URS

DOCKET	
08-AFC-3	
DATE	MAY 21 2009
RECD.	MAY 21 2009

May 21, 2009

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814

RE: Marsh Landing Generating Station
Application for Certification 08-AFC-03

On behalf of Mirant Marsh Landing, LLC, the applicant for the Marsh Landing Generating Station (MLGS), we are pleased to submit the Responses to Data Request Set 2 (#60-69).

Please include this document in the AFC record.

URS Corporation

Anne Connell
Project Manager

Attachment

CC: Mike Monasmith

URS Corporation
221 Main Street, Suite 600
San Francisco, CA 94105-1917
Tel: 415.896.5858
Fax: 415.882.9261

Responses to Data Request Set 2: (#60–69)

Application for Certification (08-AFC-03) for MARSH LANDING GENERATING STATION Contra Costa County, California

May 2009

Prepared for:

MIRANT[SM]
MARSH LANDING, LLC

Prepared by:

URS

TABLE OF CONTENTS

RESPONSES TO DATA REQUESTS 60 THROUGH 69

BIOLOGICAL RESOURCES
60 THROUGH 63

TRANSMISSION SAFETY ENGINEERING
64 THROUGH 69

TABLES

Table 64-1 Major Bulk Path Flow Assumptions, 2013 Summer Peak Base Case
Table 64-2 Notable Generation Projects
Table 64-3 PG&E Area 30 Load
Table 65-1 WECC Disturbance-Performance Table of Allowable Effects on Other Systems
Table 67-1 Selected Results from Reactive Power Deficiency Analysis for Marsh Landing Generating Station
Table 68-1 Existing Contra Costa-Brentwood 230-kV Line Ratings
Table 68-2 Existing Contra Costa-Delta Pump 230-kV Line Ratings
Table 68-3 Existing Las Positas-Newark 230-kV Line Ratings
Table 68-4 Existing Lonetree-Cayetano-USWP-JRW 230-kV Line Ratings
Table 68-5 Re-Rated (to 4 fps) Las Positas-Newark 230-kV Line Ratings
Table 68-6 Re-Conductored Transmission Line Ratings
Table 68-7 Existing Lonetree-Cayetano-USWP-JRW 230-kV Line Ratings

FIGURES

Figure 65-1 NERC/WECC Voltage Performance Parameters

LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

AAC	all aluminum conductor
ACSR	aluminum conductor steel reinforced
ACSS	aluminum conductor steel supported
CAISO	California Independent System Operator
CCSF	City and County of San Francisco
CD	compact disk
CEC	California Energy Commission
fps	feet per second
kV	kilovolt
MLGS	Marsh Landing Generating Station
MVA	megavolt ampere
MVAR	megavolt-ampere reactive
MW	megawatt
NERC	North American Electric Reliability Council
PG&E	Pacific Gas & Electric Company
SIS	System Impact Study
WCA	worst case analysis
WECC	Western Electricity Coordinating Council

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 #2) 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.

RESPONSE TO DATA REQUESTS 60 THROUGH 63

As explained in Mirant Marsh Landing's notification to the California Energy Commission (CEC) submitted on May 14, 2009, additional time is needed to complete the requested documentation and modeling analyses related to nitrogen deposition. This work is in progress and should be complete no later than the middle of June.

Technical Area: Transmission System Engineering
Author: 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 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 REQUEST

64. Provide tables showing all major study assumptions used in the 2013 summer peak base case including major path flows (paths 66, 65, 26, and 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), a few major PG&E generation and PG&E total system load.

RESPONSE

Table 64-1 shows the major bulk path flow assumptions used in the 2013 summer peak base case for the Marsh Landing Generating Station (MLGS) analysis.

Table 64-1 Major Bulk Path Flow Assumptions 2013 Summer Peak Base Case		
Path	**MW**	**Direction**
Path 66 (California Oregon Intertie)	4,800	North to South
Path 15	470	North to South
Path 26	4,000	North to South
Path 65 (Pacific DC Intertie)	3,100	North to South
Note: MW = megawatt		

The CEC-certified generation projects (pending construction) were modeled and were included in the Updated System Impact Study (SIS) Report submitted on February 11, 2009 (Updated SIS Report). As directed by CEC Staff (Staff), the power flow case used in this analysis assumes that the full output of all licensed generators located in the Bay Area are available, with the exception of the Pacific Gas & Electric Company (PG&E) Tesla Plant, which was modeled at 578 megawatts (MW) (Phase I). Based on discussions with Staff prior to commencement of modeling, the power flow case used in the analysis does not model California Independent System Operator (CAISO) queue generation projects. A table describing the projects included in the modeling can be found in Appendix 2, Notable Generator Projects Modeled in Study (see page 15 in the Updated SIS Report) and is reproduced below as Table 64-2. Additional details regarding the entire PG&E generation pattern can also be found in Appendix 3, Detailed PG&E (Area 30) Power Flow Case Generation Information (see pages 16 through 24 in the Updated SIS Report).

