 5). In fact, PEC would rely on less than .05% of the annual usage of water from the confined aquifer. (*Id.*) Lastly, Staff determined, and Applicant agrees, that the proposed water supply from the confined aquifer will not have a significant adverse environmental impact or affect current or future users of the confined aquifer. Therefore, as proposed, PEC will not have a significant effect on water resources.

B. Use of Water

PEC proposes to construct a simple cycle facility using GE's LMS100 turbine generators. These units use water in an intercooler loop, which makes the units very efficient. The LMS100 has a heat rate of 7,815 Btu/kWh (LHV) (Exhibit 1 at p. 3-9). Other simple cycle facilities have heat rates that are approximately 10% higher (See, for example, Niland, 06-SPPE-1, Application for Certification, Section 2.4).

The Commission has approved higher quality water for simple cycle plants, undoubtedly recognizing the operating characteristics (frequent stop and start) and significantly lower water requirements, which characterize these units. Even though the LMS100 requires more water than some typical simple cycle facilities, it will use far less water than combined cycle facilities of similar size. Recent simple cycle applications have been approved utilizing much higher quality water, as shown below:

<u>Project</u>	<u>Decision Date</u>	<u>Water Source</u>	<u>Amount</u>
Niland (06-SPPE-1)	10/11/06	potable water	21 af/yr
El Centro (06-SPPE-2)	1/03/06	Colorado River water	1,029 af/yr
Pastoria (05-AFC-1)	4/8/06	State Water Project	3,805 af/yr

C. Water Quality

Staff proposes that the PEC use water from the semi-confined aquifer. Water from this aquifer is of poor quality, as is the water from the confined aquifer. However, the water of the semi-confined aquifer is thirty to forty times harder than confined aquifer water. Moreover, neither of these sources of water is serving domestic, agricultural, or industrial users, nor does either provide habitat for fish or wildlife. Therefore, neither is a fresh inland water of the State of California. Further, the quality of these sources of water is so poor that the lack of demand will likely continue into the future. (Testimony of Steve Ottemoeller, Q&A 16 (Exhibit 46)).

D. State Policy

The Commission's 2003 Integrated Energy Policy Report ("2003 IEPR") incorporates reference to SWRCB 75-58. Both SWRCB 75-58 and the 2003 IEPR are not LORS, but policy.

1. SWRCB 75-58

While both Applicant and Staff agree that the applicable water policy regarding the use of fresh water for power plants in California is State Water Resources Control Board Resolution 75-58

("SWRCB 75-58"), Applicant disagrees that this Policy is applicable to this project. However, since the Commission has used SWRCB 75-58 in the past as guidance in determining the appropriateness of a particular water supply, it is instructive to examine the elements of the policy. The key sections in SWRCB 75-58 are the first three principles (Exhibit 31, page 4):

a. **Principle 1.**

The relevant part of Principle 1 reads as follows:

"...the source of cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility..."

Following the above, SWRCB 75-58 lists five categories of water in descending order of preference. It is clear that this policy is guidance for the evaluation of water sources, and is not to be read strictly without regard to the particulars of any given situation. The agency is instructed to take into account the "environmental, technical and economic feasibility" of sources of water when applying the policy.

Water from both the semi-confined aquifer and the confined aquifer are in the third category: "brackish water from natural sources or irrigation return flow" (Testimony of Steve Ottemoeller, Q&A 12 (Exhibit 46)). The aquifer water (both confined and semi-confined) is certainly not (1) "wastewater being discharged to the ocean" or (2) "ocean" water. Nor are these waters (4) inland wastewaters of low TDS. They could also be considered (5) "other inland waters." The point is that both are either category (3) or category (5) – there is nothing to differentiate the water sources in this analysis (Testimony of Steve Ottemoeller, Q&A 12 (Exhibit 46)).

(i) **Environmental considerations**

There would certainly be additional environmental impacts that would result from use of the semi-confined aquifer. Additional land would be taken out of agricultural production, with resultant impacts on the kit fox foraging corridor, and the project would require additional water and would have to dispose of additional wastewater and solid waste to the tune of an additional 3500 tons per year (Testimony of Maggie Fitzgerald, Q&A 5 (Exhibit 41)).

