

## DOCKETED

<b>Docket Number:</b>	12-AFC-02
<b>Project Title:</b>	Huntington Beach Energy Project
<b>TN #:</b>	201229
<b>Document Title:</b>	Air Quality Correspondence
<b>Description:</b>	HBEP Air Quality Correspondence
<b>Filer:</b>	Kimberly Hellwig
<b>Organization:</b>	Stoel Rives LLP
<b>Submitter Role:</b>	Applicant Representative
<b>Submission Date:</b>	11/15/2013 12:10:39 PM
<b>Docketed Date:</b>	11/15/2013

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com [mailto:Jerry.Salamy@CH2M.com]  
**Sent:** Wednesday, October 23, 2013 10:06 AM  
**To:** Holladay.Cleveland@epa.gov  
**Cc:** Elyse.Engel@ch2m.com; John.Frohning@CH2M.com  
**Subject:** RE: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Cleve,

Attached is a copy of AES's HBEP 1-hour NO2 competing source analysis and Class II visibility assessment. A hard copy and set of DVDs will be sent out tonight to delivery tomorrow.

Please let me know if you have any additional questions.

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**From:** Holladay, Cleveland [mailto:Holladay.Cleveland@epa.gov]  
**Sent:** Wednesday, October 23, 2013 9:49 AM  
**To:** Salamy, Jerry/SAC  
**Subject:** RE: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Jerry,

There is no specific mail stop that should be included in the address. Could you also send me an electronic copy, too?

Thanks

-Cleve  
Cleve Holladay  
US EPA Region 9, Air07  
75 Hawthorne Street, San Francisco, CA 94105  
415-947-4140

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Wednesday, October 23, 2013 9:12 AM  
**To:** Holladay, Cleveland  
**Cc:** Bohnenkamp, Carol; [jbaker@aqmd.gov](mailto:jbaker@aqmd.gov); [stephen.okane@aes.com](mailto:stephen.okane@aes.com); [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com)  
**Subject:** RE: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Cleveland,

I will put a copy of the report and modeling files in Fed Ex this morning. I have the address for Region 9, but do you have a specific mail stop I should included in the address?

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Tuesday, October 22, 2013 4:26 PM  
**To:** Salamy, Jerry/SAC  
**Cc:** Holladay, Cleveland; Bohnenkamp, Carol  
**Subject:** FW: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Hi Jerry,

Can you please send Cleve Holladay a copy of the modeling (report plus modeling files) that was performed for AES Huntington Beach and AES Redondo Beach? For future reference, please provide Cleve with a copy of any files which are submitted to us. And please add Carol Bohnenkamp to your email distribution list for the projects.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Friday, October 18, 2013 9:52 AM  
**To:** Jillian Baker  
**Cc:** Charles Tupac; Mohsen Nazemi; Tom Chico; John Yee; [stephen.okane@AES.com](mailto:stephen.okane@AES.com); [Gbemis@energy.state.ca.us](mailto:Gbemis@energy.state.ca.us); [Felicia.Miller@energy.ca.gov](mailto:Felicia.Miller@energy.ca.gov); [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com); Chris Perri; [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com)  
**Subject:** RE: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Hi Jillian,

Attached is the HBEP PSD modeling assessment which includes a presentation of the HBEP impacts compared to state and federal ambient air quality standards, demonstration of project impacts compared to applicable PSD significant impact levels and ambient monitoring requirements, a 1-hour NO2 competing source analysis, and a Class II visibility impact assessment. Also included is a demonstration of HBEP's compliance with Rule 1401. A hard copy of the attached assessment, including two CDs with the modeling files, is being sent overnight to your attention.

Please let me know if you have any questions.

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Tuesday, October 08, 2013 4:29 PM  
**To:** Salamy, Jerry/SAC  
**Cc:** Charles Tupac; Mohsen Nazemi; Tom Chico; John Yee; [stephen.okane@AES.com](mailto:stephen.okane@AES.com); [Gbemis@energy.state.ca.us](mailto:Gbemis@energy.state.ca.us); [Felicia.Miller@energy.ca.gov](mailto:Felicia.Miller@energy.ca.gov); Mason, Robert/SCO; Chris Perri; Engel, Elyse/SJC  
**Subject:** RE: AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Hi Jerry,

I have reviewed the files you sent and the inputs in the AERMOD file are consistent with the parameters which we have provided to you.

As for the MPRM processed meteorological data which you will be using in the visibility analysis, we are unable to perform a thorough review since we do not have the accompanying write-up which describes what was done in detail.

Please proceed with the air quality analyses for this project. Once we have received your reports, we will provide you with any additional comments we might have after that review.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Thursday, October 03, 2013 2:13 PM  
**To:** Jillian Baker  
**Cc:** Charles Tupac; Mohsen Nazemi; Tom Chico; John Yee; [stephen.okane@AES.com](mailto:stephen.okane@AES.com); [Gbemis@energy.state.ca.us](mailto:Gbemis@energy.state.ca.us); [Felicia.Miller@energy.ca.gov](mailto:Felicia.Miller@energy.ca.gov); [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com); Chris Perri; [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com)  
**Subject:** AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory

Hi Jillian,

Per your direction, attached is the Huntington Beach Energy Project's 1-hour competing source AERMOD input file for your review and approval.

Per your request, we have processed the meteorological data used for the AERMOD dispersion modeling to allow the development of joint frequency wind tables required for the VISCREEN Tier 2 analysis. Attached is the processed MPRM meteorological data for use in the HBEP Class II VISCREEN Tier 2 analysis.

Your review and approval of these files will be greatly appreciated.

