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October 14, 2015

John Chillemi, President
NRG Oxnard Energy Center, LLC
100 California Street, Suite 650
San Francisco, CA 94111

Regarding: **PUENTE POWER PROJECT (15-AFC-01),**
DATA REQUEST SET 2 (Nos. 48-77)

Dear Mr. Chillemi:

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.

In this Set 2, Data Requests are being made in the technical areas of: Air Quality/ Greenhouse Gasses (Nos. 48-69), Public Health (Nos.70-72), Transportation (No. 73) and Waste Management (No. 74). Written responses to the enclosed data requests are due to the Energy Commission staff on or before November 14, 2015.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to the Committee and me within 20 days of receipt of this notice. The notification must contain the reasons for the inability to provide the information or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions regarding the enclosed data requests, please call me at (916) 654-3936.

Sincerely,

<SIGNED>

Jon R. Hilliard, Siting Project Manager
Siting, Transmission and Environmental Protection Division

Enclosure (Data Request Packet)
cc: Docket (15-AFC-01)
Dawn Gleiter – NRG

Technical Area: Air Quality Modeling
Author: Wenjun Qian

BACKGROUND: EXHAUST PARAMETERS

Appendix C-5 of the Application for Certification (AFC) shows the input parameters that the applicant used in the air quality modeling analysis. Table C-5.2 shows that the applicant used a stack exhaust temperature of 900°F for all operating scenarios of the new gas turbine, including startups, shutdowns, and commissioning. Note a under Table 4.1-16 on Page 4.1-58 of the AFC shows that the exhaust characteristics, including the stack exhaust temperature of 900°F, reflect the ambient temperature of 39°F and 100 percent load, which results in maximum heat input/power output. However, staff believes that the stack exhaust parameters, including the stack exhaust temperature, would be different for different operating scenarios. Different exhaust temperature would result in different plume rise and possibly higher ground-level air quality impacts. In addition, the AFC does not show how the stack parameters for Mandalay Generating Station (MGS) Units 1, 2, and 3 were determined for the air quality modeling analysis.

DATA REQUESTS

48. Please provide vendor data showing stack parameters for different operating scenarios of the new gas turbine, including startups, shutdowns, and commissioning.

49. Please update the air quality modeling analysis using the stack parameters obtained for the above data request.

50. Please justify the use of the stack parameters for MGS Units 1, 2, and 3 so that the impacts of these units are conservatively estimated.

BACKGROUND: MODELING OF OVERLAP PERIODS

Page 4.1-28 of the AFC shows that during the commissioning phase of the proposed project, the existing MGS Units 1, 2, and 3 would remain available for operation and the commissioning modeling analysis accounts for the combined impacts for the new unit (undergoing commissioning) and operation of the existing units. Once the commissioning tests are complete and the new CTG is available for commercial operation, MGS Units 1 and 2 will no longer be operated and will be decommissioned; MGS Unit 3 would remain in operation.

During construction of the proposed project, the existing MGS Units 1, 2, and 3 would remain available for operation. The applicant did not model the combined impacts for the construction of the new units and the operation of the existing MGS Units 1, 2, and 3.

The applicant has shown that the emissions associated with decommissioning of the existing MGS Units 1 and 2 would be lower than the emissions associated with the construction of the proposed project. Thus the applicant did not perform a separate modeling analysis examining the impacts for the decommissioning activities. The Project Description section shows that decommissioning includes:

- De-energize electrical equipment;
- Purge gases from equipment (e.g., natural gas, hydrogen);
- Remove oil from all pumps, motors, pipes, oil reservoirs, transformers, and other equipment;
- Electrically isolate equipment;
- Physically isolate equipment by disconnecting from piping systems or other means;
- Operate and maintain equipment as required for environmental permit compliance (e.g., storm drainage system);
- Remove from service the backup diesel generator; and
- Verify that all facilities are left in a safe condition.

During decommissioning of the existing MGS Units 1 and 2, the proposed project would be operating and the existing MGS Unit 3 would remain in service. The applicant did not model the air quality impacts for the overlap period when the existing MGS Units 1 and 2 are decommissioned and the proposed project and existing MGS Unit 3 are operating.

DATA REQUESTS

51. Please model the combined impacts for the construction of the new units and the operation of the existing MGS Units 1, 2, and 3.

52. Please model the overlap period when the existing MGS Units 1 and 2 are undergoing decommissioning with the proposed project and existing MGS Unit 3 operating.

