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May 17, 2012

VIA EMAIL

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

DOCKET	
11-AFC-1	
DATE	<u>MAY 17 2012</u>
RECD.	<u>MAY 17 2012</u>

Re: Pio Pico Energy Center Project (11-AFC-01)
Applicant's Additional Information to EPA re PSD Permit Application

Dear Mr. Solorio:

On behalf of Applicant Pio Pico Energy Center, LLC, please find enclosed herein for docketing additional information submitted to the U.S. Environmental Protection Agency Region 9 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 that reads "Melissa A. Foster".

Melissa A. Foster

MAF:jmw

Enclosure

cc: See Proof of Service List

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

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

**Letter to E. Solorio dated May 17, 2012 re Submittal of Additional Information to
United States Environmental Protection Agency Region 9 Regarding
PM BACT for PSD Permit Application**

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DECLARATION OF SERVICE

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

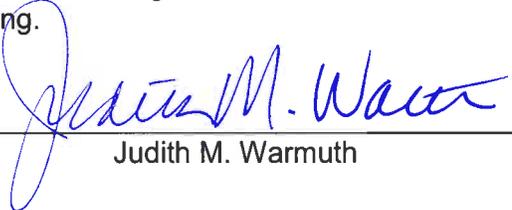
OR

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

May 16, 2012

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



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

Dear Mr. Rios:

As requested by EPA in a telephone conversation between Roger Kohn and Steve Hill on May 7, 2012, we are submitting clarifying information on behalf of Pio Pico Energy Center, LLC.

Comment

Please provide additional support for eliminating Dry Cooling and Spray-Enhanced Dry Cooling in the top-down BACT analysis for the cooling system.

Response:

The cooling system proposed for Pio Pico Energy Center (PPEC) is a partial dry cooling system (PDCS) comprised of two components: a dry cooling component that provides necessary cooling to the extent allowed by ambient conditions and has zero emissions; and a small wet surface to air cooling system that supplements the dry cooling component when ambient temperatures are too high for dry cooling to sufficiently cool the closed loop cooling water. The PPEC cooling system is sized to provide intercooling for the simple-cycle turbines, and is much smaller than a cooling system designed for condensing steam from a combined cycle unit.

A top-down BACT analysis was prepared to identify BACT for the cooling system, and was submitted to EPA on April 1, 2011. A top-down BACT analysis involves the following steps:

- STEP 1: Identify all possible control technologies
- STEP 2: Eliminate technologically infeasible options
- STEP 3: Rank remaining control technologies by control effectiveness
- STEP 4: Evaluate the most effective control technology considering environmental, energy, and cost impacts

The top-down BACT analysis for the cooling system focused on consideration of inherently lower-emitting technologies for the cooling system itself; a supplemental analysis evaluated the appropriate control level for drift controls. The technologies identified, ranked in descending order of control effectiveness, were:

- Dry Cooling (closed loop cooling water cooled in heat exchanger using ambient air flowing over heat exchanger tubes)
- Once-through Cooling (Cooling water drawn from a water source. Heated water is then discharged, usually back to the original water source)
- Spray-enhanced Dry Cooling (dry cooling with heat transfer enhanced by spraying water on the outside of the heat exchanger tubes)
- Plume-abated Wet Cooling (evaporative cooling tower with a dry section that reduces the visible plume by heating the wet air from the wet section)
- Recirculating Evaporative Cooling (cooling water cooled by evaporation in direct contact with air).

Dry cooling and once-through cooling have no particulate emissions. Plume-abated wet cooling and recirculated evaporative cooling have the highest particulate emission rates due to drift from the wet cooling sections. A spray-enhanced dry cooling system works essentially the same as a dry cooling system, but enhances heat transfer in the heat exchanger tubes by spraying water on the outside of the tubes, resulting in additional cooling by evaporation. Because there is some drift from a spray-enhanced dry cooling system, particulate emissions from such a system are necessarily higher than emissions from a dry cooling system. A wet surface air cooler (WSAC) is one type of spray-enhanced dry cooling system.

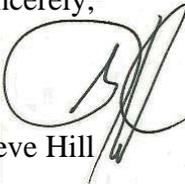
Once-through cooling was eliminated under Step 1 of the BACT analysis because there is no large surface water body in immediate proximity to the power plant.

Dry cooling alone was eliminated under Step 1 of the BACT analysis because there are times when the ambient temperature in San Diego is too high for a 100% air-cooled system to provide sufficient cooling for the intercooler system to sustain turbine performance.

The PDCS proposed by the applicant is a hybrid system comprised of a dry cooling unit that is augmented by a WSAC system when additional cooling is required. Because most of the cooling is accomplished in the dry cooling system, the emissions from the PDCS are lower than the emissions from an equivalently sized spray-enhanced hybrid cooling system. The PDCS is the highest-ranked control option that is technically feasible for this application, and is therefore determined to be BACT in Step 4 of the top-down BACT analysis. Because the highest-ranked control option was selected, no further analysis of other options was performed or is needed.

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,



Steve Hill

cc: John McKinsey, Stoel Rives LLP
David Jenkins, Apex Power Group
Steve Moore, SDAPCD