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com  
**Sent:** Friday, October 11, 2013 1:20 PM  
**To:** CPerri@aqmd.gov  
**Cc:** stephen.okane@AES.com; Robert.Mason@CH2M.com; Elyse.Engel@ch2m.com  
**Subject:** RE: HBEP Questions  
**Attachments:** HBEP\_1304\_1Calculator.xls

Hi Chris,

The GHG calculations (below) were based on 6835 hours of operation, consisting of 5900 hours of normal operation (no duct burners), 470 hours of turbine and duct burner operation, and 465 hours of start up and shutdown. The start up and shutdown hours represent the time required for the emission source to achieve BACT levels for NOx, CO, and VOC. Whereas, the turbine start up and shutdowns durations where the heat rates are degraded (relative to normal operating heat rates) are 9 and 9.5 minutes, respectively (or 93.6 hours and 98.8 hours, respectively). As such, the very low percentage of time the turbines are in start up and shutdown relative to the operating hours will not materially affect the GHG efficiency.

Regarding the Rule 1304.1 analysis, I have attached a completed Rule 1304.1 spreadsheet (<http://www.aqmd.gov/rules/recentrules.html>) showing the annual fee of \$3,873,679. This value was calculated assuming Redondo Beach Generating Station (RBGS) Units 6 and 8 are retired to cover HBEP Block 1 and Huntington Beach Generating Station Units 1 and 2 are retired to cover HBEP Block 2. The monthly electrical generation data, in megawatt-hour (MWh), for HBGS and RBGS needed for the Rule 1304.1 analysis were downloaded from EPA's Acid Rain program (included in the Rule 1304.1 spreadsheet). We understand that this preliminary analysis is required for the preparation of the Preliminary Determination of Compliance and that a final Rule 1304.1 fee analysis will be prepared immediately prior to the issuance of the Permit to Construct.

Please let me know if you have any questions.

Thanks,

*Jerry Salamy  
Principal Project Manager  
CH2M HILL/Sacramento  
Phone 916-286-0207  
Fax 916-614-3407  
Cell Phone 916-769-8919*

---

**From:** Chris Perri [mailto:CPerri@aqmd.gov]  
**Sent:** Tuesday, October 08, 2013 2:18 PM  
**To:** Salamy, Jerry/SAC  
**Subject:** RE: HBEP Questions

Jerry,

Thanks for your response to my earlier questions. One follow up,

In the GHG calculation below, how did you account for start ups/shutdowns, and heat rate degradation?

Also, can you please provide your R1304.1 analysis for the HBEP plant?

Thanks,

**Chris Perri**

Air Quality Engineer  
South Coast Air Quality Management District  
(909) 396-2696

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [mailto:Jerry.Salamy@CH2M.com]

**Sent:** Wednesday, September 25, 2013 11:52 AM

**To:** Chris Perri

**Cc:** Andrew Lee; John Yee; [stephen.okane@AES.com](mailto:stephen.okane@AES.com); [John.Kistle@AES.com](mailto:John.Kistle@AES.com); [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com); [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com)

**Subject:** RE: HBEP Questions

Chris,

Below are the responses to your questions. Please let me know if you have any additional questions.

1. In your calculation of the plant's GHG emissions, you used 5,102.4 hours of operation, along with a heat rate described as the plant gross heat rate at LHV. I would like to get the calculation revised to reflect the total requested annual hours of operation (6,835) and the net heat rate at HHV, and include all combustion related GHG's.

**Response:** The HBPE GHG efficiency for 6,835 hours per year at the net heat rate of 8,184 btu/kWh – HHV (7,440 btu/kWh – LHV) net is 957 lb GHGs/MWh. The following tables present the calculation for this GHG efficiency.

**HBEP Permitted GHG Efficiency**

	<b>Value</b>	<b>Notes</b>
Conversion from LHV to HHV	1.1	HHV to LHV ratio.
Hours per Year	6835	Per request
Heat Rate (Btu/kWh - LHV Net)	7440	December 7, 2012 Letter, Table DR7-1 heat rate for 492265 kW.
Kilowatts (kW Net)	492265	December 7, 2012 Letter, Table DR7-1.
Annual Kilowatt Hours (kWh Net)	3364631275	kW Net * 6835 hours/year.
Annual Megawatt Hours (MWh - Net)	3364631	kWh/1000
Annual Heat Input (Btu LHV Net)	25032856686000	Btu/kWh LHV Net * annual kWh
Annual Heat Input (Btu HHV Net)	27536142354600	Btu LHV * 1.1 HHV to LHV
Annual Heat Input (MMBtu HHV Net)	27536142	Btu HHV/1000000

<b>GHG Emission Factors</b>	<b>kg/MMBtu/(lb/MMBtu)</b>
Carbon Dioxide (CO2)	53.06 (117)
Nitrous Oxide (N2O)	0.0009 (0.002)
Methane (CH4)	0.0038 (0.008)

CO2 emission factor from TCR General Reporting Protocol, Default Emission Factors (April 2, 2013 update) Table 12.1. Heat content range 1025 to 1050 btu/scf.

CH4 and N2O emission factor from TCR General Reporting Protocol, Default Emission Factors (April 2, 2013 update) Table 12.5.

Annual GHG Emissions	lb/year
Carbon Dioxide (CO2)	3,221,099,102
Nitrous Oxide (N2O)	54,636
Methane (CH4)	230,686
Total HBEP GHG Emissions	3,221,384,424
HBEP GHG Efficiency (lb/MWh - Net)	957

2. Please provide an estimate of the time required for steam generation to begin generating electricity for each type of start (cold, warm, and hot).

**Response:** The steam turbine generator produces electricity in approximately 20 minutes for a warm and hot start, and 85 minutes for a cold start from the time fuel combustion is initiated.

3. What is the manufacturer recommended maximum pressure drop across the SCR catalyst and the maximum and minimum ammonia injection rates?

**Response:** Allowable pressure differential gradient across the SCR is typically expressed in terms of the pressure drop experienced by the turbine. The HRSG vendor will determine the most efficient way to meet the allowable pressure drop across all HRSG components while considering sizing, geometry, sound attenuation, and thermal efficiency. The SCR allowable pressure differential range is established by the HRSG during detailed design. For the HBEP a 1.5 to 3.5 inches of water pressure differential range is expected.