Table 64-2 Notable Generation Projects	
Notable Generation Projects Modeled in Study	**MW**
Gateway Power Plant	530
Los Esteros Critical Energy Facility Phase II (Combined-Cycle interconnected to 230 kV by two step-up transformer banks)	140
Russell City Energy Center	600
PG&E Tesla Generation (Phase I)	578
Notable Generation Projects <u>Not</u> Modeled in Study	
CCSF Peakers (Instead all existing generation at Potrero was modeled at full-output on-line)	
CAISO Queue Generation Projects	
Notes: CCSF = City and County of San Francisco kV = kilovolt MW = megawatt PG&E = Pacific Gas & Electric Company	

The total assumed 2013 summer peak PG&E system load (or PG&E Area 30) modeled in the base case is shown on Table 64-3.

Table 64-3
PG&E Area 30 Load

Load Modeled in Study	MW
PG&E Area 30 Load	28,916

Note:
MW = megawatt

DATA REQUEST

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.

RESPONSE

The reliability planning criteria used to determine reliability criteria violations for each analysis performed are summarized below.

Steady State Power Flow Analysis

General Criteria for Identifying Overloads. The steady state power flow analysis conducted for the MLGS considered the magnitude and number of both normal and emergency overloads to determine the potential impacts to overall transmission grid performance. The CAISO Controlled Grid Reliability Criteria, which incorporate the Western Electricity Coordinating Council (WECC) System Performance Criteria and the North American Electric Reliability Corporation (NERC) Standards, were used to evaluate the impact of the project on the CAISO Controlled Grid.

Steady State – Normal Overloads. Normal overloads are those that exceed 100 percent of normal ratings. It should be noted that normal ratings are used when analyzing the transmission grid with all lines in service under N-0 conditions or rather a non-contingency scenario. The CAISO Controlled Grid Reliability Criteria require the loading of all transmission system facilities to be within their normal ratings. The specific criteria used to assess steady state thermal performance are from Table 1, Transmission System Standards – Normal and Emergency Conditions, in the NERC Standard TPL-001-0, System Performance Under Normal (No Contingency) Conditions (Category A).

Emergency Overloads CAISO Category B and C Classifications. Emergency overloads are those that exceed 100 percent of emergency ratings. The emergency ratings are used during single (CAISO Category B) and multiple (CAISO Category C) contingencies. The CAISO Controlled Grid Reliability Criteria require the loading of all transmission system facilities to be within their emergency ratings under contingency conditions. The specific criteria used to assess steady state thermal performance are from Table 1, Transmission System Standards – Normal and Emergency Conditions, in the NERC Standards TPL-002-0, System Performance Following Loss of a Single Bulk Electric System Element (Category B) and TPL-003-0, System Performance Following Loss of Two or More Bulk Electric System Elements (Category C).

The single (CAISO Category B) and selected multiple (CAISO Category C) contingencies evaluated in this study are listed in Appendix 5 of the Updated SIS Report. These contingencies include the following types of outages:

- CAISO Category B
  - All single generator outages within the Bay Area.
  - All single transmission circuit outages within the Bay Area. This includes 500-kilovolt (kV), 230-kV, 115-kV, and 60-kV circuits.
  - All single transformer outages within the Bay Area.
  - Selected worst case simultaneous combinations of a transmission line and generator (L-1 and G-1).

- CAISO Category C
  - Outages of double-circuit tower lines (115 and 230 kV) within the Bay Area.
  - Outages of worst case scenario bus and bus section outages located in the Bay area.

General Voltage Assessment Methodology. The CAISO methodology was used to detect and classify voltage criteria violations.

A standard power flow model is reviewed under normal and stressed conditions with the addition of the new resource. If the interconnection does not cause bus voltage deviations greater than 5 percent or cause bus voltages to violate applicable voltage criteria (e.g., to be below 0.95 per unit for normal conditions or for Category B contingencies or below 0.90 per unit for Category C contingencies), then the new interconnection resource is deemed to have no negative impact on voltage and reactive margin and the analysis ends without further study.

If the new interconnection resource directly causes a voltage violation (i.e., bus voltage deviations greater than 5 percent or bus voltages less than applicable voltage criteria), then and only then a post-transient analysis is conducted, modeling the same contingency(s) that resulted in the bus voltage violation(s). In addition, reactive margin is monitored at key buses located in and around the area of study to determine potential voltage and reactive margin issues and to determine potential mitigation, if required.

Short Circuit Analysis

Three-phase fault duty studies were performed to determine the impact of adding the MLGS to PG&E's transmission system. Due to a lack of available sequence impedance data, only 3-phase fault duties were calculated before and after the addition of the MLGS. No criteria were applied in this analysis due to the lack of equipment ratings and available short circuit model impedance data (negative and zero sequence). The study assessed whether the addition of the project increased or decreased the 3-phase fault duty at specified buses in and around the Bay Area.

Reactive Power Deficiency Analysis

A reactive power deficiency analysis was performed using the criteria and methodology approved by both the CAISO and WECC. The specific criteria used for the reactive power deficiency analysis was Requirement WRS3 in the WECC System Performance Criteria. This analysis used the standard 5 percent and 2.5 percent tests described in WRS3.

To study the reactive power deficiency for the 2013 base case analysis, one set of power flow cases models Bay Area loads increased by 5 percent while a second set models loads increased by 2.5 percent.

