AES
Highgrove, LLC

August 28, 2007

Mr. Mohsen Nazemi, P.E.
Assistant Deputy Executive Officer
Engineering and Compliance
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Subject: AES Highgrove Project; Facility ID 115666
AQMD Application Nos. 458297-458304
Revised Capacity Factor, Emissions, and Mitigation

Dear Mr. Nazemi:

As discussed previously, AES is requesting access to priority reserve credits (PRCs) for the proposed 300 MW Highgrove peaking project. Based upon the provisions of Rule 1309.1 adopted on August 3, AES is hereby requesting a revision to its permit applications to reduce the planned annual operating hours below 4,000 hours per unit, as required for simple-cycle generating units in Zone 3 less than 500 MW.

The remainder of this letter presents the maximum expected operating capacity for each unit, associated emissions and mitigation requirements. In addition, the letter presents an assessment of the project's compliance with other provisions of Rule 1309.1 as requested in the SCAQMD's letter dated August 16, 2007.

Operational Capacity Factor

The revised operating profile for the Highgrove project includes up to 40 starts/stops per turbine per month and up to 250 steady state operating-hours per month per turbine. Annually, AES expects no more than 350 starts and stops for each turbine and maximum steady state operating hours of 3000 per turbine per year.

Maximum Monthly Operation Schedule
Normal operating hours per month: 250 hours
Startups per month: 40
Shutdowns per month: 40

Emission Estimates

Based on the monthly operating schedule presented above, maximum monthly and average daily emissions were estimated (shown in Table 1 below). Due to the differences in start up performance between the SCR and oxidation catalyst systems, the monthly NOx calculation methodology is based on a longer start interval than the other pollutants.

Table 1 Maximum Monthly and Average Daily Emission per Turbine

Start/Stops /Month	40				
Start/Stops /Year	350				
Steady State Operation – Hours/Year	3,000				
Steady State Operation - Hours/Month	250				
Emission Rates	NOx	CO	VOC	SO2	PM10
Start Emissions - Lb/Event	16.7	15.4	2.1	0.4	3.5
Stop Emissions - Lb/Event	4.3	18.2	1.6	0.1	1.1
Steady State Emissions - Lb/Hr	8.0	11.7	1.75	0.6	6.0
Emissions - Lb/Month[1]	2,694	4,269	586	169	1,684
Average - Lb/Day[2]	89.8	142.3	19.5	5.6	56.1
Maximum Annual Emissions-Tons/Year[3]	46	70.3	9.8	2.9	29.4
SCAQMD Offset Threshold-Tons/Year	NA[4]	NA[5]	4	4	4
ERCs Required	NA[4]	NA[5]	Yes	No	Yes

[1] Due to the longer SCR warm up period during a start, monthly NOx emissions are based on 232 steady state operating hours.

[2] Average daily emissions are calculated by dividing monthly emissions by 30 days per month.

[3] Annual emissions are for the facility (three units) based on a maximum expected 33 percent capacity factor operating at steady state and 350 starts/stops per turbine per year.

[4] The facility will participate in the RECLAIM program. NOx emissions are offset with RTCs rather than ERCs.

[5] CO ERCs are no longer required as the air basin has been redesignated to CO attainment.

The steady state VOC emission rate of 1.75 Lb/Hr used in Table 1 is a revision to the VOC emission rate presented in the air permit application. This revised VOC emission rate was estimated using the vendor's maximum emission rate of 8.75 Lb/Hr for total hydrocarbons at 30 F (Table 8.1B-1A presented in Section 5 of AES's permit application), and that 20 percent of the hydrocarbons emission rate reflects VOC emissions, based on discussions with the gas turbine vendor. This estimation methodology ignores the VOC emission reduction potential of the oxidation catalyst system incorporated into the project design, resulting in what is believed to be a conservative VOC emission rate. The expected VOC stack concentration is 2 parts per million corrected to 15 percent oxygen, which is consistent with the SCAQMD's current Best Available Control Technology guidelines.

Mitigation Requirements

The Highgrove facility is required to mitigate increases of VOC and PM10 emissions, consistent with Rule 1303. AES proposes to provide a combination of PRCs and market-based ERCs to satisfy this requirement. Table 2 presents the total estimated quantity of the ERCs/PRCs required for the facility, based on the operating profile presented above.

