CALIFORNIA ENERGY COMMISSION
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April 24, 2009

Jonathan Sacks, Project Director
Mirant Corporation
1155 Perimeter Center West
Atlanta, GA, 30338

RE: MARSH LANDING GENERATING STATION (08-AFC-3), DATA REQUESTS SET 2 (#60-69)

Mr. Sacks:

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff seeks 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; and, 4) assess potential mitigation measures.

This set of data requests (#60-69) are being made in the areas of Biological Resources and Transmission System Engineering (TSE). Written responses to the enclosed data requests are due to the Energy Commission staff on or before May 25, 2009, or at such later date as may be mutually agreeable. The information sought through these data request questions is not necessary for staff to complete its Preliminary Staff Assessment (PSA). However, as your staff knows, the answers to the following questions are necessary in order for staff to complete its Final Staff Assessment (FSA), and are asked accordingly.

These data requests are asked for good cause and to formalize the process. The TSE questions were either posed initially in Data Requests Set 1, or are being issued now -- despite an expired 180-day discovery window -- because of recent filings that occurred since Data Adequacy (i.e., the February, 2009 System Impact Study). Likewise, the Biological Resources question is issued – despite the 180-day expiration – because of outside agency involvement (US Fish & Wildlife Service interest in potential nitrogen deposition impacts, if any, on sensitive species in the Antioch Dunes National Wildlife Refuge).

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 the Committee and me within 20 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, Sec.1716 (f)). If you have any questions, please call me at (916) 654-4894 or email me at mike.monasmith@energy.state.ca.us.

Sincerely,

Mike Monasmith
Project Manager

cc: Docket (08-AFC-3), Proof of Service List

Technical Area: Biological Resources
Author: Heather Blair

BACKGROUND

Emissions from the proposed Marsh Landing Generating Station (MLGS), namely nitrogen oxides (NOx) and ammonia (NH_3), would result in nitrogen deposition from the atmosphere to the biosphere. Excessive nitrogen deposition can act as a fertilizer and promote the growth of non-native vegetation. The increased dominance and growth of invasive annual grasses is especially prevalent in low-biomass vegetation communities that are naturally nitrogen-limited, such as sand dunes. The Antioch Dunes National Wildlife Refuge (NWR), which is approximately 0.75 mile west of the MLGS site, comprises 67 acres of sand dunes that support the last known natural populations of the federally endangered Lange's metalmark butterfly, federally and state-endangered Antioch Dunes evening primrose, and federally and state-endangered Contra Costa wallflower. Major threats to these species include invasion of non-native vegetation and wildfire, which is exacerbated by the presence of non-native vegetation. Antioch Dunes evening primrose, Contra Costa wallflower, and naked buckwheat, the larval host plant of Lange's metalmark butterfly, require open sandy substrate for survival. Invasive non-native vegetation, which is enhanced by atmospheric nitrogen deposition, affects these species by outcompeting them for space, sunlight, moisture, and nutrients.

Nitrogen deposition and the resultant potential impacts to state and federally listed species at the Antioch Dunes NWR, is of concern to the Energy Commission, United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). To assess impacts to nitrogen-sensitive biological resources, staff requires additional information on nitrogen deposition resulting from MLGS emissions.

DATA REQUESTS

60. Please quantify the existing baseline total nitrogen deposition rate in the vicinity of MLGS (encompassing the areas listed in DR #61) in kilograms per hectare per year (kg/ha/yr). Provide the complete citation for references used in determining this number.
61. Please provide an analysis of impacts due to total nitrogen deposition from operation of the MLGS. The analysis should specify the amount of total nitrogen deposition in kg/ha/yr at the Sardis Unit and Stamms Unit of the Antioch Dunes National Wildlife Refuge, the freshwater/brackish marsh habitat north of the project area along the San Joaquin River shoreline, and all other "Areas of Concern" (B through R) as illustrated in AFC Figure 7.2-1.
62. Provide an isopleth graphic over USGS 7.5-minute maps (or equally detailed map) of the direct nitrogen deposition rates caused by the project that graphically depicts the results.
63. Please update the cumulative impact analysis (Tables 9-1 and 9-2) in Responses to Data Request Set #1 (Data Request #9) with nitrogen deposition values in kg/ha/yr. Provide an isopleth graphic over USGS 7.5-minute maps (or equally detailed map) of the direct nitrogen deposition values in the cumulative analysis.

