

CALIFORNIA ENERGY COMMISSION1516 NINTH STREET
SACRAMENTO, CA 95814-5512

December 3, 1999

Mr. Bill Chilson
Otay Mesa Generating Company, LLC
c/o PG&E Generating
100 Pine St., Suite 2000
San Francisco, CA 94111

Dear Mr. Chilson:

OTAY MESA GENERATING PROJECT 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 project alternatives and potential mitigation measures.

Data requests are being made in the areas of: air quality and soil/water resources. Written responses to the enclosed staff data requests are due to the Energy Commission staff on or before **December 30**, 1999, or at such later date as may be mutually agreed.

If you are unable to provide the information requested, need additional time to provide the information or object to providing it, you must, within 15 days of receipt of this notice, send a written notice to both Vice Chair David A. Rohy, and me. 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 (e)).

A publicly noticed workshop is scheduled for December 8, 1999, at the Chula Vista Public Library in Chula Vista, California, to discuss and clarify these data requests. Staff will be available to answer questions regarding the data requests and the level of detail required to answer the requests satisfactorily. If you have any questions regarding the enclosed data requests, please call me at (916) 654-4082.

Sincerely,

Eileen Allen
Energy Facility Siting Project Manager

CC: Otay Mesa Generating Project Proof of Service List
Stella Caldwell, San Diego County Planning Dept.
George Ream, San Diego County Public Works Department
Arthur Carbonell, San Diego Air Pollution Control District
Chris Gallenstein, California Air Resources Board
David Wampler, U.S. E.P.A.

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OTAY MESA GENERATING PROJECT
DATA REQUESTS
(99-AFC-5)

Technical Area: Air Quality
Author: Matt Layton

BACKGROUND

In order to evaluate the air quality impacts from the project, we need to define the equipment and technologies employed at the project, and quantify the air pollutant emissions from the equipment used at the project.

DATA REQUESTS

14. Regarding the combustion turbines that will be used at the project:
 - a. Which turbine (manufacturer) will be used at the project?
 - b. When will the final selection be made?
15. Regarding the auxiliary cooling water heat exchanger:
 - a. What is its function?
 - b. What are the air emissions associated with its operation?
 - c. Will it be on-line during all modes of plant operation, or only during certain periods, such as peaking operation or during periods of elevated ambient temperatures?
 - d. How many hours per year will the system be in operation?
16. Regarding the fuel heating system:
 - a. What effect does it have on the emissions from the facility?
 - b. Will the fuel heater be on line at all times, or only during certain periods, such as peaking operation?
 - c. How many hours per year will the system be in operation?
17. Regarding the steam or water injection into the combustion turbines:
 - a. What effects do steam or water injection have on the emissions from the facility?
 - b. Will the steam or water injection system be operating during all modes of plant operation, or only during certain periods, such as peaking

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operation, during periods of elevated ambient temperatures, or at less than 73% load?

- c. How many hours per year will the system be in operation?

BACKGROUND

In this case, the applicant is proposing to use a relatively new and unproven emissions control technology, “SCONOX,” which reduces NOx, VOC, and SO2 emissions through an oxidation/absorption process. The technology has been proven on smaller turbines (LM2500), but, to date, has not been deployed on larger “F” class combustion turbines. The final stack chemistry should be very similar to other combustion turbine combined cycle projects regardless of size, but the 6-fold scale-up could present some engineering challenges.

DATA REQUEST

- 18. Please describe how the project will limit its NOx emissions to 100 tons per year.
 - a. Will there be a permit limit placed on the number of hours of operation or will the project over-control NOx emissions?
 - b. Please provide any proposed conditions and permit language.
- 19. Please discuss the proposed “target” of 1 ppm NOx for the SCONOX emission reduction system, and its effects on the project’s ability to:
 - a. Purchase fewer offsets; and
 - b. Bank emission reduction credits for sale on the market; or expand the capacity of the proposed project.

NOTE: The applicant will need to describe how the testing or demonstration phase would be conducted, what effect it might have on the availability and reliability of the project, or how the project design and construction would be shaped by the future tests of the SCONOX system.

