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January 17, 2012

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VIA EMAIL

Mr. Eric Solorio, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

DOCKET

11-AFC-01

DATE JAN 17 2012

RECD. JAN 17 2012

**Re: Pio Pico Energy Center Project (11-AFC-01)
Comments on the San Diego Air Pollution Control District's Preliminary
Determination of Compliance**

Dear Mr. Solorio:

On behalf of Pio Pico Energy Center, LLC, please find enclosed herein Applicant's comments on the San Diego Air Pollution Control District's Preliminary Determination of Compliance. These comments were submitted to the District on January 17, 2012 by Applicant's consultant, Sierra Research.

Respectfully submitted,

Melissa A. Foster

MAF:jmw

Enclosure

cc: See Proof of Service List

From: Steve Hill
Sent: Tuesday, January 17, 2012 10:38 AM
To: Moore, Steve
Cc: Dave Jenkins (Apex); 'Fitzgerald, Maggie'; McKinsey, John A.; Gary Rubenstein
Subject: PPEC comments on Pio Pico PDOC

Steve:

Our comments on the PDOC are attached.

Please do not hesitate to call me if you have any questions.

--Steve Hill



**sierra
research**

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January 17, 2012

Steven Moore
Senior Air Pollution Control Engineer
San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131-1649

Subject: Proposed Pio Pico Energy Center Project – Comments on PDOC

Dear Dr. Moore:

On behalf of Pio Pico Energy Center, LLC (Applicant), we offer the comments provided below on the Preliminary Determination of Completeness (PDOC) for the Pio Pico Energy Center, dated December 16, 2011. We greatly appreciate the effort that the District staff has expended in evaluating the application and preparing the PDOC.

Annual Sulfur Dioxide Emissions

The District based its calculations of annual sulfur dioxide emissions on the hourly sulfur limit of 0.75 gr/100 scf of fuel. As noted by the District on page 9 of the PDOC, the sulfur content of SDG&E fuel is much lower. The Applicant has used an annual average concentration of 0.25 gr/100 scf in its calculations of annual emissions and its modeling. Although the higher level used by the District does not trigger new requirements under District regulations, it is expected that the California Energy Commission (CEC) will require the Applicant to provide offsets for its sulfur emissions. Furthermore, EPA has indicated that it will impose an annual average limit of 0.25 gr/100 scf in the PSD permit as part of its BACT determination for particulate emissions from the turbines. Therefore, we request that the District use the Applicant's annual emission estimates for SO₂; the District's proposed permit conditions will make this limit enforceable,

The corresponding changes that should be made are outlined below.

- On page 9, the last row of Table 1d should be revised to read:

SO _x	1.37	4.12
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- On Page 10, the SOx emissions in Table 2b should be revised to read:

SOx	4.12		4.12
-----	------	--	------

- Condition 39.e. should be revised to read:

c. SOx 4.1 ~~12.4~~

Commissioning Sulfur Dioxide Emissions

The calculations of sulfur dioxide emissions during commissioning, as represented in the AFC, are incorrect. The maximum daily emissions for a single turbine should be 25.2 lb/day, not 14.4. The correct calculations are shown below.

Activity	Duration (Hours)	Heat Input (MMBTU/hr)	SO ₂ (lb/hr)	SO ₂ (lb)
First Fire	16	75	0.16	2.5
Sync/AVR Testing	12	500	1.05	12.6
SCR Burnout/AVR Testing	20	500	1.05	21
Water Injection Mapping	32	500	1.05	33.6
Ammonia Injection Tuning	32	500	1.05	33.6
			Total	103.3

As a result, the following changes should be made to the PDOC:

- On page 12, the SOx emissions in Table 3b should be revised to read:

SOx	25.2	75.6
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- On page 12, the SOx emissions in Table 3c should be revised to read:

SOx	0.05	0.15
-----	------	------

NOx Offsets

The discussion of offsets on page 24 of the PDOC states that NOx offsets may be provided, and indicates that offsets will be provided from one of three sources: actual emission reductions, ERCs, and MERCs. It is not clear from the discussion, however,

that VOC reductions may be used as NO_x offsets at a ratio of 2.0 to 1. Appendix D indicates that VOC offsets are part of the current offset plan.

