CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

July 13, 2005

Andrew Whittome
Director - Project Development
Calpine Corporation
4160 Dublin Boulevard
Dublin, CA 91101

Dear Mr. Whittome,

PASTORIA ENERGY FACILITY EXPANSION PROJECT (05-AFC-01)
DATA REQUESTS

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff requests the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This set of data requests (#1-48) is being made in the areas of air quality, biological resources, cultural resources, efficiency, hazardous materials, public health, soils and water resources, and transmission systems engineering. Written responses to the enclosed data requests are due to the Energy Commission staff on or before August 13, 2005, or at such later date as may be mutually agreeable.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, you must send a written notice to both Chairman Joseph Desmond, Presiding Committee Member for the Pastoria Energy Facility Expansion (PEFE) Project proceeding, and to me, within 10 days of receipt of this notice. The notification must contain the reasons for not providing the information, the need for additional time and the grounds for any objections (see Title 20, California Code of Regulations section 1716 (f)).

If you have any questions, please call me at (916) 653-1245, or E-mail me at jreede@energy.state.ca.us.

Sincerely,

James W. Reede, Jr., Ed.D
Energy Facility Siting Project Manager

cc: POS

Technical Area: Air Quality
Author: William Walters

AIR QUALITY PERMIT APPLICATION

BACKGROUND

The proposed project will require permits from both the San Joaquin Valley Air Pollution Control District (SJVAPCD or "District") and the United States Environmental Protection Agency (USEPA). In order to meet the 12-month siting process schedule, staff will need copies of all correspondence between the applicant and the District/USEPA in a timely manner.

DATA REQUEST

1. Please provide copies of all substantive District and USEPA correspondence regarding the PEFE permit applications, including e-mails, within one week of submittal or receipt. This request is in effect until the final Commission Decision has been recorded.

EXISTING OPERATING PEF CONDITIONS OF CERTIFICATION

BACKGROUND

This project will entail many new Conditions of Certification (COCs) for the new simple cycle turbine and will require modifications be made to a few of the existing COCs that cover the entire PEF facility. Staff needs to confirm that no other COCs beyond those that staff believes need to be modified are requested to be modified.

Staff's review of the existing operating air quality COCs indicate that the following facility-wide COCs will need to be revised to incorporate the new turbine into the facility:

- AQ-20, AQ-21, AQ-24, AQ-58, AQ-67, and AQ-90

2. Please confirm that none of the other operating air quality COCs, as they apply to any of the existing PEF emission sources, are requested to be modified; or if any modifications are requested then please list them and provide the rationale for each requested change.

PREVENTION OF SIGNIFICANT DETERIORATION PERMIT

BACKGROUND

The Prevention of Significant Deterioration (PSD) permit review conducted by USEPA will include a review of Class 1 modeling analysis by the U.S. Forest Service (USFS) Federal Land Manager (FLM). Staff will need to work with the proper FLM contact to complete its review of the Class 1 modeling analysis and potential impacts to Angeles National Forest. Additionally, staff has questions regarding the Class 1 modeling analysis.

DATA REQUEST

3. Please provide the name(s) and contact information for the FLM personnel that will be responsible for reviewing the Class 1 modeling analysis for this project.

4. The AFC notes on page 5.2-48 that the Class 1 modeling analysis followed guidance provided by the FLMs' Air Quality Related Values (AQRV) Work Group (FLAG) Phase I report (USFS et. al., 2000), the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report, USFS guidance on nitrogen deposition analysis thresholds (January 2002) and particle speciation (November 2002), and additional guidance provided in personal communications with the USFS." However, the full references for the latter two documents/sources and personal correspondence are not provided. Please provide the full reference for each of the latter two documents/sources referenced; and provide the names, dates, and descriptions of the relevant guidance for the USFS personal communication references.