The minimum and maximum ammonia injection range is 11.8 gallons per hour to 33.0 gallons per hour (255.8 lb/hr divided by 7.76 lb aqueous ammonia/gallon).

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

---

**From:** Chris Perri [<mailto:CPerri@aqmd.gov>]  
**Sent:** Friday, September 06, 2013 3:52 PM  
**To:** Salamy, Jerry/SAC  
**Cc:** Andrew Lee; John Yee  
**Subject:** HBEP Questions

Hi Jerry,

I have just a few remaining questions for the HBEP, could you please address the following issues:

1. In your calculation of the plant's GHG emissions, you used 5,102.4 hours of operation, along with a heat rate described as the plant gross heat rate at LHV. I would like to get the calculation revised to reflect the total requested annual hours of operation (6,835) and the net heat rate at HHV, and include all combustion related GHG's.
2. Please provide an estimate of the time required for steam generation to begin after each type of start (cold, warm, and hot).



3. What is the manufacturer recommended maximum pressure drop across the SCR catalyst and the maximum and minimum ammonia injection rates?

Thanks

**Chris Perri**

Air Quality Engineer

South Coast Air Quality Management District

*(909) 396-2696*

Other Values In These Shaded Cells Only =

**Input Cumulative Project Profile Values:**

a-Gross Rating of New Replacement Unit(s) (MW)	<b>509</b>	See AFC Section 2.0 Project Description, Figure 2.1-3a.
b-Maximum Fraction of Time Allowed to Operate (%)	<b>73</b>	
Hours in a Year (hr/yr)	8,760	
c-Max Allowable Operating Hours Annually (hr/yr)	6,370	5900 unfired hours and 470 fired hours, excluding 624 starts and stop per year
d-Max Allowed Generation New Replacement Unit(s) Annually (MWhr/yr)	3,242,330	= C <sub>rep</sub> *
e- Average Last 2 Years of Existing Unit(s) Actual Generation (MWh/yr)	<b>20,290</b>	= C <sub>2YRAvgExisting</sub> From attached sheet.

**ANNUAL FEE PAYMENT (> 100 MW Cumulatively):**

i	PTE <sub>PM10</sub> (lbs/day)	R <sub>PM10 A1</sub> (\$ per lb/day)	R <sub>PM10 A2</sub> (\$ per lb/day)	R <sub>PM10 blended</sub> (\$ per lb/day)	OF <sub>PM10</sub>	C <sub>rep</sub> (MWhr/yr)	C <sub>2YRAvgExisting</sub> (MWhr/yr)	Ratio	F <sub>PM10</sub> (\$)	Source
PM10	<b>428.00</b>	997	3,986	3,399	1.00	3,242,330	20,290	0.994	1,445,571	September 20, 2012 letter
	PTE <sub>SOx</sub> (lbs/day)	R <sub>SOx A1</sub> (\$ per lb/day)	R <sub>SOx A2</sub> (\$ per lb/day)	R <sub>SOx blended</sub> (\$ per lb/day)	OF <sub>SOx</sub>	C <sub>rep</sub> (MWhr/yr)	C <sub>2YRAvgExisting</sub> (MWhr/yr)	Ratio	F <sub>SOx</sub> (\$)	
SOx	<b>159.15</b>	793	3,170	2,703	1.00	3,242,330	20,290	0.994	427,491	September 20, 2012 letter
	PTE <sub>VOC</sub> (lbs/day)	R <sub>VOC A1</sub> (\$ per lb/day)	R <sub>VOC A2</sub> (\$ per lb/day)	R <sub>VOC blended</sub> (\$ per lb/day)	OF <sub>VOC</sub>	C <sub>rep</sub> (MWhr/yr)	C <sub>2YRAvgExisting</sub> (MWhr/yr)	Ratio	F <sub>VOC</sub> (\$)	
VOC	<b>604.50</b>	47	185	158	1.20	3,242,330	20,290	0.994	113,815	September 20, 2012 letter
	PTE <sub>NOx</sub> (lbs/day)	R <sub>NOx A1</sub> (\$ per lb/day)	R <sub>NOx A2</sub> (\$ per lb/day)	R <sub>NOx blended</sub> (\$ per lb/day)	OF <sub>NOx</sub>	C <sub>rep</sub> (MWhr/yr)	C <sub>2YRAvgExisting</sub> (MWhr/yr)	Ratio	F <sub>NOx</sub> (\$)	
NOx**	<input type="text"/>	666	2,663	2,271	1.20	3,242,330	20,290	0.994	-	

\*\* Only applicable project source is not in RECLAIM

\* If C<sub>rep</sub> is known it can be entered directly (in MWh)

<b>TOTAL ANNUAL FEE (\$/yr)</b>	<b>1,986,877</b>
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[REDACTED]

**From:** tchico@aqmd.gov  
**Sent:** Thursday, October 10, 2013 2:58 PM  
**To:** ALee@aqmd.gov  
**Cc:** ctupac@aqmd.gov; JYee@aqmd.gov; jbaker@aqmd.gov; Jerry.Salamy@CH2M.com; CPerri@aqmd.gov  
**Subject:** RE: Huntington Beach Energy Project, 12-AFC-02, CEC Staff's Status Report #6

Andrew,

Jerry Salamy called me with a clarification about the email below. Jerry informed me that the project was exempt from Rule 1303 modeling per Rule 1304(a)(2) (i.e., Electric Utility Steam Boiler Replacement) and so they were not doing any modeling for Rule 1303. They will do some modeling for CEQA purposes but it would look at the total project and not on a permit unit basis.