We recommend that the discussion of offsets be revised as shown below.

An offset ratio of 1.2 to 1 is required [Rule 20.3(d)(8)(i)(B)], so a total of 84.49 tons per year of NO_x emission offsets will be required. Offsets may be actual emission reductions, Class A stationary source emission reduction credits (ERCs) issued under District rules 25.0-26.10, or mobile emission reduction credits (MERCs) issued under District Rule 27 (if approved by ARB and EPA). Under District regulations, VOC emission reductions may be used as NO_x emission offsets, at an additional discount ratio of 2.0 tons of VOC for each ton of NO_x. The Applicant has agreed to surrender ERCs sufficient to provide all the required offsets for the project prior to the initial operation of the first turbine. See Appendix D for the current offset plan.

Additionally, Appendix D indicates that the values of the VOC offsets are the same as the equivalent NO_x offsets, implying an offset ratio for VOC to NO_x of 1.0 to 1. The values in the NO_x Equivalent Amount column are correct. The ERC amount for the VOC offsets should be corrected as follows:

ERC Certificate Number ERC amount, TPY

00019-03	8.1 <u>16.2</u>
00039-03	5.6 <u>11.2</u>
090819-01	48.7 <u>37.4</u>

Acid Rain Permit Application

The PDOC indicates on page 33 that a requirement to submit the Acid Rain Program application is included in the PDOC permit conditions. The Acid Rain Permit application was submitted on September 14, 2011. Please revise the discussion on page 33 to reflect the previous submittal of the Acid Rain Program application, and delete Condition 7.

Turbine Exhaust Stack Temperature Monitoring

Condition 71 requires continuous monitoring of exhaust stack temperature. Because there is no process reason to monitor exhaust stack temperature, a temperature monitor and recorder would not normally be installed. There is no applicable regulatory requirement in District regulations that requires or would benefit from this information.

We understand that this requirement has been included in District permits for other turbine projects in order to provide data about stack conditions in the event that further modeling of stack emissions is needed. It is also our understanding that this condition originated with combined cycle plants, where the variable operation of duct burners and heat recovery steam generators can result in significant variations in stack temperatures, and that the District has included similar conditions in the permits for other simple cycle turbines.

Accurate estimation of stack temperatures is much simpler for simple cycle units than for combined cycle units. If additional modeling of actual stack conditions is needed in the future, turbine performance calculations can provide the temperature with accuracy sufficient for modeling.

Unnecessary permit requirements impose a burden on the operator, and they create artificial opportunities for noncompliance, with no environmental benefit. Because there is no regulatory requirement that is served by monitoring stack temperature, because the information collected has negligible value for the District, and because the condition imposes a burden and compliance risk on the Applicant without corresponding environmental benefit, we request that the requirement to monitor temperature be deleted.

Condition 71 should therefore be amended as follows:

71. Each combustion turbine shall be equipped with continuous monitors to measure, calculate, and record unit operating days and hours and the following operational characteristics:

- a. Date and time;
- b. Natural gas flow rate to the combustion turbine during each unit operating minute, in standard cubic feet per hour;
- c. Total heat input to the combustion turbine based the fuels higher heating value during each unit operating minute, in million British thermal units per hour (MMBtu/hr);
- d. Higher heating value of the fuel on an hourly basis, in million British thermal units per standard cubic foot (MMBtu/scf);
- ~~e. Stack exhaust gas temperature during each unit operating minute, in degrees Fahrenheit;~~
- f. Combustion turbine electrical energy output during each unit operating minute in gross megawatts hours (MWh);

The values of these operational characteristics shall be recorded each unit operating minute. The monitors shall be installed, calibrated, and maintained in accordance with a turbine operation monitoring protocol, which may be part of the CEMS protocol, approved by the District, which shall include any relevant calculation methodologies. The monitors shall be in full operation at all times when the combustion turbine is in operation. Calibration records for the continuous monitors shall be maintained on site and made available to the District upon request. [Rules 69.3, 69.3.1, and 20.3(d)(1) and 40 CFR Part 60 Subpart KKKK, and 40 CFR Part 75]

Condition 75.I should be deleted, for the same reasons.

Cooling System Water Quality:

The heading for the discussion of particulate emissions from the cooling system (page 34) should be revised as shown below. The cooling system will not be using desalinated water.