- 20. Please discuss the uncertainties associated with the SCONOX technology for this application, including, but not limited to: scale-up, performance, reliability, and whether emissions can be measured accurately and reliably at the low emission levels proposed.

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21. Please discuss any contingency plans needed to address the potential failure of the SCONOX system to achieve the required performance. The plan should address the likelihood of ammonia use with an SCR system and any potential impacts and mitigation. Please clarify if with SCR the project would still request 2 ppm NOx level on a three-hour rolling average, or 2.5 ppm NOx on a 1-hour rolling average.

BACKGROUND

In order to evaluate the air quality impacts of project construction, we need to define the equipment and technologies employed at the project, and quantify the air pollutant emissions from equipment used at the project. The air dispersion construction impact modeling conducted by the applicant indicates that the construction equipment and activities will cause violations of NO2 and PM10 standards.

DATA REQUEST

22. Are the PM10 emissions from the lay down area included in the construction fugitive dust emissions? If not, please include them in the calculated PM10 emissions from construction activities and rerun the modeling.
23. Regarding the modeled NO2 impacts from construction equipment exhaust emissions, please discuss the potential benefits and costs of using a modified diesel fuel like Lubrizol's PuriNOx in all on-site construction equipment.
NOTE: PuriNOx can reduce NOx emissions from diesel engines from 5 to 20 percent and up to 50 percent in some cases. Most engines require little or no modifications to be able to use PuriNOx fuel directly. PuriNOx can be blended off -site and then stored on-site for use, or it can be blended on-site. Additionally, PuriNOx can reduce PM10 emissions from 10 to 50 percent.
24. Regarding the modeled PM10 impacts from construction equipment exhaust emissions and fugitive dust, please discuss the potential benefits and costs of using soot traps on all on-site construction equipment.
NOTE: These "bolt on" soot traps can reduce PM10 emissions from diesel engines up to 90 percent.

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BACKGROUND

In Section 5.2.3, the AFC suggests that “[t]he Otay Mesa Generating Project is predicted to have predominantly insignificant impacts locally and regionally, and its emissions will be fully offset by a ratio of greater than 1:1.” Section 5.2.2 also suggests that the Otay Mesa Generating Project is predicted to displace older thermal power plants, which are less efficient and emit more air pollutants per MW hr than the Otay Mesa project.

DATA REQUEST

25. a. Is PG&E Generating proposing to provide emissions offsets for all criteria and precursor air pollutant emissions from the project?
- b. Please explain why the statement about potential displacement is made in this section.
- c. What issue related to a determination of the project’s compliance with air quality LORs is the statement meant to address?
- d. How are these beneficial effects uniquely attributable to the Otay Mesa project?
- e. Would these benefits occur anyway if an alternative project with a similar size were built instead, in or out of the region?

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BACKGROUND

It is now believed that most large combustion turbines that use Dry Low-NOx (DLN) combustors emit NOx that has a much higher NO2/NO ratio than generally assumed. In the past, NO2 was assumed to be from 10 to 25 percent of the NOx emission. Actual NO2 values from modern combustion turbines using DLN combustors may be in the range of 50 to 90 percent of the NOx emissions. (ASME, Low Nox Measurement: Gas Turbine Plants, Final Report on Review of Current Measuring and Monitoring Practices, January 11, 1999, Report No. 9855-4, CRTD Vol. 52). The title page for this report is attached.

DATA REQUEST

26. Please discuss whether the ozone limiting method applied in the AFC is still appropriate if actual NO2 emissions from the project are 50 percent, and/or as high as 90 percent of the NOx emissions from the project.

BACKGROUND

In order to evaluate the effectiveness of the proposed air quality mitigation for the project, we need to define and quantify the potential offsets to be used by the project. In this case, the applicant is pursuing a range of approaches to provide the offsets needed for their project. These include stationary source NOx emission reduction credits (ERCs), stationary source volatile organic compound (VOC) ERCs to interpollutant trade for NOx, and mobile sector NOx ERCs (MERCs), for which significant regulatory issues will need to be resolved.

DATA REQUEST

27. When will the stationary source offset package (banked NOx and VOC ERCs or Letters of Intent (LOIs) be submitted to the Commission)?