If power flow solutions are obtained for all post-project cases, the addition of the project does not create any reactive margin problems for the transmission system. If a power flow case with scaled load solves for a particular contingency, then there is at least 0 megavolt-ampere reactive (MVAR) of reactive margin at every bus and the case fully meets both the WECC and CAISO reactive margin criteria described in Requirement WRS3 of the WECC System Performance Criteria.

Transient Stability Analysis

A transient stability analysis primarily consists of determining if the system will remain stable following a disturbance. The primary checks performed during this analysis are for transient voltage deviation violations, transient frequency deviation violations, and machine angular stability (the system should not oscillate excessively and generators should remain synchronized with one another). These checks should be performed for credible “emergency” conditions that the system might experience, such as the loss of a single or double circuit line, a transformer, or a combination of these facilities. Transient performance of the transmission system is measured against the WECC System Performance Criteria.

Table 65-1 and Figure 65-1 are excerpted from the WECC System Performance Criteria and comprise the transient stability criteria used in the analysis for MLGS.

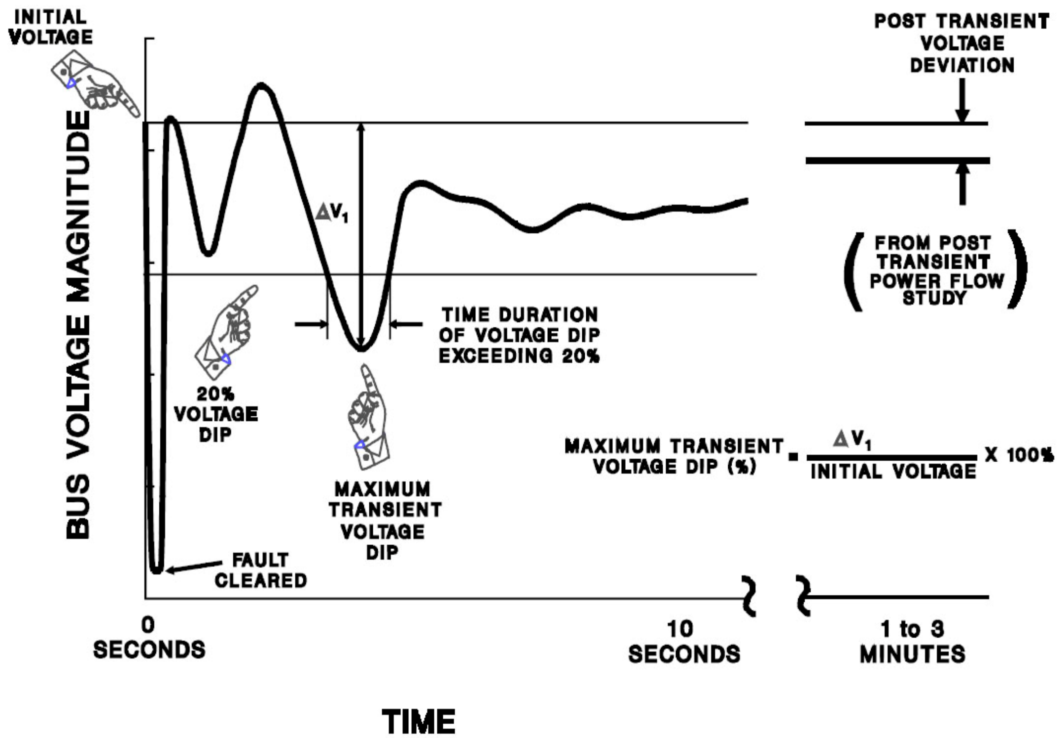
Table 65-1
WECC Disturbance-Performance Table of Allowable Effects on Other Systems

NERC and WECC Categories	Outage Frequency Associated with the Performance Category (outage/year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post Transient Voltage Deviation Standard[2]
A	Not Applicable	Nothing in addition to NERC		
B	≥ 0.33	Not to exceed 25% at load buses or 30% at non-load buses. Not to exceed 20% for more than 20 cycles at load buses.	Not below 59.6 Hz for 6 cycles or more at a load bus.	Not to exceed 5% at any bus.
C	0.033 – 0.33	Not to exceed 30% at any bus. Not to exceed 20% for more than 40 cycles at load buses.	Not below 59.0 Hz for 6 cycles or more at a load bus.	Not to exceed 10% at any bus.
D	<0.033	Nothing in addition to NERC		

Source: This table is from the WECC System Performance Criteria document approved by the Planning Coordination Committee at its March 6-7, 2008 meeting. Approved by the Board of Directors at its meeting of April 16 through 18, 2008.

Notes:
1. The WECC Disturbance-Performance Table applies equally to either a system with all elements in service, or a system with one element removed and the system adjusted.
2. As an example in applying the WECC Disturbance-Performance Table, a Category B disturbance in one system shall not cause a transient voltage dip in another system that is greater than 20% for more than 20 cycles at load buses, or exceed 25% at load buses or 30% at non-load buses at any time other than during the fault.
3. If it can be demonstrated that post transient voltage deviations that are less than the values in the table will result in voltage instability, the system in which the disturbance originated and the affected system(s) should cooperate in mutually resolving the problem.
4. Refer to Figure 65-1 for voltage performance parameters.
5. Load buses include generating unit auxiliary loads.
6. To reach the frequency categories shown in the WECC Disturbance-Performance Table for Category C disturbances, some planned and controlled islanding may occur. Under-frequency load shedding is expected to arrest this frequency decline and assure continued operation within the resulting islands.
7. For simulation test cases, the interconnected transmission system steady state loading conditions prior to a disturbance shall be appropriate to the case. Disturbances shall be simulated at locations on the system that result in maximum stress on other systems. Relay action, fault clearing time, and re-closing practice shall be represented in simulations according to the planning and operation of the actual or planned systems. When simulating post transient conditions, actions are limited to automatic devices and no manual action is to be assumed.