(ii) **Technical considerations**

Staff asserts that the water in the semi-confined aquifer can be used for the PEC if the project utilizes a "multi-media and nano-filtration treatment system." (FSA at p. 4.9-37) Applicant utilized experts in the field to evaluate Staff's proposed alternative. It should be no surprise that Applicant's experts discovered numerous flaws in the application of Staff's proposed treatment system. Such flaws include the following:

- There are "serious operational risks" and problems associated with Staff's system, including the inability to control scaling (Testimony of Charles Fritz, Q&A 1 and 4 (Exhibit 42); Testimony of Joe Gruemmer, Q&A 4 (Exhibit 44)).

- Staff's proposed system is "under-designed" and recovery is "overstated". (Testimony of Charles Fritz, Q&A 3 (Exhibit 42)), in part because Siemens ignored the iron and manganese levels (Testimony of Charles Fritz, Q&A 4 (Exhibit 42))
- Substantial pre-treatment of the membrane system is required, such as a lime softening system (Testimony of Joe Gruemmer, Q&A 5 (Exhibit 44)). This system would require an additional two acres of land (Testimony of Steve Garrett, Q&A 8), which, in turn, would require an unacceptable amount of licensing/permitting time (Testimony of Maggie Fitzgerald, Q&A 5 (Exhibit 41))
- The Staff system is designed for continuous operation and Applicant's expert is not aware of the use of Staff's proposed system to provide cooling tower make-up water (Testimony of Charles Fritz, Q&A 5 (Exhibit 42))

(iii) Economic feasibility

Staff advocates using the water from the semi-confined aquifer and utilizing a "multimedia & nano-filtration treatment system" to treat the water (FSA at p. 4.9-37). Staff proposes that the PEC purchase a critical process (water treatment system) that is more complex, less reliable, and unproven. Staff's cost estimates are not based on sound engineering practice or reliable information.

PEC has invested a significant amount of time and money reviewing treatment alternatives for use of the semi-confined aquifer. PEC's experts have determined Staff's analysis of applicability and cost to be grossly inaccurate. Regardless of the costs for this system (and Applicant disputes Staff's estimates), the PEC would be abandoned if this system were mandated because the PEC could not guarantee to lenders that the Staff's proposed treatment system would work (Testimony of Gary Chandler, Q&A 3 & 4 (Exhibit 40)).

Use of the semi-confined aquifer is infeasible due to the high costs involved and use of this unproven technology makes the project infeasible for a number of reasons (Testimony of Steve Garrett, (Exhibit 43)). Use of the semi-confined aquifer would require additional water treatment (utilizing a proven treatment system), which would cost \$18 million in capital costs and \$2.14 million per year in operations and maintenance expenses (Testimony of Steve Garrett, Q&A 8 (Exhibit 43)). If Applicant were forced to utilize Staff's inappropriate water treatment system, the costs would be comparable (Testimony of Charles Fritz Q&A 7 (Exhibit 42)). Because the project has a power purchase agreement with PG&E that specifies the energy payments, an increase of this magnitude would make the project infeasible (Testimony of Gary Chandler, Q&A 6 (Exhibit 40))

There is another consequence of the Staff's recommendation that could doom the project. Under the executed power purchase agreement, Applicant does not have the time to permit the additional land required for the water treatment facilities that would be necessary with use of the semi-confined aquifer (Testimony of Maggie Fitzgerald, Q&A 6 (Exhibit 41)). This additional time would make the project infeasible as the PEC would not be able to start construction on time and contract pricing would disappear (Testimony of Gary Chandler, Q&A 5 (Exhibit 40))

Based on the foregoing, Staff's proposed alternative requiring the use of a "multi-media and nano-filtration treatment system" is economically unsound for PEC.

b. Principle 2.

The relevant part of this principle reads as follows:

"...use of fresh inland waters for powerplant cooling will be approved ...only when it is demonstrated that the use of other water supply sources or other methods of cooling would be environmentally undesirable or economically unsound."