Tom Chico  
Ext 3149

---

**From:** Tom Chico  
**Sent:** Wednesday, October 09, 2013 2:50 PM  
**To:** Andrew Lee  
**Cc:** Charles Tupac; John Yee; Jillian Baker; 'Jerry.Salamy@CH2M.com'  
**Subject:** RE: Huntington Beach Energy Project, 12-AFC-02, CEC Staff's Status Report #6

Andrew,

Mohsen asked us to respond to his inquiry below but I am not responding to him directly. I thought it best to provide you an update from our standpoint and then you can report to Mohsen. As of today, we do not owe anything to AES or CH2MHill. (I am copying Jerry Salamy of CH2MHill on this communication to avoid any misunderstanding between us.) CH2MHill needs to provide us with the following:

- Dispersion modeling analysis to show compliance with Rule 1303 and Rule 1401,
- Cumulative impact analysis for the 1-hr NO2 NAAQS, and
- Class II visibility analysis.

Once Jillian receives these items it will take 2 to 3 weeks to complete her review so given this review time we are not that far from the end of November.

Tom Chico  
(909) 396-3149

---

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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**From:** [eFiling@ENERGY.CA.GOV](mailto:eFiling@ENERGY.CA.GOV) [<mailto:eFiling@ENERGY.CA.GOV>]  
**Sent:** Monday, October 07, 2013 9:38 AM  
**To:** [HUNTINGTONBEACHENERGY@LISTSERVER.ENERGY.CA.GOV](mailto:HUNTINGTONBEACHENERGY@LISTSERVER.ENERGY.CA.GOV)  
**Subject:** Huntington Beach Energy Project, 12-AFC-02, CEC Staff's Status Report #6

Dear Subscribers,

The following Document submitted to Docket Number **12-AFC-02** has been published:

- Title: [CEC Staff's Status Report #6](#)  
1 page(s)  
Document Type: Document

Thank you.

**This is an automated e-mail message. Please do not reply to this e-mail.**  
10/7/2013 9:37:36 AM

[Unsubscribe from this list.](#)

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com  
**Sent:** Thursday, October 03, 2013 2:13 PM  
**To:** jbaker@aqmd.gov  
**Cc:** ctupac@aqmd.gov; MNazemi1@aqmd.gov; tchico@aqmd.gov; JYee@aqmd.gov; stephen.okane@AES.com; Gbemis@energy.state.ca.us; Felicia.Miller@energy.ca.gov; Robert.Mason@CH2M.com; CPerri@aqmd.gov; Elyse.Engel@ch2m.com  
**Subject:** AES Huntington Beach Energy Project 1-Hour NO2 Competing Source Inventory  
**Attachments:** HBEP\_Competing.zip; SNA\_MPRM.zip

Hi Jillian,

Per your direction, attached is the Huntington Beach Energy Project's 1-hour competing source AERMOD input file for your review and approval.

Per your request, we have processed the meteorological data used for the AERMOD dispersion modeling to allow the development of joint frequency wind tables required for the VISCREEN Tier 2 analysis. Attached is the processed MPRM meteorological data for use in the HBEP Class II VISCREEN Tier 2 analysis.

Your review and approval of these files will be greatly appreciated.

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com  
**Sent:** Tuesday, October 01, 2013 7:19 PM  
**To:** jbaker@aqmd.gov; stephen.okane@AES.com  
**Cc:** tchico@aqmd.gov; CPerri@aqmd.gov; ALee@aqmd.gov; JYee@aqmd.gov; ctupac@aqmd.gov; Elyse.Engel@ch2m.com; John.Frohning@CH2M.com; Robert.Mason@CH2M.com; Cindy.Salazar@CH2M.com  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Jillian,

Thanks for the Beta Offshore modeling parameters. Once we review the modeling parameters, we will be consolidating all of the 1-hour NO2 cumulative sources into a spreadsheet for District review and approval prior to modeling.

Did you have any questions regarding the documentation of John Wayne (SNA) anemometer height sent via email on 9/19?

Jerry Salamy  
CH2M HILL  
Phone 916-286-0207  
Cell 916-769-8919

---

**From:** Jillian Baker [jbaker@aqmd.gov]  
**Sent:** Tuesday, October 01, 2013 5:36 PM  
**To:** Salamy, Jerry/SAC; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac; Engel, Elyse/SJC; Frohning, John/SEA  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jerry,

Attached are the parameters to use for Beta Offshore in the NO2 cumulative assessment for AES Huntington Beach. Please be sure to take note of the units for each of the parameters as they may be different for each facility provided. As discussed previously, the shipping lane sources and Beta Offshore sources should be treated as RURAL sources in AERMOD.

Please let me know if you have any questions.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Friday, September 06, 2013 1:57 PM  
**To:** Jillian Baker; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac; [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com); [John.Frohning@CH2M.com](mailto:John.Frohning@CH2M.com)  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jillian,

Thanks for the OCSD modeling data, it will help greatly in completing the cumulative 1-hour NO2 assessment. Who do we coordinate with regarding the Beta Offshore modeling parameters and other questions we may have while you are out of the office?

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

---

**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Thursday, September 05, 2013 6:31 PM  
**To:** Salamy, Jerry/SAC; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac  
**Subject:** AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jerry,

Attached are the stack parameters and PTE emission rates for the 2 OCSD facilities you included in your cumulative analysis.

I am currently working with Beta Offshore to get a better idea of their stack parameters and to match them up with the PTE emission rates we have in our system.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

**From:** Jerry.Salamy@CH2M.com  
**Sent:** Wednesday, September 25, 2013 11:52 AM  
**To:** CPerri@aqmd.gov  
**Cc:** ALee@aqmd.gov; JYee@aqmd.gov; stephen.okane@AES.com; John.Kistle@AES.com; Elyse.Engel@ch2m.com; Robert.Mason@CH2M.com  
**Subject:** RE: HBEP Questions

Chris,

Below are the responses to your questions. Please let me know if you have any additional questions.

1. In your calculation of the plant's GHG emissions, you used 5,102.4 hours of operation, along with a heat rate described as the plant gross heat rate at LHV. I would like to get the calculation revised to reflect the total requested annual hours of operation (6,835) and the net heat rate at HHV, and include all combustion related GHG's.