Figure 65-1
NERC/WECC Voltage Performance Parameters



Source: Illustration taken from the WECC System Performance Criteria document approved by the Planning Coordination Committee at its meeting of March 6 and 7, 2008. Approved by the Board of Directors at its meeting of April 16 through 18, 2008.

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, 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 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 REQUEST

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.

ATTACHMENT I
PARTIAL LIST OF CONTINGENCIES STUDIED

B-101 N-1 TABLE MT-VACA-DIX 500 kV LINE
B-102 N-1 TABLE MT-TESLA 500 kV LINE
B-103 N-1 VACA-DIX-TESLA 500 kV LINE
B-107 N-1 TESLA-METCALF 500 kV LINE
B-108 N-1 TESLA-LOSBANOS 500 kV LINE
B-132 N-1 CONTRA COSTA – MORAGA 230 kV #1 LINE
B-134 N-1 C.COSTA – BRENTWOOD 230 kV LINE
B-137 N-1 LONETREE-C.COSTA 230 kV LINE
B-139 N-1 PITTSBURG – DEC PITTSBURG #1 230 kV LINE
B-145 N-1 PITTSBURG – EAST SHORE 230 kV LINE
B-146 N-1 PITTSBURG – TESLA C 230 kV #1 LINE
B-148 N-1 PITTSBURG – SAN MATEO 230 kV LINE
B-154 N-1 PITTSBURG – POTRERO D.C. LINE

B-403 T-1 VACA DIXION 500/230 kV #11 XFMR BANK
B-404 T-1 VACA DIXION 500/230 kV #12 XFMR BANK
B-405 T-1 TESLA 500/230 kV #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 230 kV LINES
C-112 N-2 CONTRA COSTA SUB – COCO & BIRDS LANDING – CONTRA COSTA SUB 230 kV LINES
C-113 N-2 C.COSTA – MORAGA 230 kV #1 & #2 LINES
C-118 N-2 PITTSBURG – SANMATEO & PITTSBURG – EAST SHORE 230 kV LINES
C-119 N-2 PITTSBURG – TESLA #1 & #2 230 kV LINES
C-210 B-1 CONTRA COSTA SUB 230 kV BUS SECTION 1 OUTAGE
C-211 B-1 CONTRA COSTA SUB 230 kV BUS SECTION 2 OUTAGE
C-219 B-1 PITSBURG 230 kV BUS SECTION 1 D OUTAGE
C-220 B-1 PITSBURG 230 kV BUS SECTION 2 D OUTAGE
C-221 B-1 PITSBURG 230 kV BUS SECTION 1 E OUTAGE
C-222 B-1 PITSBURG 230 kV BUS SECTION 2 E OUTAGE

RESPONSE

A. Copies of the switching files were submitted to CEC Staff on April 29, 2009.

B. The stability plots were provided for the purpose of reviewing the wave forms of the various parameters being presented. These plots were not intended to be used to determine minimum values or to determine if criteria violations occurred. As part of this analysis, a complete worst case analysis (WCA) was performed on each transient simulation. The WCA checked each bus in the model for voltage and frequency violations. No criteria violations were identified during the WCA analysis. The graphs show that all transient oscillations are damped, typically damping to insignificance within 5 or 10 seconds.

Appendix 10 of the Updated SIS Report was submitted to CEC on March 4, 2009, and included approximately 1,250 pages of transient stability graphs. While the plots are small and the scales can be difficult to discern if looking at the paper copies, scalable electronic copies were provided on compact disk (CD) that show the plots in color and can be enlarged on a computer monitor to be legible. For each contingency, there are 5 or 6 pages (for pre- and post-project, respectively) with six graphs plotted on each page. Each graph displays six parameter responses. The legend for each graph is shown immediately below the graph. The Y-axis scale for each parameter is different. In the legend, the values in the far left column are the Y-minimum and the values in the far right column are the Y-maximum values. The X-axis for all graphs is the same (0 to 20 seconds).

To assist Staff with its review, Mirant has provided a set of selected graphs from Appendix 10 of the Updated SIS Report, printed in color on large format paper for the contingencies listed in Data Request 66, Attachment I. This set of graphs was provided to CEC on May 20, 2009.

DATA REQUEST

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.

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

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.

RESPONSE

We are assuming that Staff is referencing the MLGS project and not the Willow Pass Generating Station project. The MLGS will be a 930-MW plant, not a 550-MW plant.

A. A thorough reactive deficiency analysis was performed and was submitted to the CEC as Appendix 9 to the Updated SIS Report. The criteria and methodology used for the analysis are described in the response to Data Request 65. A comprehensive set of Category B and C contingencies was modeled with and without the MLGS interconnection; the list of contingencies can be found in Appendix 4 in the Updated SIS Report. A power flow solution was obtained for all cases under study, both with and without the project. Because solutions were found for all post-project cases, the addition of the MLGS does not create any reactive margin problems for the transmission system.

