

## CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET



May 15, 2012

Mr. Doug Davis  
Senior Compliance Manager  
BrightSource Energy, Inc.  
100302 Yates Well Road  
Nipton , CA 92366

<b>DOCKET</b>	
<b>07-AFC-5C</b>	
DATE	MAY 15 2012
RECD.	MAY 15 2012

**SUBJECT: IVANPAH SOLAR ELECTRIC GENERATION SYSTEM 07-AFC-5C  
DATA REQUESTS #1 THROUGH 9**

Dear Mr. Davis:

On March 8, 2012, Solar Partners I, LLC; Solar Partners II, LLC; and Solar Partners VIII, LLC (the project owners) filed a petition with the California Energy Commission requesting to amend the Conditions of Certification for the Ivanpah Solar Electric Generating System project. The modifications proposed in the petition would include several equipment changes. The Petition is currently under review by the California Energy Commission (Energy Commission) staff.

Staff is preparing an assessment of the Petition to determine compliance with the specific provisions of Title 20, California Code of Regulations, Section 1769 (a) (2) and (3). To complete this assessment, staff is requesting additional data as detailed in the attached Data Requests. Written responses to Energy Commission staff are requested on or before May 31, 2012.

If you are unable to provide the information, object to providing the requested information, or require more time, please notify me within 14 days of receipt of this request. Any objections to the Data Requests must contain the reasons for not providing the information and the grounds for any objections (see Title 20, California Code of Regulations, section 1716).

If you have any questions, please call me at (916) 653-4677, or e-mail me at [jdouglas@energy.state.ca.us](mailto:jdouglas@energy.state.ca.us).

Sincerely,

JOSEPH DOUGLAS  
Compliance Project Manager

cc: Dick Ratliff  
Docket Unit

**IVANPAH SOLAR  
(07-AFC-5C)  
DATA REQUESTS**

**Technical Area: Air Quality**

**Author: Wenjun Qian**

**BACKGROUND: AIR DISPERSION MODELING FILES**

The Project Owner (PO) performed revised air dispersion modeling for the proposed revisions of Ivanpah SEGS project's Petition to Amend (PTA). Staff did not receive corresponding modeling files for the revised analysis. Staff needs to check the revised modeling files to make sure the proposed revisions were modeled appropriately.

**DATA REQUEST**

- 1. Please provide the revised air dispersion modeling files (including the NO<sub>2</sub> modeling mentioned below) for staff to review.**

**BACKGROUND: FEDERAL 1-HOUR NO<sub>2</sub> MODELING**

On May 11, 2012, the PO submitted a letter to Mojave Desert Air Quality Management District (MDAQMD) addressing compliance with the one-hour NO<sub>2</sub> National Ambient Air Quality Standard (NAAQS), but did not include emissions from testing of the emergency or fire pump engines in the one-hour NO<sub>2</sub> NAAQS modeling, following recommendations in the US EPA guidance (US EPA 2011) for emergency generators, which stated that testing of intermittent equipment (such as emergency generators) could be excluded because of their infrequent use.

Emergency generators are readiness-tested once a month (12 times per year), which might not be frequent enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. On the other hand, fire pump engines are readiness-tested once a week (52 times per year), which contribute more frequently to the annual distribution of daily maximum 1-hour concentrations and which may therefore, have a significant impact. We are especially concerned about the emergency fire pump planned for the common area, since it is close to the project boundary.

**DATA REQUEST**

- 2. Please redo the modeling with AERMOD to include fire pump engines to demonstrate compliance with the one-hour NO<sub>2</sub> NAAQS.**

**BACKGROUND: OPERATIONS OF BOILERS**

The PO's PTA, requests to increase the daily usage of auxiliary boilers from 4 hours to 24 hours per day, with the increase in nominal size from 231.1 MMBtu/hr to 249 MMBtu/hr and requests to add three new nighttime preservation boilers (no larger than 10 MMBtu/hr, one boiler per power block). In addition, the PO proposes to retain the annual limits on auxiliary boiler fuel usage as currently approved by the Energy Commission, and to incorporate the fuel used by the new nighttime preservation boilers within these limits. The PO did not

provide information about the number of hours of annual operations of auxiliary boilers and nighttime preservation boilers in order to retain the annual fuel usage limits. Without such information, staff is not able to determine how the annual fuel usage limits will be met, with increased daily usage of large auxiliary boilers and additional nighttime preservation boilers.