**Response:** The HBPE GHG efficiency for 6,835 hours per year at the net heat rate of 8,184 btu/kWh – HHV (7,440 btu/kWh – LHV) net is 957 lb GHGs/MWh. The following tables present the calculation for this GHG efficiency.

**HBEP Permitted GHG Efficiency**

	Value	Notes
Conversion from LHV to HHV	1.1	HHV to LHV ratio.
Hours per Year	6835	Per request
Heat Rate (Btu/kWh - LHV Net)	7440	December 7, 2012 Letter, Table DR7-1 heat rate for 492265 kW.
Kilowatts (kW Net)	492265	December 7, 2012 Letter, Table DR7-1.
Annual Kilowatt Hours (kWh Net)	3364631275	kW Net * 6835 hours/year.
Annual Megawatt Hours (MWh - Net)	3364631	kWh/1000
Annual Heat Input (Btu LHV Net)	25032856686000	Btu/kWh LHV Net * annual kWh
Annual Heat Input (Btu HHV Net)	27536142354600	Btu LHV * 1.1 HHV to LHV
Annual Heat Input (MMBtu HHV Net)	27536142	Btu HHV/1000000

GHG Emission Factors	kg/MMBtu/(lb/MMBtu)
Carbon Dioxide (CO2)	53.06 (117)
Nitrous Oxide (N2O)	0.0009 (0.002)
Methane (CH4)	0.0038 (0.008)

CO2 emission factor from TCR General Reporting Protocol, Default Emission Factors (April 2, 2013 update) Table 12.1. Heat content range 1025 to 1050 btu/scf.

CH4 and N2O emission factor from TCR General Reporting Protocol, Default Emission Factors (April 2, 2013 update) Table 12.5.

Annual GHG Emissions	lb/year
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Carbon Dioxide (CO2)	3,221,099,102
Nitrous Oxide (N2O)	54,636
Methane (CH4)	230,686
Total HBEP GHG Emissions	3,221,384,424
HBEP GHG Efficiency (lb/MWh - Net)	957

2. Please provide an estimate of the time required for steam generation to begin generating electricity for each type of start (cold, warm, and hot).

**Response:** The steam turbine generator produces electricity in approximately 20 minutes for a warm and hot start, and 85 minutes for a cold start from the time fuel combustion is initiated.

3. What is the manufacturer recommended maximum pressure drop across the SCR catalyst and the maximum and minimum ammonia injection rates?

**Response:** Allowable pressure differential gradient across the SCR is typically expressed in terms of the pressure drop experienced by the turbine. The HRSG vendor will determine the most efficient way to meet the allowable pressure drop across all HRSG components while considering sizing, geometry, sound attenuation, and thermal efficiency. The SCR allowable pressure differential range is established by the HRSG during detailed design. For the HBEP a 1.5 to 3.5 inches of water pressure differential range is expected.

The minimum and maximum ammonia injection range is 11.8 gallons per hour to 33.0 gallons per hour (255.8 lb/hr divided by 7.76 lb aqueous ammonia/gallon).

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

---

**From:** Chris Perri [<mailto:CPerri@aqmd.gov>]  
**Sent:** Friday, September 06, 2013 3:52 PM  
**To:** Salamy, Jerry/SAC  
**Cc:** Andrew Lee; John Yee  
**Subject:** HBEP Questions

Hi Jerry,

I have just a few remaining questions for the HBEP, could you please address the following issues:

1. In your calculation of the plant's GHG emissions, you used 5,102.4 hours of operation, along with a heat rate described as the plant gross heat rate at LHV. I would like to get the calculation revised to reflect the total requested annual hours of operation (6,835) and the net heat rate at HHV, and include all combustion related GHG's.
2. Please provide an estimate of the time required for steam generation to begin after each type of start (cold, warm, and hot).
3. What is the manufacturer recommended maximum pressure drop across the SCR catalyst and the maximum and minimum ammonia injection rates?

Thanks

**Chris Perri**

Air Quality Engineer

South Coast Air Quality Management District

*(909) 396-2696*

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com  
**Sent:** Friday, September 06, 2013 1:57 PM  
**To:** jbaker@aqmd.gov; stephen.okane@AES.com  
**Cc:** tchico@aqmd.gov; CPerri@aqmd.gov; ALee@aqmd.gov; JYee@aqmd.gov; ctupac@aqmd.gov; Elyse.Engel@ch2m.com; John.Frohning@CH2M.com  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jillian,

Thanks for the OCS D modeling data, it will help greatly in completing the cumulative 1-hour NO<sub>2</sub> assessment. Who do we coordinate with regarding the Beta Offshore modeling parameters and other questions we may have while you are out of the office?

Thanks,

*Jerry Salamy  
Principal Project Manager  
CH2M HILL/Sacramento  
Phone 916-286-0207  
Fax 916-614-3407  
Cell Phone 916-769-8919*

---

**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Thursday, September 05, 2013 6:31 PM  
**To:** Salamy, Jerry/SAC; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac  
**Subject:** AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jerry,

Attached are the stack parameters and PTE emission rates for the 2 OCS D facilities you included in your cumulative analysis.

I am currently working with Beta Offshore to get a better idea of their stack parameters and to match them up with the PTE emission rates we have in our system.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

[REDACTED]

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**From:** Jerry.Salamy@CH2M.com  
**Sent:** Friday, September 06, 2013 4:21 PM  
**To:** jbaker@aqmd.gov  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Jillian,

Thanks and enjoy your time off.