As explained in the response to Data Request 65, if a power flow case with scaled load solves for a particular contingency, then there is at least 0 MVAR of reactive margin at every bus; otherwise, the case would not solve. Because the load in all of these cases was scaled to either 5 percent or 2.5 percent beyond the maximum planned load for the study year, all of these cases have sufficient margin and fully meet both the WECC and CAISO reactive margin criteria. As such, it is therefore unnecessary to perform additional reactive margin analysis or to develop Q/V or P/V curves.

Because the reactive deficiency analysis showed no problems in obtaining a solution for any contingency, a full post-transient reactive margin analysis is not justified based on CAISO or WECC policies or laws, ordinances, regulations, and standards.

Table 67-1 summarizes the results of the reactive power deficiency analysis for selected Category B and C contingencies corresponding to those listed in Data Request 66, Attachment I. Results for both pre- and post-project conditions are shown. Complete study results for all contingencies for both pre- and post-project conditions have been provided in tabular format in Appendix 9 of the Updated SIS Report. No criteria violations were identified in this analysis; therefore, no mitigation plan is required.

B. Based on the results of the power flow contingency analyses and the reactive deficiency analyses already performed, the post-transient voltage analysis is unnecessary for the following reasons:

- The current CAISO policy uses a phased approach in evaluating the effects a new resource interconnection might have on voltage and reactive margin. The MLGS power flow analysis presented in the Updated SIS Report did not reveal any bus voltage concerns, as indicated by the results of the power flow study (Appendix 6, Detailed Results of 2013 Summer Peak Power Flow Studies) and the reactive deficiency analysis (Appendix 9, Results of Reactive Power Deficiency Analysis), thereby obviating the need for additional voltage analysis under CAISO policy.

- The MLGS adds +696 MVARs of dynamic reactive MVAR boosting capability, while adding -348 MVARs of bucking capability. This additional dynamic reactive capability is significant, and it will ultimately provide the CAISO better control of both peak and off-peak Bay Area voltages.

- A review of per unit voltages, both pre- and post-contingency and both pre- and post-project, was performed while post-processing the power flow results. Detailed information regarding voltages can be found in Appendix 6 of the Updated SIS Report, under the per unit voltage results section. The power flow studies of Category B and C contingencies indicate that the project does not cause any new voltage deviations of 5 percent or more. Furthermore, the addition of the project does not worsen the performance of any pre-project contingencies where the voltage deviation already exceeds 5 percent. Moreover, the addition of the MLGS project does not cause bus voltages to be below 0.95 per unit for Category B outages, nor does the project cause voltages to be below 0.90 per unit for Category C outages. Therefore, these studies show that the addition of the MLGS does not cause any of the relevant CAISO thresholds to be exceeded, thereby obviating the need to perform additional margin tests.

Table 67-1
Selected Results from Reactive Power Deficiency Analysis for Marsh Landing Generating Station

Category B Contingency[1]		Pre-Project Base Case					Post-Project Base Case				
		Solution	P Swing[3]	Bus MISM	Mismatch	Unit MISM	Solution	P Swing[3]	Bus MISM	Mismatch	Unit MISM
N-1	TABLE MT-VACA-DIX 500-kV LINE	Solved	999.0	SAGUARO	-0.1	MVAR	Solved	797.5	MAPLE VL	0.1	MVAR
N-1	TABLE MT-TESLA 500kV LINE	Solved	985.8	SYLMAR1	-0.3	MW	Solved	792.8	SYLMAR2	0.3	MW
N-1	VACA-DIX-TESLA 500-kV LINE	Solved	999.5	C.COSTA	0.2	MVAR	Solved	802.9	BENFRNCH	-0.1	MVAR
N-1	TESLA-METCALF 500-kV LINE	Solved	950.9	LENZIE	0.1	MVAR	Solved	759.8	HASSYAMP	-0.1	MVAR
N-1	TESLA-LOSBANOS 500-kV LINE	Solved	918.2	SYLMAR1	-0.3	MW	Solved	729.4	CLARK E	0.1	MVAR
N-1	CONTRA COSTA - MORAGA 230-kV #1 LINE	Solved	920.1	ROCKYRH1	-0.1	MVAR	Solved	730.3	C.COSTA	-0.1	MVAR
N-1	C.COSTA - BRENTWOOD 230-kV LINE	Solved	918.7	ROCKYRH2	0.1	MVAR	Solved	731.8	C.COSTA	0.1	MW
N-1	LONETREE-C.COSTA 230-kV LINE	Solved	930.1	SYLMAR2	0.3	MW	Solved	742.3	PAUL	0.1	MVAR
N-1	PITTSBURG - DEC PITTSBURG #1 230-kV LINE	Solved	915.9	CLARK E	0.1	MVAR	Solved	719.9	C.COSTA	-0.1	MVAR
N-1	PITTSBURG - EAST SHORE 230-kV LINE	Solved	916.2	MAPLE VL	0.2	MVAR	Solved	720.6	BOUNDARY	-0.1	MVAR
N-1	PITTSBURG - TESLA C 230-kV #1 LINE	Solved	915.5	SNOH S3	-0.1	MVAR	Solved	720.0	MARKETPL	0.1	MVAR
N-1	PITTSBURG - SAN MATEO 230-kV LINE	Solved	921.9	MCNRY S2	-0.1	MVAR	Solved	726.5	BRT360	0.1	MVAR
N-1	PITTSBURG - POTRERO D.C. LINE	Solved	929.2	SYLMAR1	-0.3	MW	Solved	732.9	BOUNDARY	-0.1	MVAR
T-1	VACA DIXION 500/230-kV #11 XFMR BANK	Solved	913.2	MAPLE VL	0.1	MVAR	Solved	717.5	CLARK E	0.2	MVAR
T-1	VACA DIXION 500/230-kV #12 XFMR BANK	Solved	913.2	HASSYAMP	0.1	MVAR	Solved	717.4	MAPLE VL	-0.1	MVAR
T-1	TESLA 500/230-kV #2 XFMR BANK	Solved	923.4	MAPLE VL	-0.1	MVAR	Solved	725.1	TROJAN	-0.1	MVAR
G-1	DEC PLANT	Solved	1810.2	HASSYAMP	-0.1	MVAR	Solved	1588.9	C.COSTA	0.1	MVAR
G-1	LMEC PLANT	Solved	1412.3	C.COSTA	-0.1	MVAR	Solved	1205.0	ANTELOPE	-0.1	MVAR
G-1	CONTRA COSTA #6	Solved	1233.3	BOUNDARY	0.2	MVAR	Solved	1022.0	SYLMAR2	0.3	MW

