



500 Capitol Mall Suite 1600  
Sacramento California 95814  
main 916 447 0700  
fax 916 447 4781  
www.stoel.com

MELISSA A. FOSTER  
Direct (916) 319-4673  
mafoster@stoel.com

June 22, 2012

VIA EMAIL

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

California Energy Commission

**DOCKETED**

**11-AFC-1**

TN # 65907

JUN 22 2012

**Re: Pio Pico Energy Center Project (11-AFC-01)  
Applicant's Response to EPA's Questions re PM BACT for Cooling System re PSD  
Permit Applicant dated November 8, 2011**

Dear Mr. Solorio:

On behalf of Applicant Pio Pico Energy Center, LLC, please find enclosed herein for docketing Applicant's Response to EPA's Questions re PM BACT for Cooling System re PSD Permit Applicant dated November 8, 2011 related to Applicant's PSD Permit Application for the Pio Pico Energy Center Project.

Should you have any questions regarding this submittal, please contact me directly.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Melissa A. Foster".

Melissa A. Foster

MAF:jmw  
Enclosure

cc: See Proof of Service List

November 8, 2011



**sierra  
research**

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

Mr. Gerardo Rios  
Chief, Permits Office  
USEPA Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

Subject: Pio Pico Energy Center PSD Permit Application  
BACT for Cooling System

Dear Mr. Rios:

As requested by EPA in emails from Roger Kohn to Steve Hill dated October 12, 2011, and November 3, 2011, and a telephone conversation between Roger Kohn and Steve Hill on November 3, 2011, we are submitting clarifying information on behalf of Pio Pico Energy Center, LLC.

October 12, 2011 Email

*In the application, PPEC proposes the use of a high efficiency drift eliminator for particulate BACT for the cooling towers, and a drift rate of 0.001% or less (see pages 4.52 and App-1.94). Please note that the drift rate in our proposed Palmdale permit is one half this rate. We need PPEC to evaluate this higher level of control for its project as part of the top down BACT analysis. Also, in the top down analysis, PPEC should provide the equivalent hourly emission rate and concentration of measured TDS, as these values are needed to propose enforceable particulate permit conditions limiting emissions. Please submit a revised top down particulate BACT analysis for the cooling tower with this additional information.*

**Response:**

The cooling tower at Palmdale is a large (130,000 gpm circulation rate) evaporative cooler. It is sized to condense the steam from the steam turbine in this combined cycle power plant.

The cooling system used by PPEC is not a cooling tower, it is a partial dry cooling system comprised of two components: a dry cooling component that provides necessary cooling most of the time and has zero emissions; and a small (7,000 gpm circulation rate) wet cooling component that supplements the dry cooling component when ambient temperatures are too high for the dry cooling system to function effectively. The PPEC cooling system is sized to provide intercooling for the simple-cycle turbines, and is much smaller than a system designed for condensing steam from a combined cycle unit.

As demonstrated in the BACT analysis submitted with the reformatted PSD permit application, the PPEC cooling system is a different basic technology with inherently

lower emissions than the cooling technology approved in the Palmdale permit. Because it is much smaller, and because it is not a recirculating water cooling tower, the PPEC cooling system is a different class/category of source than the Palmdale cooling tower. The BACT analysis also documents that the drift rates achievable in large evaporative coolers have not been demonstrated in, and are not applicable to, much smaller units such as the PPEC system.

We have contacted the vendor to determine whether a guarantee of 0.0005% drift is available, and if so, at what price. Based on information provided by the cooling system vendor, the estimated incremental cost of control would be:

Capital cost (\$)	\$2.1 MM
Annualized capital cost (\$/yr, 0.11 recovery factor)	\$231,000
Operating cost (\$/yr)	--
Total incremental cost (\$/yr)	\$231,000
Emission reductions (TPY PM/PM <sub>10</sub> /PM <sub>2.5</sub> ) = 1.4 TPY – 0.7 TPY	= 0.7 TPY
Cost effectiveness = (\$231,000/yr)/(0.7 TPY)	= \$330,000/ton

The TDS levels for the wet cooling component are provided in the PSD application at page PSD-4.29. The hourly emission rate from the cooling tower is provided in the PSD application at page PSD –App-1.53.

#### October 12, 2011 Email

*Can you tell me at what temperature the PPEC SCR units will start to be effective, and at what temperature the units will be fully effective?*

#### **Response:**

The SCR inlet flue gas temperature must be equal to or above the limit temperature of 570 degrees F before ammonia may be injected. This is also the temperature at which the SCR unit will be capable of achieving the emission limits. There will be a time delay of a few minutes while the SCR catalyst is saturated with ammonia, but there no difference between the two temperatures. Maximum allowable gas temperature into the SCR catalyst is 870 degrees F.

The turbines will be in compliance with NOx limits for normal operations immediately after the end of the startup period (i.e., the NOx concentration and mass emission rate for the first hourly average after the end of the startup period will meet the applicable limits).