BACKGROUND: IN-STACK NO2/NOX RATIOS

The applicant used the Ozone Limiting Method (OLM) to calculate the NO_2 impacts of the project. The OLM requires an in-stack NO_2/NOx ratio to determine how much of the NOx in the exhaust is already in the form of NO_2 when the pollutants exit the stack. For the new gas turbine, the applicant used the NO_2/NOx ratios based on information provided by the vendor. The NO_2/NOx ratio for the new diesel emergency generator engine is based on U.S. EPA's ISR database. The AFC does not show how the NO_2/NOx ratios were determined for MGS Units 1, 2, and 3.

The applicant used a NO_2/NOx ratio of 11 percent for modeling diesel construction equipment. The applicant got the ratio from the CAPCOA 2011 guidance document: *Modeling Compliance of the Federal 1-Hour NO_2 NAAQS*. However, the CAPCOA guidance document listed a range of NO_2/NOx ratios from 6 percent to 11 percent for heavy duty diesel trucks and from 16 percent to 25 percent for light/medium duty gas/diesel trucks. Using a NO_2/NOx ratio of 11 percent might underestimate the fleet average ratio. For other Energy Commission siting cases such as the El Segundo Power Facility Modification project, staff has used a NO_2/NOx ratio of 20 percent for construction equipment.

DATA REQUESTS

53. Please provide justification for the selection of the NO_2/NOx ratios for MGS Units 1, 2, and 3.

54. Please justify the use of the NO_2/NOx ratio of 11 percent for diesel construction equipment.

55. Please update the NO_2 modeling analysis if any of the NO_2/NOx ratios needs to be changed.

BACKGROUND: PAIRED-SUM APPROACH FOR NO2 MODELING

In order to demonstrate compliance with the federal 1-hour NO_2 standard, the applicant used the paired-sum approach, which combines concurrent hourly project impacts with hourly background NO_2 data. Although the paired-sum approach is allowed by the CAPCOA's 2011 guidance document, U.S. EPA does not recommend such an approach except in rare cases of relatively isolated sources where the available monitor can be shown to be representative of the ambient concentration levels in the areas of maximum impact from the proposed new source (U.S. EPA 2011 memorandum *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard*). U.S. EPA also mentions another situation where such an approach may be justified in which the modeled emission inventory clearly represents the majority of emissions that could potentially contribute to the cumulative impact assessment and where inclusion of the monitored background concentration is intended to conservatively represent the potential contribution from minor sources and natural or regional background levels not reflected in the modeled inventory. For other Energy Commission siting cases, staff has been using seasonal hour-of-day background NO_2 data for the federal 1-hour NO_2 impact analysis, as suggested by U.S. EPA.

DATA REQUESTS

56. Please justify the use of the paired-sum approach for the proposed project.

57. If justification for the paired-sum approach could not be provided, please update the air quality modeling using seasonal hour-of-day background NO_2.

BACKGROUND: OPERATION OF THE EMERGENCY GENERATOR

Note (2) under Table C-2.8 in Appendix C-2 of the AFC states that the emergency generator engine would not be operated during commissioning testing of the new gas turbine and during startups or shutdowns of the new gas turbine. The applicant did not include the emergency generator engine in the air quality impact analysis for the commissioning phase and during startups/shutdowns of the new gas turbine.

DATA REQUEST

58. Would the applicant accept a staff condition of certification (COC) to limit routine readiness testing of the emergency generator engine to make sure it does not operate during commissioning testing of the new gas turbine and during startups

and shutdowns of the new gas turbine? If not, why not? If yes, please explain how onsite procedures would work to ensure no overlap of operations and provide a proposed COC.

BACKGROUND: FUMIGATION ANALYSIS

The applicant modeled the inversion break-up fumigation impacts and shoreline fumigation impacts for the new gas turbine and MGS Units 1 and 2. The applicant did not model the fumigation impacts for the emergency generator or the MGS Unit 3 because the applicant believes that this type of modeling is not performed for small combustion sources with relatively short stacks. Even though the stacks for the emergency generator and the MGS Unit 3 are relatively short, the buoyancy of the plumes would result in plume rise so that the plumes could interact with the inversion layer and the Thermal Internal Boundary Layer (TIBL, for shoreline fumigation). U.S. EPA guidance document *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised* (dated October 1992) provides tables showing downwind distances to the maximum ground level concentrations for inversion break-up fumigation (Table 4-4) and for shoreline fumigation (Table 4-5) as a function of stack height and plume height. The lowest stack height shown in these tables is 10 meters (32.8 ft.), which is lower than the stack height of 54 ft. for MGS Unit 3 and 70 ft. for the new emergency generator. Staff believes that the fumigation impacts need to be analyzed for MGS Unit 3 and the new emergency generator.