Table 67-1
Selected Results from Reactive Power Deficiency Analysis for Marsh Landing Generating Station

Category B Contingency[1]		Pre-Project Base Case					Post-Project Base Case				
		Solution	P Swing[3]	Bus MISM	Mismatch	Unit MISM	Solution	P Swing[3]	Bus MISM	Mismatch	Unit MISM
G-1	PITTSBURG #5	Solved	1235.9	BOUNDARY	0.2	MVAR	Solved	1031.0	LENZIE	-0.2	MVAR
G-1	PITTSBURG #7	Solved	1628.5	BOUNDARY	-0.1	MVAR	Solved	1414.1	COULEES2	-0.1	MVAR
Category C Contingency [2]											
N-2	COCO - BIRDS LANDING & CONTRA COSTA SUB - BIRDS LANDING 230-kV LINES	Solved	697.8	HASSYAMP	0.2	MVAR	Solved	496.1	RIVRGT A	-0.1	MVAR
N-2	CONTRA COSTA SUB – COCO & BIRDS LANDING - CONTRA COSTA SUB 230-kV LINES	Solved	553.9	MAPLE VL	0.1	MVAR	Solved	368.0	MCNRY S2	-0.1	MVAR
N-2	C.COSTA - MORAGA 230-kV #1 & #2 LINES	Solved	627.0	HASSYAMP	0.1	MVAR	Solved	458.3	SYLMAR1	0.3	MW
N-2	PITTSBURG - SANMATEO & PITTSBURG - EAST SHORE 230-kV LINES	Solved	691.6	MCNRY S2	-0.1	MVAR	Solved	502.3	BENFRNCH	0.1	MVAR
N-2	PITTSBURG - TESLA #1 & #2 230-kV LINES	Solved	681.6	EFM132	0.1	MVAR	Solved	492.7	BOUNDARY	-0.1	MVAR
B-1	CONTRA COSTA SUB 230-kV BUS SECTION 1 OUTAGE	Solved	624.4	HASSYAMP	-0.1	MVAR	Solved	434.9	C.COSTA	-0.2	MVAR
B-1	CONTRA COSTA SUB 230-kV BUS SECTION 2 OUTAGE	Solved	610.8	HASSYAMP	-0.1	MVAR	Solved	422.6	BIGEDDY2	0.1	MVAR
B-1	PITSBURG 230-kV BUS SECTION 1 D OUTAGE	Solved	689.7	LENZIE	-0.1	MVAR	Solved	500.0	BOUNDARY	-0.1	MVAR
B-1	PITSBURG 230-kV BUS SECTION 2 D OUTAGE	Solved	687.9	PAUL	-0.1	MVAR	Solved	495.7	BENFRNCH	-0.1	MVAR
B-1	PITSBURG 230-kV BUS SECTIO N 1 E OUTAGE	Solved	1364.0	CORDEL4	0.1	MVAR	Solved	1157.9	SYLMAR2	-0.3	MW
B-1	PITSBURG 230-kV BUS SECTION 2 E OUTAGE	Solved	1309.6	BRT360	-0.1	MVAR	Solved	1103.7	LENZIE	0.1	MVAR

Notes:
1. The Category B Contingencies shown on this table are the same as those listed in DR 66, Attachment I. See Appendix 9 in the Updated SIS Report for results of all Category B Contingencies analyzed. For Category B Contingencies, Bay Area case load is scaled up by 5 percent.
2. The Category C Contingencies shown on this table are the same as those listed in DR 66, Attachment I. See Appendix 9 in the Updated SIS Report for results of all Category C Contingencies analyzed. For Category C Contingencies, Bay Area case load is scaled up by 2.5 percent.
3. P Swing is the actual generation level at the system swing bus, which in this study is Ormond in the SCE Balancing Authority Area.