#### October 12, 2011 telephone conversation

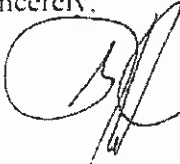
*Please confirm that PPEC will use only PUC-quality natural gas in the turbines.*

#### **Response:**

PPEC will use only PUC-quality natural gas in the turbines.

If you have any questions regarding this application, please contact the applicant's representative David Jenkins at (317) 431-1004, or Gary Rubenstein or me at (916) 444-6666

Sincerely,

A handwritten signature in black ink, appearing to be 'Steve Hill', written over a circular stamp or mark.

Steve Hill

cc: John McKinsey, Steel Rives LLP  
David Jenkins, Apex Power Group  
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 – [WWW.ENERGY.CA.GOV](http://WWW.ENERGY.CA.GOV)

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

Docket No. 11-AFC-1  
PROOF OF SERVICE  
(Revised 3/20/12)

**Pio Pico Energy Center, LLC**  
**Applicant's Response dated June 22, 2012 to EPA's Questions re PM BACT for**  
**Cooling System re PSD Permit Applicant dated November 8, 2011**

APPLICANT

Gary Chandler, President  
Pio Pico Energy Center  
P.O. Box 95592  
South Jordan, UT 84095  
[grchandler@apexpowergroup.com](mailto:grchandler@apexpowergroup.com)

David Jenkins, Project Manager  
Pio Pico Energy Center, LLC  
1293 E. Jessup Way  
Mooresville, IN 46158  
[djenkins@apexpowergroup.com](mailto:djenkins@apexpowergroup.com)

APPLICANT'S CONSULTANTS

Maggie Fitzgerald  
Sierra Research  
1801 J Street  
Sacramento, CA 95811  
[MFitzgerald@sierraresearch.com](mailto:MFitzgerald@sierraresearch.com)

COUNSEL FOR APPLICANT

John A. McKinsey  
Melissa A. Foster  
Stoel Rives, LLP  
500 Capitol Mall, Suite 1600  
Sacramento, CA 95814  
[jamckinsey@stoel.com](mailto:jamckinsey@stoel.com)  
[mafoster@stoel.com](mailto:mafoster@stoel.com)

INTERESTED AGENCIES

California ISO  
*e-mail service preferred*  
[e-recipient@caiso.com](mailto:e-recipient@caiso.com)

PETITIONERS

April Rose Sommer  
Attorney for Rob Simpson  
P.O. Box 6937  
Moraga, CA 94570  
*e-mail service preferred*  
[apriilsommerlaw@yahoo.com](mailto:apriilsommerlaw@yahoo.com)

ENERGY COMMISSION-  
DECISIONMAKERS

CARLA PETERMAN  
Commissioner and Presiding Member  
[cpeterma@energy.state.ca.us](mailto:cpeterma@energy.state.ca.us)

KAREN DOUGLAS  
Commissioner and Associate Member  
*e-mail service preferred*  
[kldougla@energy.state.ca.us](mailto:kldougla@energy.state.ca.us)

Raoul Renaud  
Hearing Adviser  
[rrenaud@energy.state.ca.us](mailto:rrenaud@energy.state.ca.us)

Jim Bartridge  
Presiding Member's Adviser  
[jbartrid@energy.state.ca.us](mailto:jbartrid@energy.state.ca.us)

Galen Lemei  
Associate Member's Adviser  
*e-mail service preferred*  
[glemei@energy.state.ca.us](mailto:glemei@energy.state.ca.us)

ENERGY COMMISSION STAFF

Eric Solorio  
Siting Project Manager  
[esolorio@energy.state.ca.us](mailto:esolorio@energy.state.ca.us)

Kevin W. Bell  
Staff Counsel  
[kwbell@energy.state.ca.us](mailto:kwbell@energy.state.ca.us)

Eileen Allen  
Commissioners' Technical Advisor for  
Facility Siting  
*e-mail service preferred*  
[eallen@energy.state.ca.us](mailto:eallen@energy.state.ca.us)

ENERGY COMMISSION – PUBLIC  
ADVISER

Jennifer Jennings  
Energy Commission Public Adviser  
*e-mail service preferred*  
[publicadviser@energy.state.ca.us](mailto:publicadviser@energy.state.ca.us)

## DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on June 22, 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 herein and consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210.

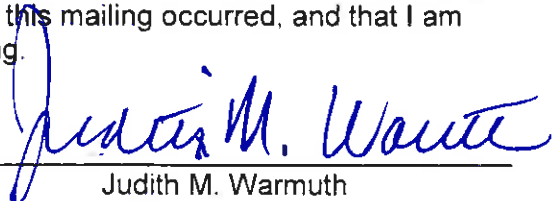
OR

I transmitted the document(s) herein via electronic mail only pursuant to California Energy Commission Standing Order re Proceedings and Confidentiality Applications dated November 30, 2011. All electronic copies were sent to all those identified on the Proof of Service list herein and consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210.

OR

On the date written above, I placed a copy of the attached document(s) in a sealed envelope, with delivery fees paid or provided for, and arranged for it/them to be delivered by messenger that same day to the office of the addressee, as identified on the Proof of Service list herein and consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210.

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