The applicant used SCREEN3 to model the inversion break-up fumigation impacts and shoreline fumigation impacts. U.S. EPA released a screening version of AERMOD, AERSCREEN, in 2010. The SCREEN3 model is essentially a screening version of the ISCST3 model, which was replaced by AERMOD. Thus AERSCREEN has replaced SCREEN3 as the recommended screening modeling. U.S. EPA has incorporated the fumigation algorithms in the new version of AERSCREEN (version 15181). The AERSCREEN (version 15181) model is capable of analyzing the fumigation impacts of the project.

DATA REQUESTS

59. Please provide fumigation impacts analysis for MGS Unit 3 and the new emergency generator.

60. Please update the fumigation impacts analysis using AERSCREEN (version 15181).

Technical Area: Air Quality
Author: Jacquelyn Record

BACKGROUND: OPERATIONS MITIGATION – EMISSION REDUCTIONS

Staff's position for a California Environmental Quality Act (CEQA) impact determination of operating emissions is that all nonattainment pollutants and their precursors need to be mitigated through emission reductions at a minimum ratio of 1:1. The South Central Coast Air Basin in the area of the project site is classified as nonattainment for the state ozone, and PM10 standards and federal ozone standard. Without proper emission reduction mitigation, this project could contribute to existing violations of the state and federal ambient air quality standards.

The applicant does not appear to propose to fully mitigate the project's projected future actual emission with actual emission reductions from the shutdown of existing MGS Boilers 1 and 2 at the adjacent Mandaly Generating Station (MGS). Staff needs additional information to understand the sequencing and emission offset potential of the boiler shutdown and a determination of whether the applicant will propose to mitigate the project's emissions of nonattainment and precursor pollutants to address staff's impact concerns.

DATA REQUESTS

61. Please discuss and provide a schedule as to when the applicant will provide a list of potential offset sources or other emission mitigation programs to be used by the applicant to obtain emission reduction credits that would mitigate the project's NOx, PM10, VOC and SOx emissions on a 1:1 basis.

62. Please discuss the amount of mitigation fees the applicant is willing to pay to the VCAPCD and the basis for calculating those fees.

Technical Area: Greenhouse Gases
Author: Jacquelyn Record

BACKGROUND: CARBON POLLUTION STANDARDS FOR NEW POWER PLANTS

On August 3, 2015, the U.S. EPA Administrator, Gina McCarthy signed a final rule[1] under Clean Air Act section 111(b) to limit the greenhouse gas emissions from new, modified, and reconstructed stationary sources: electric utility generating units. The final rule eliminates the originally-proposed criteria and establishes different limits of greenhouse gas emissions for base load and non-base load natural gas-fired turbines. A "non-base load" natural gas-fired turbine is one that has a capacity factor less than or equal to the lower heating value efficiency of the turbine, expressed as a percentage. Staff would like verification that the proposed P3 would comply with this final rule.

DATA REQUEST

63. Please demonstrate how P3 would comply with the recently-signed carbon pollution standards for new power plants.

BACKGROUND: COMPLIANCE WITH AVENAL PRECEDENT

As described in the AFC, P3 would be a simple-cycle combustion turbine with reliability, efficiency, turndown, ramp rate, startup time, and time to restart characteristics that will allow it to meet the terms of its power purchase agreement (PPA). Further, the AFC states that these characteristics would allow P3 to integrate into the local reliability area and transmission grid. However, the efficiency of the proposed turbine is not as high as some other simple-cycle options and staff would need to determine if the proposed project would comply with the Avenal Precedent. The Avenal Precedent Decision requires finding as a conclusion of law that any new natural gas-fired power plant certified by the Energy Commission must:

- "not increase the overall system heat rate for natural gas plants;
- not interfere with generation from existing renewables or with the integration of new renewable generation; and
- taking into account the two preceding factors, reduce system-wide GHG emissions."

DATA REQUESTS

To evaluate compliance with the Avenal Precedent please provide all of the following:

64. Please explain why this turbine was selected rather than one with a higher efficiency.

65. Please explain how the capacity factor and efficiency of P3 would not increase the overall system heat rate for natural gas plants.

[1] U.S. EPA 2015 - Environmental Protection Agency, Final Carbon Pollution Standards for New, Modified and Reconstructed Power Plants, August 3, 2015. The EPA Administrator, Gina McCarthy, signed the following notice on August 3, 2015, and EPA is submitting it for publication in the Federal Register (FR).

66. Please explain how the capacity factor and efficiency of P3 would not interfere with the generation from existing renewables or with the integration of new renewable generation.

67. Taking into account the two preceding factors, please explain how the capacity factor and the efficiency of P3 would reduce system-wide GHG emissions.