### **DATA REQUEST**

- 3. Please quantify the hours of annual operations of auxiliary boilers and nighttime preservation boilers in order to meet the approved annual fuel usage limits. Please show the calculations that demonstrate compliance with AQ-SC10.**

### **BACKGROUND: EMISSIONS FROM NIGHTTIME PRESERVATION BOILERS**

In Table 4 of the Application for Permit Amendment to the MDAQMD, the PO indicates the annual emissions (except for CO) from the nighttime preservation boilers are 0 because the fuel usage of the nighttime preservation boilers will be incorporated in the total annual fuel usage limits. On page 5 of the Application for Permit Amendment, the PO indicates emissions from the nighttime boilers are based on annual average usage of up to 16 hours per day. While the net change from considering both the auxiliary boilers and nighttime boilers might be 0, the emissions of the nighttime boilers should not be 0 if annual usage is up to 16 hours per day. If hourly emissions of CO from each nighttime boiler are 0.36 lb/hr (as in Table 3 and Table 4 of the Application for Permit Amendment), the annual emission of CO would be 1.05 tons/year instead of 0.526 tons/year (as in Table 4 of the Application for Permit Amendment).

### **DATA REQUEST**

- 4. Please quantify the emissions of nighttime preservation boilers and the auxiliary boilers in accordance with the numbers of hours of annual operations determined in Data Request 3.**

### **BACKGROUND: BACKGROUND MONITORING STATIONS**

In the original October 2009 FSA (and Energy Commission Decision) for the Ivanpah SEGS project, staff recommended the background PM10 and PM2.5 data to be obtained from the Jean, NV monitoring station, which is only about 17 miles from the project site. In Table 15 of the Application for Permit Amendment to MDAQMD, the PO uses PM10 from Trona and PM2.5 from Big Bear, both of which are more than 100 miles away from the project site.

### **DATA REQUEST**

- 5. Please redo the PM10 and PM2.5 analysis using the most recently available background PM10 and PM2.5 data from the Jean, NV monitoring station, to be consistent with the original October 2009 FSA.**

### **REFERENCES**

US EPA 2011, United States Environmental Protection Agency, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard, March 1, 2011.

## **Technical Area: Soil and Water Resources**

**Author:** Christopher Dennis, CHG

### **BACKGROUND**

The PO is proposing to enhance the dry cooling system at each power block with a partial dry cooling system that incorporates a wet surface air cooling (WetSAC) system. The WetSAC will be used to cool auxiliary systems such as turbine and generator lube oil, boiler feed pump seal oil, chemical feed systems, and the boiler circulation pump seal oil. The PO has stated that this partial dry cooling system will result in approximately six acre-feet per year of additional water use. It is unclear if each WetSAC system will use six acre-feet of water per year or whether all three WetSAC systems combined, will use six acre-feet of water per year. Also, incorporation of the partial dry cooling system into the project water use processes is not clear.

There is also ambiguity about when the WetSAC system would use water. The PTA states that the WetSAC system would use water for cooling when ambient temperature is above 82°F or higher. However, the application to amend the MDAQMD permit, states that the WetSAC system would use water only when the ambient temperature is 86°F or higher.

### **DATA REQUESTS**

- 6. Please provide a detailed description of how the proposed WetSAC will be incorporated with the water conveyance, water treatment, and wastewater discharge facilities.**
- 7. Please provide information indicating whether each WetSAC system will use up to six acre-feet of groundwater or all three WetSAC systems together will use up to six acre-feet of groundwater.**
- 8. Please quantify the hours of annual operation of when the WetSAC system will use water, the water use rates, and the threshold for wet cooling (i.e., water use at 82°F, 86°F, or some other trigger or process threshold).**
- 9. Please provide water mass balance and heat balance diagrams for both average and maximum flow rates that include all process and/or ancillary water supplies and wastewater streams.**