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Friday, September 06, 2013 4:12 PM  
**To:** Salamy, Jerry/SAC  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac; Engel, Elyse/SJC; Frohning, John/SEA; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jerry,

Please contact Tom Chico for any modeling questions regarding these projects while I am out of the office. John Frohning mentioned that you will need the raw data files we used for AERMOD to develop what you need for the visibility analysis [REDACTED]

Thanks,  
Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Friday, September 06, 2013 1:57 PM  
**To:** Jillian Baker; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac; [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com); [John.Frohning@CH2M.com](mailto:John.Frohning@CH2M.com)  
**Subject:** RE: AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jillian,

Thanks for the OCSD modeling data, it will help greatly in completing the cumulative 1-hour NO2 assessment. Who do we coordinate with regarding the Beta Offshore modeling parameters and other questions we may have while you are out of the office?

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

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**From:** Jillian Baker [<mailto:jbaker@aqmd.gov>]  
**Sent:** Thursday, September 05, 2013 6:31 PM  
**To:** Salamy, Jerry/SAC; [stephen.okane@AES.com](mailto:stephen.okane@AES.com)  
**Cc:** Tom Chico; Chris Perri; Andrew Lee; John Yee; Charles Tupac  
**Subject:** AES Huntington Beach - Information to use in Cumulative Modeling

Hi Jerry,

Attached are the stack parameters and PTE emission rates for the 2 OCSD facilities you included in your cumulative analysis.

I am currently working with Beta Offshore to get a better idea of their stack parameters and to match them up with the PTE emission rates we have in our system.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

**From:** jbaker@aqmd.gov  
**Sent:** Thursday, September 05, 2013 6:24 PM  
**To:** Jerry.Salamy@CH2M.com; MNazemi1@aqmd.gov; stephen.okane@AES.com  
**Cc:** ALee@aqmd.gov; JYee@aqmd.gov; CPerri@aqmd.gov; tchico@aqmd.gov; Felicia.Miller@energy.ca.gov; Gerry.Bemis@energy.ca.gov; Elyse.Engel@ch2m.com; Robert.Mason@CH2M.com; Cindy.Salazar@CH2M.com; ctupac@aqmd.gov  
**Subject:** RE: AES Huntington Beach (ID 115389) Response to SCAQMD's June 7, 2013 Data Request

Hi Jerry and Stephen,

I have conducted a review of the dispersion modeling performed for the Huntington Beach Energy Project and have the following comments:

- 1) AERMET for KSNA meteorological data – In an email from Tom Chico (dated 8/9/2013), we asked for a reference to verify the anemometer height used in the AERMET file. This has not been addressed. Please provide the reference.
- 2) Federal 1-hour NO2 Cumulative Impact Assessment – On a conference call on 7/10/2013, Ch2mhill staff indicated that they had questions about the parameters to use for the facilities in the cumulative modeling. We recommended that they provide us with a list of the parameters they were proposing so that we can review and comment prior to starting the cumulative modeling. We did not receive the parameters prior to receiving the report. The modeled parameters used for the facilities are incorrect. Jerry, I will send you the modeling parameters to use in a separate email.
- 3) Federal 1-hour NO2 Cumulative Impact Assessment – Beta Offshore should be treated as a rural source.
- 4) Class II Visibility Impact Analysis – The analysis submitted was based on the District's old ISC meteorological data for the stability class determination, which is not appropriate. In order to maintain consistency with the modeling performed for the project, we recommend that the meteorological data used for the AERMOD dispersion modeling be used for the visibility analysis. Please submit a revised visibility analysis using the AERMOD meteorological data for our review.

Please let me know if you have any questions or need additional clarification. FYI, I will be out of the office from 9/9-24, with limited email access.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176

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**From:** [Jerry.Salamy@CH2M.com](mailto:Jerry.Salamy@CH2M.com) [<mailto:Jerry.Salamy@CH2M.com>]  
**Sent:** Monday, August 26, 2013 4:24 PM  
**To:** Mohsen Nazemi  
**Cc:** Andrew Lee; John Yee; Chris Perri; Tom Chico; Jillian Baker; [Felicia.Miller@energy.ca.gov](mailto:Felicia.Miller@energy.ca.gov);  
[Gerry.Bemis@energy.ca.gov](mailto:Gerry.Bemis@energy.ca.gov); [Elyse.Engel@ch2m.com](mailto:Elyse.Engel@ch2m.com); [Robert.Mason@CH2M.com](mailto:Robert.Mason@CH2M.com); [Cindy.Salazar@CH2M.com](mailto:Cindy.Salazar@CH2M.com)  
**Subject:** AES Huntington Beach (ID 115389) Response to SCAQMD's June 7, 2013 Data Request

Mr. Nazemi,

Attached is AES's response to the your June 7, 2013 request for the preparation and submittal of a Federal 1-hour NO2 cumulative impact assessment and a revised quantitative Class II visibility impact analysis. Hard copies of this submittal with the accompanying air dispersion modeling files will be transmitted via overnight mail.

Thanks,

*Jerry Salamy*  
*Principal Project Manager*  
*CH2M HILL/Sacramento*  
*Phone 916-286-0207*  
*Fax 916-614-3407*  
*Cell Phone 916-769-8919*

[REDACTED]

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**From:** jbaker@aqmd.gov  
**Sent:** Thursday, September 05, 2013 6:31 PM  
**To:** Jerry.Salamy@CH2M.com; stephen.okane@AES.com  
**Cc:** tchico@aqmd.gov; CPerri@aqmd.gov; ALee@aqmd.gov; JYee@aqmd.gov; ctupac@aqmd.gov  
**Subject:** AES Huntington Beach - Information to use in Cumulative Modeling  
**Attachments:** 17301 - OCSD FV.xlsx; 29110 - OCSD HB.xlsx

Hi Jerry,

Attached are the stack parameters and PTE emission rates for the 2 OCSD facilities you included in your cumulative analysis.