Technical Area: Transmission System Engineering
Authors: Laiping Ng and Mark Hesters

INTRODUCTION

Staff needs to determine the system reliability impacts of the project interconnection and to identify the interconnection facilities including downstream facilities needed to support the reliable interconnection of the proposed Marsh Landing Generating Station (MLGS) project. The interconnection must comply with the Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, NERC/Western Electricity Coordinating Council (WECC) Planning Standards, and California Independent System Operator (California ISO) Planning Standards. In addition the California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment." For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, Energy Commission staff normally relies on the System Impact study (SIS) and Facilities study (FS) performed by interconnecting authority, California ISO or the interconnecting utility (in this case Pacific Gas & Electric, or PG&E). The California ISO's generator interconnection process is transitioning from a queue or serial study process to a cluster window process and this transition has caused significant delays in the interconnection studies for many projects. The Energy Commission made the decision to allow applicants to file "third party" or non-California ISO or utility studies during the California ISO's transition period in order to allow the Application for Certification process to continue throughout the California ISO's transition. The third party SIS must be sufficient for the Energy Commission to determine whether or not a proposed project interconnection would comply with reliability LORS and in order to identify any additional or downstream facilities that might be required to ensure compliance with CEQA. When the studies determine that the project will cause the transmission to violate reliability requirements the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification and construction of downstream transmission facilities. CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

BACKGROUND

The February, 2009 updated System Impact Study (SIS) summary report did not list all major study assumptions used in the 2013 summer peak base case. The SIS report also did not identify the reliability planning criteria utilized to determine reliability criteria violations.

DATA REQUESTS

64. Provide tables showing all major study assumptions used in the 2013 summer peak base case including major path flows (paths 66, 65, 26 & 15), Energy Commission certified generation projects (pending for construction), California ISO queue generation projects with the Large Generator Interconnection Procedures (LGIP) agreement (thermal and wind), and a few major PG&E generation projects and PG&E total system load.
65. For each analysis performed (power flow overloading and voltage criteria, short circuit, reactive power deficiency, post-transient voltage analysis), identify the reliability planning criteria used to determine reliable criteria violations.

BACKGROUND

In the February, 2009 updated SIS, the reactive power deficiency analysis was incomplete and the post-transient voltage analysis was not performed. The transient stability analysis report does not include necessary information for staff's analysis as follows:

a) Switching files (*.swt) for the contingencies studied showing name of the faulted bus, type of fault, and clearing time in cycles of the contingency;
b) Dynamic stability plot diagrams are too small and indistinct to be legible. Also the vertical axis scales of voltage, frequency and monitored quantities in a plot diagram are not adequately shown, thereby making it too hard to read and distinguish between several monitored quantities in a diagram.

In the February 2009 SIS report, the mitigation plan for resolving the new normal (N-0) and contingency (L-1, G-1) overloads identified on six transmission lines include alternatives for re-rating the existing line or reconductoring the line with a higher size conductor. But the mitigation plan does not include specifics and valid reasons for such alternatives.

All submitted hard copy power flow diagrams are not at all clear and legible.

DATA REQUESTS

66. A partial list of contingencies derived from the list of the contingencies studied in the transient stability analysis (Appendix 10 of the SIS, Attachment A) is attached herewith as Attachment I. For the contingencies listed in Attachment I, please submit the following for post-project transient stability analysis:

    a) Copies of switching file (*.swt) for each contingency simulation showing name of the faulted bus, type of fault and clearing time in cycles of the contingency; and,

    b) Larger and distinct, legible dynamic plot diagrams with adequately marked legends and vertical axis scales for the monitored quantities. Printing one per page and using symbols instead of colors will make these easier to read.

67. Provide the following analyses for the addition of the proposed Willow Pass Generating Station 550 MW power output by using the 2013 summer peak case:

    a) Adequate reactive power deficiency analysis with output of pre and post-project MVAR data at a few monitored buses (500 and 230 kV) for a few selected critical 230 and 500 kV category B & C critical contingencies. Provide the list of contingencies studied.

    b) Post-transient voltage analysis with governor power flow with pre and post-project voltages output monitored at a few critical buses (may be 2-4 buses) for a few selected critical single and double contingencies (may be the same contingencies used for transient stability study). Provide the list of contingencies.