STARTUP AND SHUTDOWN EMISSIONS

BACKGROUND

The requested startup and shutdown emission limits appear to be higher than necessary for a simple cycle turbine. The startup/shutdown emission limits being proposed are the same as those originally proposed and accepted for combined cycle projects, such as the San Joaquin Valley Energy Center (00-AFC-22) approved by the Commission in 2004. As a comparison, the permitted emission hourly emission limits for hours with startups/shutdowns for a somewhat smaller 7E frame turbine are 26 lbs/hour for NOx and 42 lbs/hour for CO. This makes the requested emission limits of 80 lbs/hour for NOx and 902 lbs/hour for CO appear overly conservative. Additionally, a shutdown duration of one hour seems excessive for a simple cycle turbine. Staff would like to know the expected maximum duration for a shutdown and needs a technical rationale for the startup/shutdown emission limits being requested.

DATA REQUEST

5. Please indicate the actual expected maximum duration for a shutdown.

6. Please provide technical rationale, such as shutdown emission monitoring data from similar 7F simple cycle turbines, for the proposed shutdown emission limits.

7. Please provide technical rationale, such as startup emission monitoring data from similar 7F simple cycle turbines, for the proposed startup emission limits.

SELECTIVE CATALYTIC REDUCTION SYSTEM

BACKGROUND

Staff is not aware of any General Electric 7F series turbines operating in simple cycle that also have a Selective Catalytic Reduction (SCR) system. The AFC does not provide adequate description of the SCR system and ancillary equipment necessary for the operation of SCR system on a 7F simple cycle turbine. Staff requires additional information to assess the SCR system and its reliability for this project.

DATA REQUEST

8. General Electric performance data for the 7FA turbine indicates a turbine exhaust temperature of over 1,100°F. Based on AFC Table 5.2-15, it appears that a dilution air system will be incorporated into the design to get the exhaust temperature into the 800°F range that is acceptable for the SCR catalyst. However, other than one note in Table 5.2-15, there is no information provided for the dilution air system. Please confirm that a dilution air system will be used and provide an engineering description of the dilution air system and the related equipment.

9. Staff's initial calculations indicate that approximately 30% of the total exhaust mass flow will have to be dilution air to reduce the turbine exhaust temperature from 1,100°F to 800°F; however, the exhaust flow values presented in the AFC do not seem to include the dilution air flow. Please show how the dilution air has been incorporated into the exhaust mass flow and velocity values provided in Table A-1, or correct the table and all relevant dispersion modeling runs to account for the additional dilution flow.

10. Please describe the turbine startup and shutdown sequencing with respect to the dilution air system and describe the control measures that will ensure that damaging exhaust temperatures will not reach the SCR catalyst.

11. Please provide:

    a. the SCR vendor name,

    b. SCR vendor specifications for the SCR system, and,

    c. Vendor guarantees for the proposed 2.5 ppm NOx limit and proposed 10 ppm ammonia slip limit.

12. Please identify, to the best of your knowledge, if there are any operating GE 7FA simple cycle turbines that have SCR catalysts and provide their permitted NOx emission limits.

CONSTRUCTION EMISSION CALCULATIONS

BACKGROUND

The construction emission calculation uses equipment fuel use assumptions that are not referenced. In order for staff to complete its analysis of the construction emission impacts it needs to understand all of the assumptions used in the emission calculations.

DATA REQUEST

13. Please provide references for the fuel use assumptions presented in the Combustion Emission Ranking Table provided in Attachment D of the Air Quality Technical Report.

OPERATING EMISSIONS

BACKGROUND

The operating emissions presented in the AFC tables are not consistent and some emission values were not presented. Additionally, staff is not certain that the operating assumptions used provide the worst-case daily emissions. Staff needs to confirm the correct emission values for all pollutants under all operating scenarios.

DATA REQUEST

14. The daily CO and VOC emission values presented in Table 5.2-20 and 5.2-35 are inconsistent. Please identify the correct emission values.

15. Please provide the total hourly, daily, and annual ammonia emission limits, based on the ammonia concentration limit, for the existing PEF facilities.