I am currently working with Beta Offshore to get a better idea of their stack parameters and to match them up with the PTE emission rates we have in our system.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176



Source Type	ID	UTM		Emission Rate (lb/hr)	Release Height (ft)	Diameter (ft)	Exit Velocity (ft/min)	Flow Rate (ft3/min)	Exit Temp (deg F)
		(NAD83) (m)	X (NAD83) (m)						
POINT	1730101	412961.9	3728358.9	5.17	24.3	7.3	270.2		1499.7
POINT	1730102	412913.7	3728328	0.08	25	1.8	1384.5		394.7
POINT	1730103	412935	3728400.9	7.79	62	2.5	3519.03		500
POINT	1730104	412942.1	3728391.3	7.79	62	2.5	3519.03		500
POINT	1730105	412938.6	3728396.1	7.79	62	2.5	3519.03		500

Source Type	ID	UTM (NAD83) (m)	UTM X (NAD83) (m)	Y	Emission Rate (lb/hr)	Release Height (ft)	Diameter (ft)	Exit Velocity (ft/min)	Exit Temp (deg F)
POINT	2911001	411070.5	3722313.1		0.6	25	1.75	1464.69	394.73
POINT	2911002	411096.1	3722214.1		0.9	24.3	2.23	270.2	1499.7
POINT	2911003	411239.9	3722454.7		6.9	59	2.5	4499.82	600
POINT	2911004	411247.8	3722454.7		6.9	59	2.5	4499.82	600
POINT	2911005	411255.3	3722454.7		6.9	59	2.5	4499.82	600
POINT	2911006	411262.8	3722454.7		6.9	59	2.5	4499.82	600
POINT	2911007	411270.3	3722454.7		6.9	59	2.5	4499.82	600

[REDACTED]

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**From:** Gerry.Bemis@energy.ca.gov  
**Sent:** Tuesday, August 13, 2013 11:12 AM  
**To:** Jerry.Salamy@CH2M.com  
**Cc:** Wenjun.Qian@energy.ca.gov; Tao.Jiang@energy.ca.gov; anwar.ali@energy.ca.gov; Felicia.Miller@energy.ca.gov  
**Subject:** Huntington Beach AQ Modeling

**Jerry:**

Thanks for your voice mail this morning confirming that you are doing AQ modeling using John Wayne Airport data now approved by SCAQMD to:

1. Meet DOC needs (first objective; to get the DOC as soon as possible)
2. Re-do Data Requests 4 and 5
3. N-deposition modeling

Also, you stated that when you do #2 above, you will incorporate SCAQMD fugitive dust emissions controls for PM construction period impacts.

Thanks .....

**Gerry Bemis**

Air Resources Supervisor  
California Energy Commission  
916-654-4960

[REDACTED]

---

**From:** Gerry.Bemis@energy.ca.gov  
**Sent:** Friday, August 09, 2013 4:55 PM  
**To:** Jerry.Salamy@CH2M.com  
**Cc:** Felicia.Miller@energy.ca.gov; Wenjun.Qian@energy.ca.gov; Tao.Jiang@energy.ca.gov  
**Subject:** Huntington Beach

**Jerry:**

Looks like some progress for Huntington Beach!! I see that the air district agreed you can use John Wayne Airport met data.

Please let me know if you are going to redo all the AQ analyses to ensure consistency, or what your approach is going forward. We would like to use consistent data in our analysis, including compared to the air district.

We prefer to have you folks take the lead to ensure consistency. That ensures you folks understand the data we use for any subsequent analyses. We would like you to also do N-deposition, which requires use of the same met data, plus additional data such as precipitation data for the wet portion (at least) of N-deposition.

I still want to meet with them by phone to find out how far along they are with the PDOC.

**Gerry Bemis**

Air Resources Supervisor  
California Energy Commission  
916-654-4960

[REDACTED]

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**From:** jbaker@aqmd.gov  
**Sent:** Friday, June 28, 2013 2:14 PM  
**To:** John.Frohning@CH2M.com; Jerry.Salamy@CH2M.com  
**Subject:** AES HB - Conf Call RE Met Data

John,

Tom and I are available on the following days/times:

Wednesday, July 10 - 9am, 10am, 1pm, 2pm, 3pm, or 4pm.

Thursday, July 11 - 9am, 10am, 1pm, 2pm, 3pm, or 4pm.

Jillian Baker, Ph.D.  
South Coast AQMD  
21865 Copley Drive,  
Diamond Bar, CA 91765  
Direct: 909.396.3176



CH2M HILL  
2485 Natomas Park  
Drive Suite 600  
Sacramento, CA  
95833  
Tel 916.920.0212  
Fax 916.920.8463

June 21, 2013

Mike McCorison  
Air Resource Specialist  
United States Department of Agriculture, Forest Service  
Angeles National Forest  
701 N. Santa Anita Avenue  
Arcadia, California 91006

Subject: AES Huntington Beach LLC's Huntington Beach Energy Project Prevention of Significant Deterioration Permit Application

Dear Mr. McCorison:

Consistent with your request, I am submitting an electronic and hard copy of AES Huntington Beach LLC's (AES) Huntington Beach Energy Project (HBEP) Prevention of Significant Deterioration (PSD) Permit Application for your review. Included in the submitted permitting materials are AES's responses to requests issued by the South Coast Air Quality Management District (SCAQMD) and California Energy Commission related to air quality.

HBEP is located in Huntington Beach, California. AES submitted the PSD permit application for HBEP to the SCAQMD in June 2012 and U.S. Environmental Protection Agency (EPA) Region 9 in September 2012 (the EPA subsequently delegated PSD review for greenhouse gases [GHGs] to the SCAQMD on January 9, 2013). The SCAQMD deemed AES's HBEP PSD permit application conditionally complete in July 2012.

HBEP is a natural gas-fired, combined-cycle, air-cooled, 939-megawatt (MW) electrical generating facility that will replace, and be constructed on the site of, the AES Huntington Beach Generating Station, an existing and operating power plant. HBEP will consist of six Mitsubishi 501DA combustion turbine generators (CTGs) equipped with dry low-oxides of nitrogen (NO<sub>x</sub>) combustors to control NO<sub>x</sub> emissions and evaporative coolers for reducing inlet air temperatures; six heat recovery steam generators (HRSGs) with natural gas-fired duct burners with selective catalytic reduction (SCR) systems for NO<sub>x</sub> emissions control and oxidation catalyst equipment to control carbon monoxide (CO) and volatile organic compound (VOC) emissions; two Mitsubishi single-casing, axial exhaust steam turbine generators (STGs); two air-cooled condensers; and associated support equipment.