    Provide the study results of each analysis in a table format with pre and post-project data. Provide a mitigation plan with valid reasons for any criteria violation.

68. The SIS identified new post-project overloads under normal (N-0) and/or contingency (Category B & C) system conditions on the following six transmission elements:

    i. Contra Costa-Brentwood 230 kV line.

    ii. Delta Pump-Windmaster 230 kV line.

    iii. Contra Costa-Windmaster 230 kV line.

    iv. Las Positas-Newark D 230 kV line.

    v. Cayetano-USWP-JRW 230 kV line.

    vi. Lonetree-USWP-JRW 230 kV line.

    For each of the identified overloaded lines, provide the following:

    a) Existing conductor size and type along the relevant wind speed for the current ratings shown.

    b) Provide valid reasons and any local evidences showing that the re-rating of these lines is feasible.

    c) Proposed new conductor size and type, and its current ratings (normal and emergency) with relevant wind speed.

    d) For reconductoring mitigation, provide an environmental analysis with a mitigation plan sufficient to meet CEQA standards for indirect project impacts.

69. Since the submitted power flow diagrams are not legible, provide clear and legible power flow diagrams (units in MW, percentage loading and per unit voltage) for the following (11x17 and in color should be sufficient):

    a) Diagrams for the pre and post-project 2013 summer peak study base cases.

    b) Pre and post-project diagrams for all identified new overloads or voltage criteria violations under normal system (N-0) or Category B & C contingency conditions.

    c) Diagrams for a few identified pre and post-project worst overloads exacerbated for the addition of the MLGS

    The MW flows, percentage loadings and bus voltages along with the bus names must be clearly legible.

Attachment I

Partial List Of Contingencies studied

B-101 N-1 TABLE MT-VACA-DIX 500kV LINE
B-102 N-1 TABLE MT-TESLA 500kV LINE
B-103 N-1 VACA-DIX-TESLA 500kV LINE
B-107 N-1 TESLA-METCALF 500kV LINE
B-108 N-1 TESLA-LOSBANOS 500kV LINE

B-132 N-1 CONTRA COSTA - MORAGA 230kV #1 LINE
B-134 N-1 C.COSTA - BRENTWOOD 230kV LINE
B-137 N-1 LONETREE-C.COSTA 230kV LINE
B-139 N-1 PITTSBURG - DEC PITTSBURG #1 230kV LINE
B-145 N-1 PITTSBURG - EAST SHORE 230kV LINE
B-146 N-1 PITTSBURG - TESLA C 230kV #1 LINE
B-148 N-1 PITTSBURG - SAN MATEO 230kV LINE
B-154 N-1 PITTSBURG - POTRERO D.C. LINE

B-403 T-1 VACA DIXION 500/230kV #11 XFMR BANK
B-404 T-1 VACA DIXION 500/230kV #12 XFMR BANK
B-405 T-1 TESLA 500/230kV #2 XFMR BANK

B-498 G-1 DEC PLANT
B-502 G-1 LMEC PLANT
B-511 G-1 CONTRA COSTA #6
B-513 G-1 PITTSBURG #5
B-515 G-1 PITTSBURG #7

B-996 G-1 WILLOW PASS GENERATING STATION

C-111 N-2 COCO - BIRDS LANDING & CONTRA COSTA SUB - BIRDS LANDING 230kV LINES
C-112 N-2 CONTRA COSTA SUB – COCO & BIRDS LANDING - CONTRA COSTA SUB 230kV LINES
C-113 N-2 C.COSTA - MORAGA 230kV #1 & #2 LINES
C-118 N-2 PITTSBURG - SANMATEO & PITTSBURG - EAST SHORE 230kV LINES
C-119 N-2 PITTSBURG - TESLA #1 & #2 230kV LINES

C-210 B-1 CONTRA COSTA SUB 230kV BUS SECTION 1 OUTAGE
C-211 B-1 CONTRA COSTA SUB 230kV BUS SECTION 2 OUTAGE
C-219 B-1 PITSBURG 230kV BUS SECTION 1 D OUTAGE
C-220 B-1 PITSBURG 230kV BUS SECTION 2 D OUTAGE
C-221 B-1 PITSBURG 230kV BUS SECTION 1 E OUTAGE
C-222 B-1 PITSBURG 230kV BUS SECTION 2 E OUTAGE