Technical Area: Air – Biological Resources
Author: Wenjun Qian

BACKGROUND: NITROGEN DEPOSITION ANALYSIS

The applicant modeled the nitrogen deposition impacts of the project. Table C-2.17 and Table C-2.18 in Appendix C-2 of the AFC show the nitrogen emission rates for the new equipment and for the existing Units 1 and 2. Staff also checked the nitrogen deposition modeling files that the applicant provided in the docketed CDs (TN# 206014). The applicant modeled two nitrogen emissions sources, one for NOx-based nitrogen and the other NH3-based nitrogen. The applicant used the stack parameters for the new gas turbine for both of the modeled emission sources. The nitrogen deposition modeling files provided by the applicant did not include other emission sources, such as the new emergency generator and the existing MGS Unit 3. The emission rates that the applicant used in the modeling files do not match those shown in Table C-2.17. The applicant used the nitrogen emission rate of 0.29 grams/sec (g/s) from NOx and 0.41 g/s from NH3 in the modeling analysis. However, Table C-2.17 shows nitrogen emission rate of 0.32 grams/sec (g/s) from NOx and 0.5 g/s from NH3 for the new gas turbine.

DATA REQUESTS

68. Please remodel the nitrogen deposition impacts of the new emergency generator and the existing MGS Unit 3 or justify why they were not modeled.

69. Please explain the differences of the emission rates in the modeling files and in Table C-2.17 and determine which one is correct. Remodel nitrogen deposition as needed.

Technical Area: Public Health
Author: Huei-An Chu (Ann), Ph.D.

BACKGROUND: CANCER BURDEN

Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the project. Cancer burden is calculated as the maximum product of any potential carcinogenic risk greater than 1 in one million, and the number of individuals at that risk level. Therefore, if a predicted derived adjusted cancer risk is greater than 1 in one million, the cancer burden is calculated for each census block receptor. Cancer burden is defined as the estimated increase in the occurrence of cancer cases in a population resulting from exposure to carcinogenic air contaminants.

DATA REQUEST

70. Please provide the calculations and results of the cancer burden of Puente Power Project within a 6-mile radius of the stack. The estimated cancer burden should not require additional dispersion modeling, but could use the modeling results docketed on August 17, 2015.

BACKGROUND: KML FILE

In HARP2, after calculating risk results, the ***Export*** option allows users to export the risk values of each grid or receptor into a KML file. Then the KML file could be imported into Google Earth to see an aerial image of the grids/receptors. However, staff couldn't generate the KML file since the air dispersion modeling was done separately in AERMOD, not in HARP2.

DATA REQUEST

71. Please explain in detail how to generate the AERMOD exported KML file.

72. Please provide the AERMOD exported risk data in KML format.

Technical Area: Traffic and Transportation
Author: Andrea Koch and Ashley Gutierrez

BACKGROUND: LEVEL OF SERVICE INFORMATION FOR VICTORIA AVENUE AND DORIS AVENUE

As part of the first round of data requests, staff asked for level of service (LOS) information for the intersection at W. Fifth Street and Victoria Avenue, and for the road segment of Victoria Avenue between W. Fifth Street and Gonzales Road, to help staff assess the feasibility of a change in route for exiting vehicles, where exiting vehicles would turn right to travel southbound on Harbor Boulevard. Staff needs LOS information for an additional intersection and road segment along this route.

DATA REQUEST

73. For the intersection of Victoria Avenue and Doris Avenue and for the West 5th Street road segment between Harbor Boulevard and Victoria Avenue, please submit traffic and LOS information equivalent to that provided in Tables 4.12-3, 4.12-6, 4.12-8, and 4.12-10 of the AFC.

Technical Area: Waste Management
Author: Ellie Townsend-Hough

BACKGROUND: ENVIRONMENTAL SITE ASSESSMENT

Puente Power Plant (P3) would be developed on approximately three acres of previously disturbed vacant brownfield located within the existing boundaries of the Mandalay Generating Station (MGS). The Application for Certification Phase I Environmental Site Assessment indicated that historical uses on the proposed project site include a dredging spoils storage area, an insulator testing facility, and abandoned gas lines. There is no background information on the possible chemical constituents or contaminants. The applicant proposes to conduct soil sampling to evaluate whether there has been any contamination of site soils but does not specify when (NRG 2015 Section 4.14.1.1 and Appendix M). Staff is concerned that since it is unknown what these materials may contain, whether the site is contaminated, and what the vertical and lateral extent of contamination might be, there may be a need for significant remediation. To determine if there would be potential risks to construction workers, P3 staff, and/or the environment, staff requests that the applicant conduct soil sampling and screening of this area on the proposed project site so potential impacts can be better understood prior to licensing. This would also be important for determining whether remediation would impact project design and schedule.

DATA REQUEST

74. Please provide a Phase II Environmental Site Assessment, include the results of field sampling and analysis which adequately characterize the presence of harmful chemicals or conditions and whether there would be any risk to construction workers, plant personnel, or the environment due to the presence of contamination in the soil.