16. The daily worst-case emission calculations assume only one startup/shutdown cycle. Using the hourly startup/shutdown emission rates shown in Table 5.2-19, several other worst case scenarios can be envisioned for this simple cycle turbine depending on actual dispatch. For example, if the turbines were dispatched for the daily demand peak from 9 AM to 5 PM and again during the evening peak of 8 PM to 10 PM, the calculated CO emissions would be significantly higher than those currently calculated for the worst-case day. Please confirm that the proposed worst-case daily emission limits are maximum values that can be complied with even if the facility were to undergo multiple daily startup/shutdown cycles.

17. a. Please confirm that the facility will be able to comply with the proposed normal operating hourly emission limits even during rapid load changes which are likely to occur to this peaking turbine; and,

    b. Also please confirm that no emission excursion language, as has been requested in other recent projects, will be requested to be added to the permit conditions.

18. The daily emission estimates for NO_2 and CO, as shown in Tables 5.2-20 and A-2, appear to include different startup/shutdown emission rates than those used for the hourly and annual emission estimates. Please confirm that the daily emission estimates should be calculated using the hourly startup emission rates multiplied by the assumed maximum daily number of hours in startup/shutdown mode.

AIR QUALITY REGULATION COMPLIANCE TABLE

BACKGROUND

The air quality regulation compliance table (Table 5.2-14) references non-existent sections within the air quality section and needs to be corrected.

DATA REQUEST

19. Please correct Table 5.2-14 so that it references the appropriate regulation compliance sections.

DISPERSION MODELING - METEOROLOGICAL DATA AND OZONE FILE DATA

BACKGROUND

The meteorological data used in the near-field modeling analysis is not consistent between the ISCST3/CTSCREEN and NOx_OLM modeling runs. Additionally, the NOx_OLM modeling used an ozone input data file that is over 8 years old. Staff needs additional information to prove that the meteorological and ozone data used in the modeling analysis was approved by the SJVACPD, and the rationale for using different meteorological years for the different models.

DATA REQUEST

20. Please explain why 1963 Bakersfield meteorological data was used for the operating emissions health risk assessment modeling runs and most of the construction emissions modeling runs while 1964 Bakersfield meteorological data was used for the construction NOx_OLM modeling runs.

21. Considering that two years of SJVAPCD approved Bakersfield meteorological data was available, please explain why both years were not used in the modeling analysis?

22. Please provide rationale why the 1996 Arvin ozone data file was used in the NOx_OLM modeling analysis.

DISPERSION MODELING – CTSCREEN MODEL

BACKGROUND

The CTSCREEN model was used to determine refined modeling impacts for direct operating and cumulative emissions. This modeling is a screening version of the CTDM/CTDMPLUS model and does not use real meteorological data. Therefore, staff is concerned that this model does not provide site-specific refined modeling impact results. While staff supports the use of a terrain adjusting model, we would prefer the use of models that use actual representative meteorological data such as CTDMPLUS, AERMOD, or CALPUFF. Additionally, an initial conversation with SJVAPCD staff indicates that they have the same general preferences. Staff needs additional information regarding the use and regulatory acceptance of this model.

DATA REQUEST

23. Please identify why a screening model (CTSCREEN), rather than CTDMPLUS, was used to present refined modeling results and provide information that supports that the CTSCREEN time scaling factors are appropriate for the project location.

24. Please provide information that the District and USEPA has approved, or will approve, the use of CTSCREEN for this project.

DISPERSION MODELING – MODELING RESULTS

BACKGROUND

The near-field operating and cumulative emissions refined modeling impact analysis uses the ISCST3 and CTSCREEN models. However, the presentation of the results does not always clearly indicate which model applies to the results presented. In order to review the modeling analysis in the time available in a 12-month licensing process, staff needs additional information to clearly understand which modeling results refer to which modeling files.

DATA REQUEST

25. Please provide a chart that notes which output modeling files, by file name, were used to present each of the results presented in AFC Tables 5.2-23, -24, -26, and -27.

