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November 7, 2011

MELISSA A. FOSTER
fired! (916) 319-4673
mafostergstoel.com

VIA EMAIL

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

**Re: Pio Pico Energy Center Project (11-AFC-01)
Response to Informal Data Requests Relating to Air Quality**

Dear Mr. Solorio:

On October 24, 2011, Applicant Pio Pico Energy Center, LLC received through its consultant, Sierra Research, informal data requests from California Energy Commission Staff relating to its application for certification for the Pio Pico Energy Center. Specifically, the requests were sent from Tao Jiang to Steve Hill. Enclosed herein are Applicant's responses to these informal data requests relating to air quality, which were submitted to the San Diego Air Pollution Control District on November 7, 2011.

Respectfully submitted,



Melissa A. Foster

MAF:jmw

Enclosure

cc: See Proof of Service

November 7, 2011



1801 J Street
Sacramento, CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373
Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

Eric Solorio
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Pio Pico Energy Center Power Project (11-AFC-01)
Nitrogen Deposition Modeling Methodology

Dear Mr. Solorio:

In response to questions contained in emails sent by Tao Jiang to Steve Hill on October 21 and October 24, 2011, Sierra Research is providing the following information on behalf of Pio Pico Energy Center, LLC (PPEC).

October 24, 2011 Email

Comment 1: *On page 1310-45A (TN 61667, Supplemental Responses to Staffs. Data Requests, Set 1 (#29 and 30)), the applicant mentioned the facility contributes less than 6% to the regional nitrogen deposition rate. However, according to Figure DR-1310 27.1 (TN 61384, Applicants Responses to Commission Staff Data Request Set 1 (41-59)), the maximum nitrogen deposition from the project only is about 1.5 kg/ha/yr. The maximum regional background plus cumulative impacts is 19 kg/ha/yr in Figure DR_BIO 29.1 (TN 61667). lithe contribution percentage is based on these two values, the facility should contribute about 7.9% to the regional nitrogen deposition rate.*

Response: Please see the answer to Question 6 in the August 11, 2011 letter to Eric Solorio, which is also excerpted and reproduced below. Six percent (6%) is the average of the Project's impact as a percentage on USFWS critical habitat for the Quino Checkerspot Butterfly.

'6. How was the 6% contribution calculated?

"The 6% represents the approximate average of the Project's contribution to the cumulative impact as a percentage on USFWS critical habitat for the Quino Checkerspot Butterfly. This value was taken from Figure 29.3 which has not been previously provided and represents the values (as a percentages) of the Project's contribution in relation to the location of USFWS critical habitat for Quino Checkerspot Butterfly.

"Figure 29.3 shows the Project's contribution (expressed as a percentage) to the total cumulative impact. The values shown in Figure 29.3 were calculated

using a spreadsheet containing output from the nitrogen deposition model (AERMOD, using appropriate options). The project's impact at each receptor in the modeling domain was divided by the total cumulative impact at that receptor, and the result converted to a percentage. The contribution in the area represented by Figure 29,3 ranged from close to zero (throughout most of the region) to a maximum of 10,9% (at the project's point of maximum impact)."

Comment 2: *In applicant's response (TN 62620, 10-20-11, Applicant's Air Quality - Nitrogen Deposition Modeling Methodology), the applicant mentioned "Expressing NOx emissions as NO2 makes the value independent of the NO2/NOx ratio in the stack". However, assuming 100% of NOx is NO2 would underestimate the Nitrogen emission rate due to the lower N mass fraction in NO2 than in NO. The applicant should use a NO2/NOx ratio that matches the air quality modeling and estimate the Nitrogen emission rate based on both NO2 and NO.*

Response: The nitrogen emission rates used in the nitrogen deposition modeling are correct. The modeling does not assume that 100% of the NOx is emitted as NO2.

By convention, NOx mass emission rates are expressed as NO2: that is, the total NOx mass rate is calculated as if all the NOx molecules (NO and NO2) were NO2. This is not the same as assuming that all molecules are NO2. The lb-mole emission rate of the nitrogen portion of NOx can be calculated by multiplying the reported NOx emission rate by the ratio of the molar weights of N to NO2: 14146.