DATA REQUEST

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.

RESPONSE

A. Mirant Marsh Landing's notice to the CEC submitted on May 14, 2009 explained that subparts (a) through (c) of Data Request 68 seek information regarding existing transmission lines that must be obtained from PG&E. The notice stated that additional time beyond the usual 30-day response period likely would be needed to obtain the requisite information from PG&E, and to review and analyze it and prepare responses. Mirant Marsh Landing received the necessary information from PG&E's Transmission Planning Department more quickly than originally expected, and was able to prepare responses in time to be included in this submission. Below are complete responses to subparts (a) through (c).

PG&E's Transmission Planning Department has provided information regarding the existing conductor size and type along with the relevant wind speed for the existing line ratings. Table 68-1 summarizes the information for the Contra Costa–Brentwood 230-kV line; Table 68-2 summarizes the information for the Delta-Pump–Windmaster and Contra Costa–Windmaster 230-kV lines; Table 68-3 summarizes the information for the Las Positas–Newark 230-kV line; and Table 68-4 summarizes the information for the Cayetano–USWP–JRW and Lonetree–USWP–JRW 230-kV lines. The information in each table is listed serially per line section with the most limiting rating for the transmission line highlighted in bold. The most limiting ratings ultimately dictate the overall line limit given that the line sections are connected serially.

Table 68-1
Existing Contra Costa-Brentwood 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	1,113 AAC	4 fps	397.57	462.51	998	1,161	512.7	548.95	1,287	1,378
2	954 ACSR	4 fps	396.78	449.76	996	1,129	488	518.28	1,225	1,301
	230-kV Disconnect Switch		328.65	419.47	**825**	**1,053**	478.03	478.03	1,200	1,200

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSR = aluminum conductor steel reinforced
fps = feet per second
MVA = megavolt ampere

Table 68-2
Existing Contra Costa-Delta Pump 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	1,113 AAC	4 fps	397.57	462.51	998	1,161	512.7	548.95	1,287	1,378
2	954 ACSR	4 fps	396.78	449.76	996	1,129	488	518.28	1,225	1,301
	230-kV Disconnect Switch		328.65	419.47	**825**	**1,053**	478.03	478.03	1,200	1,200

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSR = aluminum conductor steel reinforced
fps = feet per second
MVA = megavolt ampere

Table 68-3
Existing Las Positas-Newark 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	1,113 AAC	2 fps	328.65	388.41	825	975	512.7	548.95	1,287	1,378
2	795 ACSR	2 fps	295.59	338.61	**742**	**850**	433.82	460.51	1,089	1,156

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSR = aluminum conductor steel reinforced
fps = feet per second
MVA = megavolt ampere

Table 68-4
Existing Lonetree-Cayetano-USWP-JRW 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	954 ACSS	2 fps	682.8	682.8	1,714	1,714	746.55	746.55	1,874	1,874
2	1,113 AAC	4 fps	397.57	462.51	998	1,161	512.7	548.95	1,287	1,378
3	795 ACSR	4 fps	352.95	399.95	**886**	**1,004**	399.95	399.95	1,004	1,004
4	Under Ground 230-kV Cable		399.95	399.95	1,004	1,004	399.95	399.95	1,004	1,004

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSS = aluminum conductor steel supported
ACSR = aluminum conductor steel reinforced
fps = feet per second
MVA = megavolt ampere

B. PG&E has indicated that the Contra Costa-Brentwood 230-kV line, the Delta-Pump-Windmaster 230-kV line, and the Contra Costa-Windmaster 230-kV line are already re-rated with an assumed wind speed of 4 feet per second (fps). Since PG&E does not allow wind speeds greater than 4 fps, these lines cannot be re-rated further.

The Las Positas-Newark 230-kV Line (795 ACSR conductor section) and the Lone Tree-Cayetano 230-kV Line (954 aluminum conductor steel supported [ACSS] conductor section) have not been previously re-rated. It may be feasible to re-rate the Las Positas-Newark 230-kV line. As shown on Table 68-3, the 795 ACSR conductor section has a wind rating of 2 fps. PG&E has indicated that lines with a 2 fps wind speed rating could potentially be re-rated to a 4 fps wind speed rating.

Table 68-5 shows the Las Positas-Newark 230-kV Line characteristics after a 4 fps wind speed re-rate.

Table 68-5
Re-Rated (to 4 fps) Las Positas-Newark 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	1,113 AAC	4 fps	397.57	462.51	998	1,161	512.7	548.95	1,287	1,378
2	795 ACSR	4 fps	352.95	399.95	**886**	**1,004**	399.95	399.95	1,004	1,004

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSR = aluminum conductor steel reinforced
fps = feet per second
MVA = megavolt ampere

The sections of the Cayetano-USWP-JRW and Lonetree-USWP-JRW 230-kV lines that are most limiting are either already at a 4 fps wind speed rating or are underground. Therefore the re-rating of the Lone-Tree-Cayetano 230-kV line is likely infeasible.

Please note that the analysis provided in this response is based on information provided from PG&E's Transmission Planning Department. Actual feasibility of line-rerating or line re-conductoring is dependent upon a thorough PG&E analysis.