Table 2 Revised ERC Requirements

Emission Rates per Turbine	NOx	CO	VOC	SO2	PM10
Average Lb/Day[1]	89.8	142.3	19.5	5.6	56.1
ERC Requirements per Turbine[2]	NA	NA	23.4	NA	67
ERC Requirements for Facility	NA	NA	70	NA	202

[1] Based on average daily values presented in Table 1 above for a "worst case" summer peak operating month.
[2] Calculated using the SCAQMD's ERC ratio of 1.2 to 1.

No ERCs are proposed for CO because the South Coast Air Basin has been redesignated as attainment with the federal and state CO ambient air quality standards. No ERCs are proposed for SO2 as the annual emissions do not exceed the 4 ton per year requirement of SCAQMD Rule 1304 (d)(1)(A).

In addition to providing ERCs, the project is required to mitigate NOx emission increases through the purchase and surrender of NOx RECLAIM Trading Credits (RTC) for the first year of operation. Table 3 presents an estimate of the RTCs required for the 1st year and subsequent years of operation of the Highgrove facility.

Table 3 Revised NOx RTC Liability

Annual Starts/Stops per Turbine	350
Annual Steady State Hours/Year per Turbine[1]	2,784
NOx Emissions-Lb/Hr	8.0
NOx Start Emissions-Lb/Event	16.7
NOx Stop Emissions-Lb/Event	4.3
NOx Commissioning Emissions-Lbs	44,440
RTC Liability-Lb/Year per Turbine	29,622
RTC Liability-Lb/Year for the Entire Facility	88,866
1st Year RTC Requirements for the Entire Facility[2]	88,873

[1] Based on maximum expected operation of 2,784 hours of steady state operation for NOx emissions plus 350 starts and stops.

[2] First year RTC liability is based on the additional 44,440 pounds of NOx emitted during commissioning of the turbines and adjusted for six months of commercial operation during the first year.

Rule 1309.1 Compliance

As requested in the SCAQMD's August 16, 2007 letter, AES is providing the following compliance assessment (Table 4) with the provisions of Rule 1309.1.

TABLE 4 COMPARISON OF THE AES HIGHGROVE PROJECT TO SCAQMD RULE 1309.1 CRITERIA FOR AN ELECTRIC GENERATING FACILITY LESS THAN 500 MW AND LOCATED IN ZONE 3.

Rule Provision	Compliance Assessment	Complies with Provisions (Yes/No)
Cancer Risk is less than 1 in one million and Non-Cancer Risk (Chronic and Acute) is less than 0.5	The MEIR and MEIW cancer risks are 0.63 and 0.13 in a million, respectively. The PMI is 0.8 in a million. The maximum chronic and acute hazard indices are 0.0112 and 0.0813, respectively.	Yes
Cancer Burden is less than 0.1	The predicted cancer burden for populations exposed to cancer risks above 1 in 10 million is zero[1].	Yes
Rate of PM_{10} Emissions does not exceed 0.06 lb/MW-hr at ISO conditions based on turbine gross output	The expected PM_{10} emission rate for each AES Highgrove turbine is 0.06 lb/MW-hr (excluding startup and shutdown emissions).	Yes
Rate of NOx emissions does not exceed 0.08 lb/MW-hr at ISO conditions based on turbine gross output	The expected NO_x emission rate for each AES Highgrove turbine is 0.08 lb/MW-hr (excluding startup and shutdown emissions).	Yes
Total Combined 24-hour PM_{10} Impact from the New or Modified Electrical Generating Units shall not exceed 5 micrograms/cubic meter ($\mu g/m^3$)	The total combined 24-hour PM_{10} impact for the three new electrical generating units proposed for the AES Highgrove Project is 4.4 $\mu g/m^3$ (includes start up/shutdown emissions).	Yes
Total Combined annual PM_{10} Impact from the New or Modified Electrical Generating Units shall not exceed 0.75 $\mu g/m^3$	The total combined Annual PM_{10} impact for the three new electrical generating units proposed for the AES Highgrove Project is 0.43 $\mu g/m^3$ (includes start up/shutdown emissions).	Yes
For Simple Cycle Electric Generating Units, The Unit Shall Operate a Maximum of 4,000 hours per year or less.	The AES Highgrove Project has accepted a limit on operating hours to less than 4,000 hours per year as outlined herein.	Yes

[1] The 1 in 10 million cancer risk isopleths do not extend into any populated census blocks.

Please feel free to contact me or Jerry Salamy of CH2M HILL if you have any questions. We look forward to working with you further.

Best Regards,

Julie Way
Project Director

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