EMISSION OFFSETS

BACKGROUND

The emission offset package includes: 1) the use of a considerable amount of pre-baseline (aka "pre-1990") emission reduction credits; 2) the use of at least portions of the same ERC certificates that are required to be used for the San Joaquin Valley Energy Center (01-AFC-22); and 3) the use of an old NOx for PM10 interpollutant offset ratio value that staff first evaluated and approved in 1999. Staff needs additional information to: 1) determine the potential secondary impacts of the use of the pre-baseline ERCs; 2) to be able to conclude that there is no double use of any portion of any ERC certificate; and 3) to be able to conclude that the technical rationale for the proposed NOx for PM10 interpollutant offset ratio is still technically sound.

The proposed NOx for PM10 interpollutant offset ratio of 2.22 to 1 (2.72 to 1 including distance ratio) was originally determined to be adequate for the La Paloma siting case in 1999, and was then used again in the original Pastoria case in 2000 (which was subsequently amended by Calpine in favor of a SO2 for PM10 interpollutant offset approach). It has been many years since the original NOx for PM10 interpollutant offset ratio determination for La Paloma and some of the interpollutant offset calculation methods and information used in those interpollutant offset calculations may have changed in the intervening years.

DATA REQUEST

26. Please identify the date and quantity of pre-baseline ERCs, by pollutant, that were surrendered for the existing Pastoria project, and indicate if the use of those ERCs are likely to cause a failure of the annual offset equivalency evaluation.

27. Please discuss whether the surrendering of the Pastoria expansion project pre-baseline ERCs may affect future year offset equivalency determinations.

28. Please update the "Calpine Corporation San Joaquin Valley ERC Reconciliation" table that was prepared December, 2004, for the Pastoria ERC amendment. Please provide a copy of this table electronically (.pdf or .xls).

29. Please provide information to verify that the proposed NOx for PM10 interpollutant offset ratio remains conservative given the changes in approved interpollutant calculations methods and more recent data for the NOx for PM10 interpollutant offset ratio calculation input variables.

INITIAL COMMISSIONING EMISSIONS

BACKGROUND

The applicant has given their estimated emissions during the initial commissioning phase of operation in Appendix B, table B-7. Staff recently analyzed (approved by the Commission on December, 2004) an amendment from the current owners of the existing

Pastoria facility (Pastoria Energy Facility, LLC), that approved an increase in hourly commissioning NOx emissions to 308 lbs/hour and CO hourly emissions to 2,527 lbs/hour. These levels of emissions are greater than the maximum emissions identified during commissioning of the proposed expansion CTG in Table B-7. It should be noted that the turbine model for the expansion CTG (the GE frame 7FA) is identical to the combustion turbines for the present Pastoria project. In order to avoid future variances and/or amendments for the expansion CTG, staff believes that further evaluation of the emissions provided in Table B-7 are necessary.

DATA REQUEST

30. Please provide the technical rationale, including the source(s) of emissions data, that show a maximum of 129.8 lbs/hour for NOx and 902 lbs/hour for CO in light of the commissioning emissions for the Pastoria Amendment (99-AFC-7) which are identified as 308 lbs/hour for NOx and 2,527 lbs/hour for CO.

31. If the applicant decides to revise their emissions characteristics for commissioning activities, please revise Table 5.2-24 of the AFC and Tables B-7 and B-8 of the Appendix. Also please provide the revised modeling files that would substantiate the revisions to Tables 5.2-24 and Table B-8.

COMBUSTOR TUNING/SHORT TERM EMISSION LIMITS

BACKGROUND

Staff has recently reviewed and approved project amendments that have asked for separate short-term emission limits for combustor tuning events, separate from start-up events, which would occur after initial commissioning. However, no such request appears to have been made for this project's simple cycle turbine. Staff would like to ensure that the conditions of certification and the district permit conditions include these events, if necessary, in order to reduce the potential for future amendment requests. In order for staff and the district to formulate proper conditions the applicant needs to identify if any post initial commissioning combustor tuning events may be necessary and provide reasonable estimates for the frequency, duration, and emissions of these combustor tuning events.