PARTICULATE EMISSION RELATING TO THE ~~USE OF DESALINATED WATER FOR~~
EVAPORATIVE COOLING

Sulfur Dioxide Impacts

Appendix A, Table 4-2 contains values taken from Applicant's AFC Table 5.2-26, as revised on 10/19/11. These values were calculated using a fuel sulfur content of 0.25 gr/100 scf. Because these are short-term averages, the maximum fuel sulfur content of 0.75 gr/100 scf should have been used, and the peak SO₂ impacts should be identical to the peak SO₂ impacts from normal operations.

Therefore the following changes should be made to Appendix A, Table 4-2:

SO ₂	1-hr	<u>38</u>	29	<u>3237</u>	196	655
	3-hr	<u>13</u>	18	<u>1921</u>	1300	--
	24-hr	<u>01</u>	10	<u>1011</u>	--	105
	Annual	--	5	--	NA	--

Appendix A, Table 5-1 contains values taken from Applicant's AFC Table 5.2-27, as revised on 10/19/11. The table shows that the maximum modeled 1-hour SO₂ impact at any receptor was 8.0 µg/cu m, which exceeds the SIL of 7.8 µg/cu m (3 ppb). The following discussion should be added at the bottom of page 10 of Appendix A.

Because the maximum modeled 1-hour SO₂ impact exceeds the SIL, a further step is necessary to demonstrate that the project's impact is insignificant for PSD purposes. The same EPA guidance that provides the 3 ppb SIL value¹ also indicates that the SIL is to be compared to either the highest of the 5-year averages of the maximum modeled 1-hour SO₂ concentrations at each receptor, or the highest of the multi-year averages when fewer years are modeled.

The highest modeled 1-hour SO₂ values for each of the three years 2008-2010 are shown in the table below. The average of these three values is 7.3 µg/cu m, which is below the SIL of 7.8 µg/cu m (3 ppb).

Year	Maximum 1-hour SO ₂ Impact, µg/cu m
2008	7.2
2009	8.0
2010	6.7
3-year Average	7.3

Miscellaneous Revisions

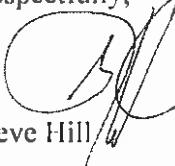
On page 3, last paragraph: the raw water storage tank is 500,000 gallons, not 750,000.

¹ Anna Marie Wood, *General Guidance for Implementing the 1-hour SO₂ National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour SO₂ Significance Level*. (August 23, 2010)

On pages 9 and 22: cooling is provided by a hybrid cooling system. The wet component is a wet surface to air cooler (WSAC), not a cooling tower. We suggest replacing the phrase "cooling tower" with either "cooling system" or "WSAC" each time it occurs. In Condition 40, replace "cooling tower" with "WSAC".

If you have any questions or need additional information, please contact me, or David Jenkins at (317) 431-1004.

Respectfully,


Steve Hill

cc: David Jenkins, PPEC
Maggie Fitzgerald, URS
John McKinsey, Stoel Rives, LLP

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
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APPLICATION FOR CERTIFICATION
FOR THE *PIO PICO ENERGY CENTER, LLC*

Docket No. 11-AFC-1
PROOF OF SERVICE
(Revised 12/16/11)

Pio Pico Energy Center, LLC

**Letter to Eric Solorio dated January 17, 2012 re Comments on San Diego Air
Pollution Control District's Preliminary Determination of Compliance**

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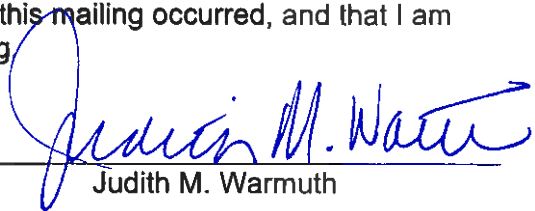
DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on January 17, 2012, I deposited copies of the aforementioned document and, if applicable, a disc containing the aforementioned document in the United States mail at 500 Capitol Mall, Suite 1600, Sacramento, California 95814, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

AND/OR

Transmission via electronic mail, personal delivery and first class U.S. mail were consistent with the requirements of 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 under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding



Judith M. Warmuth