C. PG&E indicates that newly reconductored 230-kV facilities in the area have used 954 ACSS conductor. Table 68-6 shows proposed ratings for lines re-conductored with 954 ACSS. All termination equipment would be sized accordingly. In addition, tower reinforcements may be needed for the larger conductor size to maintain ground clearances.

Table 68-6
Re-Conductored Transmission Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	954 ACSS	2 fps	682.8	682.8	1,714	1,714	746.55	746.55	1,874	1,874

Note:
ACSS = aluminum conductor steel supported
fps = feet per second
MVA = megavolt ampere

The limiting aboveground sections of the Cayetano-USWP-JRW and Lonetree-USWP-JRW 230-kV lines that cannot be re-rated would be re-conductored. Upgrades would be necessary for the limiting underground cable section of the Cayetano-USWP-JRW and Lonetree-USWP-JRW 230-kV lines. The characteristics of the re-conductored and upgraded Cayetano-USWP-JRW and Lonetree-USWP-JRW 230-kV lines would be expected to be similar to the information provided in Table 68-7.

Table 68-7
Existing Lonetree-Cayetano-USWP-JRW 230-kV Line Ratings

Line Section	Conductor Type and Size or Other serial Limitations	Rated Wind Speed	Summer Ratings				Winter Ratings			
			MVA Normal	MVA Emergency	Amps Normal	Amps Emergency	MVA Normal	MVA Emergency	Amps Normal	Amps Emergency
1	954 ACSS	2 fps	682.8	682.8	1,714	1,714	746.55	746.55	1,874	1,874
2	1,113 AAC	4 fps	397.57	462.51	**998**	**1,161**	512.7	548.95	1,287	1,378
3	954 ACSS	2 fps	682.8	682.8	1714	1,714	746.55	746.55	1,874	1,874
4	Under Ground 230-kV Cable		800	800	2,008	2,008	800	800	2,008	2,008

Notes:
Most Limiting Serial Summer Rating in Bold Font
AAC = all aluminum conductor
ACSS = aluminum conductor steel supported
fps = feet per second
MVA = megavolt ampere

D. The requested analysis was previously provided. A preliminary general environmental analysis was submitted to the CEC on December 12, 2008, in response to Data Request 39(b) (Responses to Data Requests Set 1,

Appendix D). The analysis assumed that all of the identified overloaded transmission lines would be re-conductored. As discussed above in the responses to Data Requests 67(b) and 67(c), sections of the overloaded lines may be re-rated or upgraded rather than re-conductored.

DATA REQUEST

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 <u>identified new overloads</u> or voltage criteria violations under normal system (N-0) or Category B & C contingency conditions.

C. Diagrams <u>for a few</u> identified <u>pre and post-project worst overloads</u> exacerbated for the addition of the MLGS

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

RESPONSE

In an effort to conserve paper, all of the 2,068 diagrams in Appendix 8 of the Updated SIS Report were provided in a scalable, color, electronic format to the CEC on CD in February 2009. However, a set of selected diagrams from Appendix 8 were printed in color on large-format paper as requested and were provided to Staff on May 20, 2009.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE MARSH LANDING GENERATING STATION

DOCKET NO. 08-AFC-3

PROOF OF SERVICE
(REVISED 2/26/2009)

APPLICANT

Chuck Hicklin, Project Manager
Mirant Corporation
P.O. Box 192
Pittsburg, CA 94565
E-mail preferred
chuck.hicklin@mirant.com

Jonathan Sacks, Project Director
Steven Nickerson
Mirant Corporation
1155 Perimeter Center West
Atlanta, GA, 30338
E-mail preferred
jon.sacks@mirant.com
steve.nickerson@mirant.com

CONSULTANTS

Anne Connell
Dale Shileikis
URS Corporation
221 Main Street, Suite 600
San Francisco, CA 94105-1917
E-mail preferred
Anne_Connell@URSCorp.com
Dale_shileikis@URSCorp.com

COUNSEL FOR APPLICANT

***Karleen O'Connor**
Lisa Cottle
Winston & Strawn LLP
101 California Street
San Francisco, CA 94111-5802
E-mail preferred
koconnor@winston.com
lcottle@winston.com

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

INTERVENORS

California Unions for Reliable Energy ("CURE")
Gloria D. Smith & Marc D. Joseph
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, California 94080
gsmith@adamsbroadwell.com
mdjoseph@adamsbroadwell.com

ENERGY COMMISSION

***JAMES D. BOYD**
Vice Chair & Presiding Member
jboyd@energy.state.ca.us

***KAREN DOUGLAS**
Chair & Associate Member
kldougla@energy.state.ca.us

Paul Kramer
Hearing Officer
pkramer@energy.state.ca.us

Mike Monasmith
Project Manager
mmonasmi@energy.state.ca.us

Dick Ratliff
Staff Counsel
dratliff@energy.state.ca.us

Elena Miller
Public Adviser
publicadviser@energy.state.ca.us

* indicates change

DECLARATION OF SERVICE

I, _Catherine Short, declare that on May 21, 2009, I served and filed copies of the attached _Responses to Data Requests Set 2 (#60-69). The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/marshlanding/index.html]. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(C*heck all that Apply*)

For service to all other parties:

__X__ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at San Francisco, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

_X___ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 08-AFC-3
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

C Short

____