DATA REQUEST

32. Please identify if combustor tuning events, which create the potential for higher than normal operating emissions, may occur and provide reasonable estimates for the frequency, duration, and emissions of these combustor tuning events.

33. Please provide suggested permit condition language to incorporate combustor tuning events, if necessary, based on the response to the data request above.

Technical Area: Biological Resources
Author: Susan Sanders

BACKGROUND

The applicant proposes to construct and operate an additional 160 MW unit at the same 31-acre Pastoria Energy Facility (PEF) site that was analyzed and licensed in 99-AFC-7. This addition will require minimal changes to the existing PEF, but construction will require continued compliance with some of the same Conditions of Certification that applied to 99-AFC-7 (e.g., implementation of Worker Environmental Awareness Program). Staff therefore needs to assess compliance with the agency-approved PEF Biological Resources Mitigation Implementation and Monitoring Plan and the USFWS Biological Opinion. This information will be included in the Final Biological Resources Report, a document that apparently is in preparation.

DATA REQUEST

34. Please complete and submit the Final Biological Resources Report described in Volume II, Summary of Construction Compliance Related Biological Resources Information, Appendix E.

35. Please submit a copy of the Amended Biological Opinion, issued by the USFWS on 2/13/04.

Technical Area: Cultural Resources
Author: Dorothy Torres

BACKGROUND

The applicant sent letters to individuals and groups of Native Americans identified by the Native American Heritage Commission. The letters described the project and asked whether any Native Americans had concerns regarding cultural resources that might be affected by the project.

DATA REQUEST

36. Please provide copies of any written correspondence received from Native American individuals or groups. If the project receives a comment by telephone, please provide a summary of the conversation.

Technical Area: Power Plant Efficiency
Author: Steve Baker

BACKGROUND

Two alternative methods of cooling the gas turbine's inlet air are evaporative cooling and fogging. Depending on which method is employed, there would be a slight difference in plant efficiency, and a significant difference in project wastewater disposal (with a concomitant difference in project energy consumption). The Application states in some sections (e.g., §§ 1.3.4, 3.1, 3.4.8.1) that turbine inlet air will be cooled by an evaporative cooling system. It states elsewhere (e.g., Table 3.4.1-1, Figure 3.4-1, §§ 3.9.2.1.3, 4.3.2) that inlet air will be cooled by fogging.

DATA REQUEST

37. Please discuss which method for cooling the gas turbine's inlet air will be used and why it was chosen.

Technical Area: Hazardous Materials Management
Author: Alvin Greenberg, Ph.D.

BACKGROUND

Table 3.4.10-1 of the AFC lists the chemicals used for water treatment, none of which have changed as a result of this expansion. However, several chemicals are not identified, such as "Oxygen scavenger 30%," "Scale inhibitor," and "Polymer." In order to conduct an assessment of the risks posed to the public due to the transportation, storage, and use of hazardous materials, staff needs the identity of all chemicals proposed for use on the site. Additionally, no information has been provided about the increase in deliveries of anhydrous ammonia with this expansion. Anhydrous ammonia is classified and regulated as an acutely hazardous material and the increase in deliveries must be known before staff can assess the risk to the public due to an increase in deliveries.

DATA REQUEST

38. Please provide the chemical name and Chemical Abstract Service (CAS) number of the hazardous materials currently identified as Oxygen scavenger 30%," "Scale inhibitor," and "Polymer in Table 3.4.10-1 of the AFC.

39. No information has been provided about the increase in deliveries of anhydrous ammonia with this expansion. Please provide an estimate of how many truck deliveries of anhydrous ammonia will occur per year, taking into account the deliveries required for the existing PEF, and the proposed Expansion facility.

Technical Area: Public Health
Author: Alvin Greenberg, Ph.D.