Before evaluating and comparing other sources of water, the Commission needs to determine that the guiding principle is applicable. SWRCB 75-58 is not intended to apply to groundwater. It is clear that the Staff ignored a key part of the definition in its FSA. The definition of "fresh inland water" relied on by Staff in the text of the FSA differs from the actual definition of "fresh inland waters" contained in SWRCB 75-58. When the latter part of the definition is included, as it should have been in the FSA, it is clear that water from the confined aquifer is outside the scope of SWRCB 75-58 as it does not provide habitat. Applicant considers Staff's deliberate misquoting of the relevant definition of "fresh inland waters" to be very misleading. Please compare the following:

FSA at pp. 4.9-27, 4.9-3 and 4.9-31:

"those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply"

SWRCB 75-58 (Page 2) (emphasis added):

"those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply **and which provide habitat for fish and wildlife.**"

This Commission has, in the past, recognized that this section of SWRCB 75-58 does not apply to groundwater sources due of the definition of "fresh inland waters." (See (99-AFC-4), Elk Hills Power Project, Final Decision, December 6, 2000 at p. 235).

Even if one chose to ignore the definition of "fresh inland waters" set forth in SWRCB 75-58, by looking at the essence of Principle 2, Staff's recommendation to use the semi-confined aquifer cannot be supported. Staff erroneously raises the specter of future domestic and agricultural use to urge the Commission to find that PEC's use of the confined aquifer water is unreasonable (FSA at p. 4.9-28). Staff claims that the semi-confined aquifer water should be mandated because it represents a source of lower quality water "that is not used for agriculture or domestic purposes" (FSA at p. 4.9-28). Staff makes or infers this misstatement of fact in a number of locations (FSA at pp. 4.9-20, 4.9-27, and 4.9-32), In fact, there is no domestic use of the water in the confined aquifer and agriculture can only use this aquifer for short term, emergency uses

(Testimony of Steve Ottemoeller, Q&A 16 (Exhibit 46)). There is no competition for the water in the confined aquifer (Testimony of Jason Moore, Q&A 5 (Exhibit 45)).

c. Principle 3.

The relevant part of this principle reads as follows:

“in considering issuance of a permit or license to appropriate water for power plant cooling, the Board will consider the reasonableness of the proposed water use when compared with other present and future needs for the water source and when viewed in the context of alternative water sources that could be used for the purpose.”

If there is no domestic demand and little (if any) consistent agricultural demand for this water, it would be an unreasonable conclusion that confined aquifer water supporting a needed power plant would be an unreasonable use. This SWRCB 75-58 principle also directs the Commission to the consideration of the enhancement program offered by Applicant. If the Commission approves the use of water from the confined aquifer, a water saving program at Westlands Water District would be funded that would replace the water used from the confined aquifer with water from the State Water Project – waters of substantially better quality (Testimony of Gary Chandler Q&A 15 (Exhibit 40)).

The same set of facts support conformance with California Constitution, Article X, section 2, and the California Water Code, which require that waters of the State be put to beneficial and reasonable use.

2. 2003 Integrated Energy Policy Report

The Staff's reliance on the 2003 Integrated Energy Policy Report (“IEPR”) prepared by the Commission as a “LORS” is misplaced. State law passed in late 2002 amended the Warren-Alquist Act to consolidate the Commission's various reporting requirements into one biannual report, the IEPR, and required the same to be updated annually, if necessary. The IEPR is required “to present policy recommendations based on an in-depth and integrated analysis of the most current and pressing energy issues facing the state” (Pub. Res. Code § 25302(b)) and it is intended for use by other public agencies as a means for such agencies to become familiar with the Commission's work.

Hence, the IEPR is merely a consolidated report of all of the various former Commission reporting requirements mandated by the Warren-Alquist Act. The IEPR does not have the force or law, nor is it a regulation that has undergone the public review process outlined in the Government Code for regulations promulgated by local agencies. Thus, it is not a law, ordinance, regulation, standard, or plan required to be evaluated by Title 20 California Code of Regulation section 1744 during the application process by the Applicant or the Commission.