However, the NO2/NOx ratio is an important input to AERMOD for purposes of calculating ambient NO2 concentrations. In particular, it is used in the calculation of the conversion of NO to NO2 during the time between being emitted from the stack and reaching ground level receptors. Please see Appendix G-4 and the AERMOD input files for more information.

October 21, 2011 Email

Question: *Will you update the Nitrogen deposition modeling to be consistent with the recent AO modeling revision?*

Response: We do not plan to revise the nitrogen deposition modeling, for several reasons. First, the nitrogen deposition modeling did not use the same meteorological data set as was used for the modeling for the original air quality impact analysis. As described in our letter dated October 19, 2011, the nitrogen deposition analysis utilized meteorological data from CY2004 through CY2008, while the AQIA used meteorological data from CY2006 through CY2008. For each receptor, the reported annual nitrogen deposition value is the maximum total deposition for that receptor for any of the five years (2004-2008) that were modeled. This substantially overstates the potential cumulative impact.

Second, it is important to note that the regional background deposition rate, which dominates the assessment of potential cumulative impacts, is based on a study that was performed ten years ago, using much older emission inventory data (with significantly higher regional NOx emission rates) and meteorological data, as well as a coarse modeling analysis of questionable validity when applied to the specific circumstances of this project. Given the uncertainty associated with this outdated background value, it is not reasonable to expend additional resources to refine the (much smaller) modeled impacts of the project.

For these reasons, we believe that a revised nitrogen deposition analysis would require the expenditure of a significant effort with no meaningful change to the analysis and conclusions already provided.

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

Sincerely,

Steve Hill

cc: Gary Chandler, PPEC
David Jenkins, PPEC
Maggie Fitzgerald, URS
John McKinsey, Stoel Rives, LLC
Steve Moore, SDAPCD

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 — VWWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *PIO PICO ENERGY CENTER, LLC*

Docket No. 11-AFC-1
PROOF OF SERVICE
(Revised 5/15/11)

Pio Pico Energy Center, LLC

**Letter to Eric Solorio, Siting Project Manager, California Energy Commission,
dated November 7, 2011 re Applicant's Response to
Informal Data Requests Related to Air Quality**

APPLICANT

Gary Chandler, President
Pio Pico Energy Center
P.O. Box 95592
South Jordan, UT 84095
grchandler0.apexpower@group.com

David Jenkins, Project Manager
Pio Pico Energy Center, LLC
1293 E. Jessup Way
Mooresville, IN 46158
djenkins@th.apexpowergroup.com

APPLICANT'S CONSULTANTS

Maggie Fitzgerald, Project Manager
URS Corporation
2020 East 1st Street, Suite 400
Santa Ana, CA 92705
maoqie.fitzgerald@urscorp.com

COUNSEL FOR APPLICANT

John A. McKinsey
Melissa A. Foster
Stoel Rives, LLP
500 Capitol Mall, Suite 1600
Sacramento, CA 95814
jamckinsey@stoel.com
mafoster@stoel.com

INTERESTED AGENCIES

California ISO
E-mail Preferred
e-recipient@caiso.com

ENERGY COMMISSION

CARLA PETERMAN
Commissioner and Presiding Member
cpeterma@energy.state.ca.us

Jim Bartridge
Adviser to Commissioner Peterman
jbartrid@energy.state.ca.us

KAREN DOUGLAS
Commissioner and Associate
Member
kldouglas@energy.state.ca.us

Galen Lemei
Adviser to Commissioner Douglas
plemei@energy.state.ca.us

Raoul Renaud
Hearing Officer
rrenaud@energy.state.ca.us

Eric Solorio
Siting Project Manager
esolorio@energy.state.ca.us

Kevin W. Bell
Staff Counsel
kwbell@energy.state.ca.us

Jennifer Jennings
Public Adviser
E-mail preferred
publicadviser@energy.state.ca.us

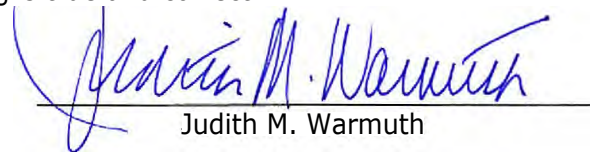
DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on November 7, 2011, 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 that the foregoing is true and correct.



Judith M. Warmuth