The CTGs and associated duct burner equipment will include the use of best available control technology (BACT) to limit emissions of criteria pollutants and hazardous air pollutants. NO<sub>x</sub> will be controlled to 2.0 parts per million by volume, dry basis (ppmvd), corrected to 15 percent oxygen through the use of dry low-NO<sub>x</sub> combustors and SCR. An oxidation catalyst will also be used to control CO emissions to 2.0 ppmvd at 15 percent oxygen and VOC emissions to 1.0 ppmvd at 15 percent oxygen. BACT for particulate matter (with a diameter less than 10 and 2.5 microns [PM<sub>10</sub> and PM<sub>2.5</sub>, respectively]) and sulfur dioxide (SO<sub>2</sub>) will be the exclusive use of natural gas with a sulfur content not to exceed 0.75 grains per 100 standard cubic feet of natural gas (gr/100 scf). Emissions of excess ammonia (ammonia slip) not used in the SCR process will be limited to 5.0 ppmvd at 15 percent oxygen.

Table 1 presents HBEP’s annual emissions based on 6,835 operating hours which include 624 start up and shutdowns.<sup>1</sup> Although the emissions presented in Table 1 represent a capacity factor of over 70 percent, AES expects HBEP’s actual capacity factor to be between 35 and 50 percent.

TABLE 1  
 HBEP Annual Air Emissions

Pollutant	Annual Emissions per Turbine (tons)	Annual Emissions Facility Total (tons)
Oxides of Nitrogen (NOx)	40.4	242
Carbon Monoxide (CO)	46.2	277
Volatile Organic Compounds (VOC)	21.8	131
Sulfur Dioxide (SO <sub>2</sub> )	2.16	13
Particulate Matter (PM <sub>10/2.5</sub> )	16.6	99
Greenhouse Gases (GHG)	523,528	3,141,167

Source: AES Huntington Beach, LLC. *Response Letter to the SCAQMD’s July 24, 2012, Request for Additional Information.* September 20, 2012.

AES expects the SCAQMD to issue permit conditions that limit HBEP’s maximum allowable 24-hour air emissions consistent with Rule 1303(b)(2) for VOC and PM<sub>10</sub> and annual emissions per Rule 2005 for NOx and SO<sub>2</sub>. Table 2 presents HBEP’s maximum allowable 24-hour and annual emissions. A review of Table 2 shows that the annual emissions based on the maximum allowable 24-hour emissions are substantially higher than the allowable annual air emissions.

TABLE 2  
 HBEP Annualized 24-Hour and Expected Annual Air Emission Estimates

Pollutant	Maximum Expected	Expected Allowable	
	Allowable Lb/Day	TPY	TPY - 24 Hour Basis
NO <sub>x</sub>	2,042	242	373
CO	2,519	277	460
VOC	1,209	131	221
SO <sub>2</sub>	318	13	58
PM <sub>10/2.5</sub>	856	99	156
Sulfuric Acid	16	0.5	3
Total of NO <sub>x</sub> , SO <sub>2</sub> , PM <sub>10/2.5</sub> and Sulfuric Acid	NA	355	590

Lb/Day = pounds per day, NA = not applicable, and TPY = tons per year

Source: AES’s Huntington Beach, LLC. *Response Letter to the SCAQMD’s July 24, 2012, Request for Additional Information.* September 20, 2012.

As shown in Table 3 and Figure 1, the nearest Class I area is the Cucamonga Wilderness, located 69 kilometers from HBEP. Using the initial screening criteria (size/distance or Q/D or  $590/69 = 8.6$ )<sup>2</sup> and HBEP’s annualized maximum allowable 24-hour emissions, the project is presumed to not impact visibility or air quality related values of the Class I areas. It should be noted that using the annualized maximum allowable 24-hour emissions

<sup>1</sup> See AES’s Huntington Beach, LLC. *Response Letter to the SCAQMD’s July 24, 2012, Request for Additional Information.* September 20, 2012.

<sup>2</sup> U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. Federal land managers’ air quality related values work group (FLAG): phase I report—revised (2010). Natural Resource Report NPS/NRPC/NRR—2010/232. National Park Service, Denver, Colorado.

overestimates HBEP's annual emissions by approximately 50 percent, as shown in Table 2. Furthermore, as HBEP will be replacing the operating Huntington Beach Generating Station Units 1 and 2, the emission estimates in Table 2 include the emission reductions associated with the removal of operating Units 1 and 2.

TABLE 3  
Class I Areas Near HBEP

Class I Area	Distance to HBEP in Kilometers
Cucamonga Wilderness	69
San Gabriel Wilderness	69.9
Agua Tibia Wilderness	90.6
San Gorgonio Wilderness	107.6
San Jacinto Wilderness	114.2
Joshua Tree Wilderness	145.4
San Rafael Wilderness	192.3
Domeland Wilderness	229.2

Finally, the dispersion modeling analysis conducted to demonstrate HBEP's annual nitrogen dioxide (NO<sub>2</sub>) impacts at the nearest Class I area shows that impacts do not exceed the Class I significant impact level.<sup>3</sup>

If you have any questions, please call me at 916-286-0207.

Sincerely,

CH2M HILL



Jerry Salamy  
Principal Project Manager

Attachments

- C: Stephen O'Kane/AES (Electronic Copy)  
Melissa Foster/Stoel Rives (Electronic Copy)  
Felicia Miller/CEC (Electronic Copy)  
Chris Perri/SCAQMD (Electronic Copy)

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<sup>3</sup> See AES's Response to the California Energy Commission Data Request 4, dated May 17, 2013.