Even if the IEPR is required to be evaluated, here it is not applicable. Based on the discussion of SWRCB Policy 75-58, according to the IEPR, “the Energy Commission will approve the use of

fresh water for cooling purposes by power plants which it licenses only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” and “economically unsound.” (IEPR at p. 41). The IEPR defines “environmentally undesirable” as meaning “the same as having a significant adverse environmental impact.” The confined aquifer water proposed for use by PEC is not “fresh water” pursuant to SWRCB 75-58, and it is no more or no less “environmentally undesirable” than the semi-confined aquifer water proposed for use at PEC by Staff – in fact, Staff explicitly states in the FSA that use of water from the confined aquifer “would not cause a significant adverse environmental impact or affect current or future users of the confined groundwater aquifer.” (FSA at pp. 4.9-1; 4.9-46; *see also* FSA at p. 4.9-23 (“Based on local conditions and proposed project well placement data and pumping rates, staff concludes that the project will cause no significant degradation of the confined aquifer.”))

The 2003 IEPR gives the following guidance:

“...the Energy Commission will approve the use of fresh water for cooling purposes by power plants...only where alternate water supply sources are “environmentally undesirable” or “economically unsound”. (Exhibit 32 at p. 41).

a. Definition of “fresh water”.

The 2003 IEPR does not contain definitions, but Applicant agrees with Staff that the definitions of SWRCB 75-58 apply to the 2003 IEPR (FSA at p. 4.9-27). Applicant believes that “fresh inland waters” as defined in SWRCB 75-58 has the same meaning as the term “fresh water”, used in the 2003 IEPR. Staff undoubtedly agrees as they use the terms “fresh inland waters” and “fresh water” interchangeably in the FSA.

Even without the definition excluding groundwater from SWRCB 75-58, there is ample evidence that the water is not fresh. For example, the water in the confined aquifer has a tds range of 820 to 1,100 ppm. This Commission found that water that was 920 to 1,100 ppm tds was “marginally brackish” (Blythe II, Final Decision at p. 255).

b. Alternate supplies are environmentally undesirable and economically unsound.

This test is the same exact test that appears in SWRCB 75-58. (See Applicants discussion of this test at Section D.(2) above.) The IEPR offers further guidance into the definition of “economically unsound”. The IEPR, at page 41, defines economically unsound as “economically or otherwise infeasible”. Mr. Chandler testifies that use of the semi-confined aquifer is economically infeasible – the project will not be constructed if it has to deal with additional time and costs of utilizing the semi-confined aquifer water (Testimony of Gary Chandler, Q&A 3 (Exhibit 40)).

E. Drinking Water Standards

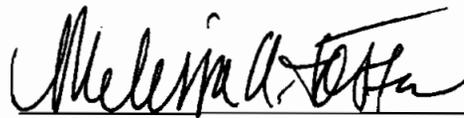
Staff objects to the use of water from the confined aquifer because the TDS levels of 820 – 1,100 mg/L are within the secondary maximum contaminant level of 1,000 mg/L and the short-term limit of 1,500 mg/L. It is inappropriate for Staff to take standards that must be met by municipal agencies supplying drinking water and apply such standards to PEC's proposed use of the confined aquifer.

III. CONCLUSION

PEC reminds the Committee that the PEC is a simple cycle, peaking facility, with low water supply and operational requirements (frequent rapid start and stop capabilities) that require proven, reliable, and tested equipment. Use of the water in Staff's recommended semi-confined aquifer would delay the project and cause cost additions to the project that would make the project infeasible. Staff's recommended water treatment technology is unproven and would impose operational risks on the project that are not financeable unacceptable. Adoption of the Staff recommended water treatment technology would result in increased time for permitting and greatly increased costs. These factors make the project infeasible, if required by the Commission. Use of the confined aquifer is a reasonable use of this little-used water source and Staff's recommended method of water treatment would result in project cancellation.

DATED: October 5, 2007

Respectfully submitted,



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

In the Matter of:) DOCKET No. 06-AFC-5
Modification of the Certification)
for the PANOCHE ENERGY CENTER) PROOF OF SERVICE
) (Revised 07/12/2007)
_____)

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

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DECLARATION OF SERVICE

I, Kim Helwig, declare that on October 5, 2007, I transmitted to the above referenced parties via electronic mail consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, **Applicant's Legal Brief**. 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.