BACKGROUND

The Public Health section of the Application for Certification did not include the additional cooling tower emissions caused by the expansion.

DATA REQUEST

40. The Health Risk Assessment does not include cooling tower emissions. Please provide these emission factors.

Technical Area: Soil and Water Resources
Author: Linda D. Bond

BACKGROUND

The Applicant has provided a copy of their primary water supply agreement (Contract Between Wheeler Ridge-Maricopa Water Storage District and Pastoria Energy Facility, LLC for Industrial Water Service dated 11/29/2000), but omitted Exhibit A referenced in this contract. The contract indicates that Exhibit A contains key information, including a listing of the maximum amount of water that may be ordered annually.

DATA REQUEST

41. Please provide a copy of Exhibit A for the Contract between Wheeler Ridge-Maricopa Water Storage District and Pastoria Energy Facility, LLC for Industrial Water Service dated 11/29/2000. If this contract has been amended or replaced, please provide a copy of the current water supply contract and all associated exhibits and amendments.

BACKGROUND

The Application for Certification, page 3-3 states the following:
"Stormwater will be discharged to the existing PEF onsite stormwater detention pond. Stormwater that does not infiltrate into the soils or evaporate will be discharged to Pastoria Creek in accordance with applicable regulations and in coordination with Tejon Ranch."
The AFC did not provide recent chemical characteristics of the groundwater and Pastoria Creek at or near the site. This information is required under the California Energy Commission Power Plant Site Certification Regulations. This data establishes the baseline against which any future contamination from discharges would be measured.

DATA REQUEST

42. Please provide a description of the chemical characteristics of the groundwater.

43. Please provide a description of the chemical characteristics of Pastoria Creek.

BACKGROUND

The Application for Certification, page 3-3 states the following: "Stormwater that does not infiltrate into the soils or evaporate will be discharged to Pastoria Creek in accordance with applicable regulations and in coordination with Tejon Ranch." Since the proposed project will add to the site's impervious surface area the amount of soil available to absorb stormwater will be reduced which staff assumes could lead to an incremental increase in levels of stormwater flowing to Pastoria Creek. The report, Flood Inundation Study for the Pastoria Energy Facility (URS, September 6, 2001), which was submitted by the Applicant with the Supplement to AFC (6/13/2005), noted several assumptions describing the characteristics of water flows that would exit the project site during flood events. However, neither the current AFC nor the report addressed the effects of the expansion project on the flood flows downstream of the project.

DATA REQUEST

44. Please provide a description that specifically addresses the incremental effect of the expansion project on flood flows that are diverted around the project and that exit the project. The description should include a discussion of how the project would affect flow velocities, sediment deposition and sediment scour around the project and downstream of the project compared to pre-expansion project conditions.

Technical Area: Transmission System Engineering
Author: Sudath Arachchige and Mark Hesters

BACKGROUND

Staff needs to completely identify downstream transmission facilities required for the interconnection of the new project. Staff requires a completed Facility Study by Southern California Edison that identifies electric system impacts of the project and discusses mitigation measures considered and those proposed to maintain conformance with National Energy Regulatory Commission (NERC), Western Systems Coordinating Council (WSCC) and California Integrated System Operator (Cal-ISO) reliability or planning criteria. Any significant electric facilities identified by this study will require environmental analysis.

DATA REQUEST

45. Please provide a signed copy of the Facility Study Agreement with Southern California Edison and indicate in a schedule when the Facility Study will be completed.

46. Please provide a complete Facility Study. This study should demonstrate conformance with NERC, WSCC and Cal-ISO reliability or planning criteria based on load flow, post transient, transient and fault current studies. Where mitigation is

required to ensure compliance with the previously mentioned criteria, provide the alternatives considered and the reasons for choosing a preferred alternative.

47. Please submit an Environmental Assessment for Transmission Line Upgrades and Mitigations.

48. Please submit the letters of approval (preliminary and final) from the CAISO for interconnection of the new unit.