BACKGROUND

The applicant is proposing to use an interpollutant trading ratio of 2 VOC for 1 NOx, as specified in the District's New Source Review (NSR) rule. However, the EPA identified the VOC to NOx interpollutant trading ratio as a deficiency in the District NSR rule, stating that there is not adequate documentation to support the 2:1 ratio.

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DATA REQUEST

28. a. Please provide the analytical basis that supports the proposed interpollutant trading ratio of 2 VOC to 1 NO_x.
- b. Additionally, will the applicant be providing additional information to the District to support the District's effort to document the proposed interpollutant trading ratio?

BACKGROUND

The applicant has proposed that the majority of offsets come from the mobile sector, in the form of Mobile Emission Reduction Credits (MERCs). While the District has a MERC banking rule in place (Rule 27), the rule has not previously been successfully used to generate MERCs or offsets for use by a stationary source. In this case, the applicant is proposing to convert portions of heavy and light duty truck fleets from diesel to compressed or liquefied natural gas. Natural gas engines emit less NO_x than the current truck engine standards require. The applicant is proposing to bank the difference between today's diesel engine NO_x standard and the certified performance levels of the natural gas engines.

DATA REQUEST

29. When will the MERC applications be submitted to the District?
30. How many MERCs are required?
31. When will the MERC offset package (banked ERC or LOI) be submitted to the Commission?
32. When will the MERC engines enter into service in the San Diego area?
33. a. Will natural gas engine manufacturers be able to supply the expected demand for engines in the time frame required by this project?
- b. Please discuss the number and type of engines required, including any marine applications, and any competing engine replacement programs being conducted nationwide that will also need natural gas-fired engines.
- c. Will the likelihood that these engines will be purchased and installed near the implementation date for new engine standards add additional demand for these natural gas-fired engines nationwide?

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- 34. a. Will the MERC applications include engines currently unpermitted, such as marine engines?
- b. Are there any additional steps necessary to bank emissions reductions from currently unpermitted sources?
- 35. a. Are any District rule changes necessary to successfully bank and use MERCS, to offset stationary source emissions?
- b. What is the time needed to carry out any necessary rule changes?

BACKGROUND

Energy Commission staff responsible for school bus replacement programs are aware of seemingly premature NOx emissions performance degradation of natural gas engines. It appears that the lower NOx emission levels possible with natural gas engines degrade to levels that are higher or as high as current diesel engine standards. The degradation can occur in as little as three years. (Personal conversation with Gary Yowell, Clean Diesel Program, California Energy Commission).

DATA REQUEST

- 36. When will a monitoring program that includes testing protocols (e.g., sampling size, test intervals, etc.) and appropriate test methods be submitted to the District and the Energy Commission?
- 37. When will a contingency plan be submitted to the Energy Commission that addresses individual or fleet-wide engine “failures”?
- 38. What enforcement mechanism will be enacted to ensure that the new engines operate similarly to the diesel engines they replace (e.g., similar duty cycle and mileage).
- 39. Please discuss the costs and benefits (i.e., emissions reductions) of using clean diesel engines, low sulfur diesel, and/or other alternatives to the conversion to natural gas engines and infrastructure.

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BACKGROUND

The applicant has filed some of the details of the project offset package under the cover of confidentiality. Staff and the applicant are discussing the confidentiality application, and, in particular, the possibility that the material may be kept confidential up to the time the Final Determination of Compliance is filed. Depending on the contents of the confidential portions of the offset package, we believe that the length of time proposed by the applicant may interfere with the preparation of the Preliminary Determination of Compliance (PDOC) and Preliminary Staff Assessment (PSA). These public documents will include details of the offset package and the SCONox system.

DATA REQUEST

40. a. When will confidentiality agreements between the applicant and the Commission be completed?
- b. Please state the general nature of the information that would remain confidential.

BACKGROUND

With the introduction of large utility-scale combustion turbines to the resource mix, staff is concerned about the control of air pollutant emissions during low-load operation, load transitions, start-ups and shutdowns, and commissioning periods.

DATA REQUEST

41. Please discuss the proposed operation and corresponding emission levels of the Otay Mesa Generating project (e.g., base-load operation, with a minimum number of start-ups and shutdowns).
42. Please discuss the expected performance of the emission control systems during all necessary operating conditions, including commissioning, and submit any necessary permit conditions to limit emissions and related impacts.

BACKGROUND

The San Diego region is non-attainment for the state 24-hour PM10 ambient air quality standard. The District NSR rule has a significance criterion for PM10 impacts. Initial air quality modeling indicated that PM10 impacts from the project would exceed the significance level. Subsequent modeling efforts by the applicant with an alternative

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approved air quality model calculated PM10 impacts at or below the significance level. However, the modeling efforts do not address the potential issue of PM10 emissions from the project that contribute to existing violations of the state 24-hour PM10 standard. The applicant has not proposed PM10 offsets, nor does the District require PM10 offsets if the significance level is not exceeded.

DATA REQUEST

43. a. Please discuss the project's PM10 emissions and the modeled air quality impacts.

- b. Please discuss how the above (see 42a.) PM 10 emissions and related impacts relate to the District's attainment of the state PM10 standard and the maintenance of the federal PM10 standard.

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(99-AFC-5)**

Technical Area: Soil and Water Resources
Author: Matt Layton

BACKGROUND

Construction and operation of the Otay Mesa project may induce water and wind erosion at the power plant site and along the associated linear facilities. Stormwater runoff may also contribute to erosion and sedimentation as well as transport pollutants off-site.

DATA REQUEST

44. Please provide a draft erosion control and stormwater management plan that identifies all measures that will be implemented at the proposed Otay Mesa Generating Project. The draft erosion control plan shall identify all permanent and temporary measures in written form and depicted on a construction drawing(s) of appropriate scale. The purpose of the draft plan is to minimize the area disturbed, to protect disturbed areas, to retain sediment on-site and to minimize off-site effects of stormwater runoff. The elements of the plan shall include any revegetation efforts and best management measures to control stormwater runoff during construction and operation. In addition, any measures necessary to address Nationwide Permits or Streambed Alteration Agreements, as required, should be identified. Revegetation efforts should address both erosion control and habitat restoration. The plan should specify the type of seed and fertilizer, seeding and fertilizer rate, application method, the type and size of any container plants to be used and the criteria for judging revegetation success. The plan should also identify maintenance and monitoring efforts for all erosion, stormwater runoff control and revegetation measures including measures to rectify unsuccessful revegetation efforts.

BACKGROUND

When average annual and peak water consumption figures are estimated, they generally result in an under and over estimation of a project's water demand, respectively. This is because a facility does not continuously operate year round at average or peak conditions. The Water Mass Balance (Table 3.4-1) indicates that 300,000 gallons per day (gpd) would be used on average; the peak usage of freshwater will be 626,000 gpd. The estimated average annual water use is 313 acre-feet per year (Table 3.4-1A).

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DATA REQUEST

45. a. Please show the calculations used to derive the annual average water consumption shown in Table 3.4-1A.

b. Please discuss whether the annual average water consumption includes water used for steam injection and increases in water consumption for the evaporative coolers and water treatment system associated with peak usage.
46. Please provide the current water demand and supply and projected growth rates for the Otay Mesa Water District. Please discuss the impact of the operation of the Otay Mesa Generating Project on the Otay Mesa Water District water supply and demand today and for the life of the project.
47. Please describe the function and water use of the auxiliary cooling water heat exchangers.

BACKGROUND

The AFC indicates that wastewater streams will be disposed of through a new pipeline to the City of San Diego Metropolitan Wastewater Department sewer line. These wastewater streams will include stormwater flows from bermed or graded areas around equipment or operations that could be contaminated.

DATA REQUEST

48. Please identify on a plot plan those areas where stormwater runoff will be routed to the retention pond and oil/water separator. The information submitted should clearly demonstrate how drainage will be segregated to ensure that only stormwater which has not come into contact with potential contamination drains into natural channels.
49. Please provide the pre-treatment discharge permit from the City of San Diego Metropolitan Wastewater Department.
50. Please provide a plot plan showing existing and proposed contours for the power plant site. The plan should be at a scale of one inch equals one hundred feet (1"=100') and indicate permanent drainage features.